

A CRITICAL APPRAISAL OF PETROLEUM
DISTRIBUTION POLICY OF NNPC
A STUDY OF KADUNA SALES AREA

BY

VINCENT N. O. AGHARA
AUGUST, 1985

<u>TABLE OF CONTENTS</u>	<u>PAGE</u>
Title Page	1
Declaration	ii
Certification	iii
Dedication	iv
Acknowledgement	v
 <u>CHAPTER</u>	
1. INTRODUCTION	1
Historical Development of Nigeria's Oil Industry.	1
History of the NNPC	3
History of Marketing of Petroleum Products.	5
Statement of the Problem	7
Methodology	9
Significant of the Study	10
Limitations of the Study	11
Definition of Terms	12
2. REVIEW OF RELATED LITERATURE	14
3. PETROLEUM PRODUCTS DISTRIBUTION IN KADUNA SALES AREA	21
Distribution before the Establishment of NNPC Depots and Pipeline System	22
Pipeline and Depot Facilities	24
Distribution After the Establishment of NNPC Depots and Pipeline System	26
Analysis Data	52
4. RECOMMENDATIONS AND CONCLUSION	55
NOTES	58
BIBLIOGRAPHY	59

(1)

T I T L E * * * * * P A G E

A CRITICAL APPRAISAL OF PETROLEUM DISTRIBUTION
POLICY OF NNPC
A STUDY OF KADUNA SALES AREA.

SUBMITTED IN PARTIAL FULFILMENT OF THE
REQUIREMENTS FOR THE AWARD OF THE DEGREE
OF MASTER OF BUSINESS ADMINISTRATION, OF
THE INSTITUTE OF ADMINISTRATION,
AHMADU BELLO UNIVERSITY, ZARIA.

B Y

V I N C E N T N . O . A G H A R A

A U G U S T , 1 9 8 5 .

D E C L A R A T I O N

I hereby declare that this project has been written by me and that no other similar work has been done before or was being done at the time this research was conducted. That all information not original to this research have been duly acknowledged in my list of references.

NAME OF STUDENT: AGHARA V.N.O

SIGNATURE OF STUDENT: 

CERTIFICATION

(iii)

CERTIFICATION

=====

This Project entitled, "A CRITICAL APPRAISAL OF PETROLEUM DISTRIBUTION POLICY OF THE NNPC. STUDY OF KADUNA SALES AREA" by V. N. O. AGHARA meets the regulations governing the Degree of Master of Business Administration of Ahmadu Bello University, Zaria and is approved for its contribution to business knowledge.

Name And Signature of Supervisor

Date

Name And Signature of
External Examiner

Date

Name And Signature of Dean Of
Post Graduate School.

Date

D E D I C A T I O N

To My Parents.

ACKNOWLEDGEMENT

The author will first of all thank Dr. Uka Ezenwe for his efforts and encouragements in getting me started with MBA Programme.

Special thanks will also go to Mr. V. Janakiraman for putting the project in the right course and equally sacrificing his week-end to go through the Scripts.

The following NNEC staff are also thanked for all the assistance they provided. They include, Alhajis Paki and Gwarzo and Mr. T.G. Ibrahim. Also to be mentioned are the following staff of Mobil Oil Nigeria Limited, J.A. Atayero, C.N. Anyaso, P.I. Ayokhai, E. Abiodun and D. Akapa for their individual contributions towards the successful completion of this project.

I must also mention the following friends in Zaria, George Ezeifeke, Uche Ogubie, Austin Ezealor, Chinwe Okonkwo and all the staff of Mobil Oil Nigeria Limited Depot, Zaria for their encouragements.

I am also indebted to Frank Uzondū for helping to proof-read the final Script.

CHAPTER 1

INTRODUCTION:

Although Nigeria has had incursion into the Oil Industry for over seventy years, it is only in the last twenty-five years that this industry attained the dominant position of the bread winner for Nigeria. The investment in the industry increased considerably to match the volume of exports and foreign exchange earnings of the government. It changed Nigeria in the last decade from an Aid-seeking country to one that relies on its financial resources and in fact able to grant aid to less fortunate neighbours. It increased the status of Nigeria in the comity of Nations.

1.1 THE HISTORICAL DEVELOPMENT OF NIGERIA'S OIL INDUSTRY

The first indication that Nigeria might be rich in petroleum was early this century, when oil seepages were seen at Aroromi in the present Ondo State. Encouraged by this occurrence, a German Company, the Nigerian Bitumen Corporation started exploration in that area in 1908 in the very first attempt to search for hydrocarbons in Nigeria. Unfortunately, this pioneering effort did not last long and the company terminated its operations at the outbreak of the first world war in 1914.

Two decades passed before another major exploration effort was embarked upon. An Anglo-Dutch consortium, came to Nigeria as Shell D'Arch (the forerunner of the present Shell Petroleum Development Company of Nigeria) to start exploration activities in 1937 after being awarded the sole concession rights covering the

whole territory of Nigeria. Shell D'Arch's activities were interrupted by the second World War and exploration did not resume until 1947. After many years of searching, and an investment of equivalent of over N30million, a commercial discovery of petroleum was recorded at Oloibiri in the Niger Delta in 1956. In 1958, Shell started oil production and export from the Oloibiri field in the present Rivers state at a rate of 5,100 barrels per day. This quantity doubled the following year, and crude oil production in Nigeria attained its all time peak in January, 1979 at the rate of 2.44million barrels per day.

In 1959, the sole concession rights over the whole country granted to shell was reviewed and exclusive exploration rights were extended to companies of other nationalities in line with the policy of increasing the pace of exploration while at the same time ensuring that the country was not too dependent on one company or nation.

The successes of Shell encouraged other companies to join in the exploration, and by 1961, Mobil, Gulf, Agip, Safrap (now Elf), Tenneco and Amoseas (now Texaco/Chevron) had joined the explorers, for oil in the onshore and offshore areas of Nigeria. The first offshore discovery of petroleum was made by Gulf on the Okan structure of Benue State in 1964, and many of the new comers also made significant discoveries.

All crude oil produced was initially wholly exported unrefined while our needs for petroleum products were satisfied through importation. In 1965, a refinery with a processing capacity of 35,000 barrels per day was commissioned in Port-Harcourt. The supply of white petroleum products from this refinery was enough to meet domestic demand and the excess fuel oil was exported.

END

After the civil war, the installed processing capacity was increased to 60,000 barrels per day to meet increasing local demand. It was not until the late 70's that additional refining capacity was installed with Warri Refinery in 1978 and Kaduna Refinery in 1980. It was envisaged that the fourth refinery would be commissioned during the Fourth National Development Plan Period 1981 - 85.

The Warri and Kaduna Refineries, have capacities for 100,000 barrels per day each. Product refined include a variety of petroleum products such as LPG, Petrol, Kerosine, Gas Oil and Fuel Oil. However, Kaduna Refinery, is also designed to produce Lubricating Oils. The Lubricating Oil complex of the refinery, one of the biggest in Africa, is designed to use imported paraffin - based crude oils which can only be imported.

HISTORY OF THE NIGERIAN NATIONAL PETROLEUM CORPORATION (NNPC)

The N.N.P.C. is the Government Agency charged with the responsibility for the public sector involvement in the local oil industry. Its history goes back to the late fifties when the production of oil for export (in 1958) necessitated that Government set up a machinery for the co-ordination of the activities of the petroleum sector which was later to assume such great importance to our national economy.

The public sector of the Nigerian Oil Industry started as a section in the Mines Division of the then Ministry of Lagos Affairs in 1958. It was originally a one-man unit. The responsibilities of that unit increased very quickly as oil operations expanded greatly in scope amounting to a virtual explosion after the first crude oil export. In 1963, with oil becoming relatively more significant in the national economy, the Hydrocarbon section of the Mines Division was upgraded to a Division within the Ministry of Mines and Power. By this time, the senior Staff strength had risen to four excluding four trainee engineers. Field offices were opened in Port-Harcourt and Warri in 1962 and 1967 respectively in order to

cover field operations more effectively. The work of the Division and the level of statutory responsibilities continued to increase significantly. Twelve years after its establishment, the public sector of the oil industry could only boast of a hand full of well trained engineers who were Government 'Watch dogs' in the complex and highly developed industry. It had a large establishment on paper but was handicapped in a number of ways, including very impossible competition from the private sector in the labour market.

Having made its impact felt all round, the Department of Petroleum Resources was uplifted to a full-fledged Ministry in 1975 - the Ministry of Petroleum Resources and Energy which in 1976 finally became the Ministry of Petroleum Resources.

The former Nigerian National Oil Corporation was established by decree in 1971 as an integrated oil company to explore, produce, transport, process, refine, distribute and market crude petroleum and its refined products. It was established to carry out Government's policies and to ensure Government's effective participation in the oil industry.

The chequered history of the Nigerian National Oil Corporation ended with its eventual merger with the former Ministry of Petroleum Resources to form the Nigerian National Petroleum Corporation which came into being on 1st April, 1977, as a result of Decree No. 33 of 1977. This legal instrument establishing the corporation gave it a unique feature, that is the creation of an operation/ Commercial arm and a Regulatory arm vested in the Petroleum Inspectorate.

Thus the role of government has progressed from mainly regulatory to direct involvement in oil exploration and exploitation:

HISTORY OF DISTRIBUTION & MARKETING OF PETROLEUM PRODUCTS

Petroleum products marketing activities commenced in 1907 with the establishment of a trade link in 'Sunflower' Kerosine by Socony Vacuum Oil Company (now Mobil). This has since expanded to cover the broad range of all petroleum products. Seven Companies Mobil, British Petroleum (Now African Petroleum), Total, Agip, Texaco, National Oil and Marketing Company and Unipetrol are currently active in this sector. The eighth one Elf has recently joined the group of seven major oil marketing companies, and a number of Independent oil marketing companies are now in the trade.

Up till 1975, the marketing and distribution of petroleum products was entirely in private hands. Owing to the quick recovery from the civil war, the overall expansion of economic activities and the unprecedented explosion in the demand for petroleum products in the 1970s, the private companies were unable to cope with the domestic demand for products and the severe shortages that ensued all over the country, constituted a major bottleneck to further development. This prompted Government to venture into petroleum products distribution and marketing.

Before 1965, as said earlier, all petroleum products consumed in Nigeria, were imported. In that year, the 35,000 barrels per day Port Harcourt Refinery was built by the Federal and British Petroleum through a 1962 agreement which created the Nigerian Petroleum Refining Company. The refinery initially met the domestic needs for white Petroleum products and exported some quantities of products to African countries and High Pour Fuel Oil (HFPO) to the United States of America. Owing to the economic expansion in the 1970s, the demand for premium gasoline and gas oil recorded an unprecedented average annual growth rate of 30% between, 1974 and 1977. To meet the domestic needs, interim arrangements were made from 1975 to refine Nigeria's Crude Oil in Curacao and Rotterdam for reimportation of the products to Nigeria. As at 1978, about 175,000 barrels per day were involved. This offshore refining arrangement continued until two new refineries were commissioned in Warri 1978 and Kaduna in 1981.

Under Petroleum Marketing Pricing was not uniform throughout the country. The pump price depended on point of sale and this affected the distribution and even development of the country. The oil marketing companies naturally concentrated their activities in areas where cost of distribution was lowest and profits were highest. Lagos and Port-Harcourt areas were well served, while the hinterlands were not adequately supplied. To encourage even distribution of products to all parts of the country, Government introduced the uniform pricing system on October 1, 1973 for all grades of products, and to grant subsidies to the Marketing Companies to compensate for the differentials in the cost of operation. In 1975, the Decree 9 was promulgated, setting up the Petroleum Equalization Fund Management Board with the following functions:-

- 1) To retain any surplus revenue recovered from oil marketing companies.
- 2) To reimburse companies for losses suffered as a result of sale of products at uniform prices all over the country.
- 3) To recover the difference between the landed cost of imported products and the open market price in the country.

The country was then divided into 26 zones (A - Z) each having price differentials which can be claimed from or paid into the fund depending on its distance from the supply points at the refineries and ports. However, to facilitate the even distribution of products, Government went further to construct a network of pipelines and depots.

STATEMENT OF THE PROBLEM

As said earlier in the chapter, the severe shortages of petroleum products in the country during the 1974 and 1975 were attributed to the poor distribution network for petroleum products—shortage facilities provided by the seven oil marketing companies were inadequate to hold sufficient stock of products. This led the Government to embark on the planning and later construction of a country-wide petroleum products pipeline network and depot facilities. These were aimed at effecting a more efficient storage and distribution system.

Surprisingly, no sooner had these network of pipelines and depot facilities completed and commissioned than we started experiencing more shortages of refined petroleum products, especially in most parts of the Northern States. To alleviate this problem, the N.N.P.C. requested the seven major oil marketing companies to complement the short-fall in the product requirement in the North by bridging products from the south, while governmental efforts will be geared towards getting the Kaduna Refinery to operate at full capacity. This directive from the Government through the NNPC to the marketers, at a time, generated some friction between the NNPC and the marketers. While the NNPC accused the marketers of refusing to augment the short-fall at Kaduna Refinery by bridging from the south, the marketers on the other hand blamed the NNPC for causing the fuel scarcity by not compensating them for the extra cost of bridging products from the South to the North; since the pipeline network and Depot district clearly stipulates areas to which products should be transported so as to attract transportation cost payable by NNPC. This means that transporting product outside a Depot district is illegal and does not qualify for reimbursement by NNPC.

Therefore, the draw backs that we witnessed could be because of many reasons which might include the following:

- i) Defective distribution policy.
- ii) Ineffective operation of NNPC policy.
- iii) Lack of proper procedure guidelines.
- iv) Employing unqualified and inefficient staff to man sensitive areas of the corporations operations.
- v) Inadequate manpower development facilities and objectives.
- vi) Government policies.

This paper will therefore take a critical look at the entire set-up of the NNPC with the intent of finding out the loopholes in the corporations Distribution Policy. This will also involve taking a critical look at the state of affairs before and after the establishment of the strategic Depots of network of pipelines. At least one of the reasons for setting of the Depots was to effectively stop the frequent shortage of refined petroleum products in the federation.

From the findings of the paper a recommendation which is hoped will go a long way to solve the problems will also be put forward.

METHODOLOGY1) PRIMARY DATA

This study will make use of primary data collected directly from the NNPC, the major oil marketing companies and Independent marketers. I will interview the staff directly involved with the actual distribution of refined products from both the side of the NNPC and marketers. I will also visit the various depots owned by major oil marketing companies since these Depots still operate to enhance the operations of the NNPC.

Primary data will also be collected from the Retail outlet dealers and their staff since they really sell the products to the ultimate consumers. They will be in a very good position to know how regular their orders for products are supplied and motorists, will also form part of my primary data.

2) SECONDARY DATA

This will consist mainly of some NNPC official publications. This could be gathered from seminars conferences procedure guides, in-house magazines and other oil industry related publications. I will also through some staff publications at conferences both within and outside the country.

Other sources of secondary data will include internal publications and directives from the Oil Marketing Companies to their staff.

I will also visit libraries of both the NNPC and Oil companies. Also to be my source of secondary data will be newspaper publications and other research work about the oil industry, with special work on the nation-wide shortage of refined petroleum products.

SIGNIFICANCE OF THE STUDY

Clearly, this research work has importance in the context of the marketing of refined petroleum products in Nigeria. The study narrowed down the problems associated with the marketing of these products to distribution or rather the distribution Policy adopted by the NNPC which is the government parastatal charged with the sole responsibility of refining and controlling the marketing and distribution of these products, throughout the country. This is done by middle-men otherwise known as the Oil Marketing Companies, who in addition make these products available to the consumer through their various retail outlets.

It is hoped therefore that the findings of this study will help both the Government and their organ.the NNPC; to discover where they should put more efforts to get refined petroleum products to consumers in the Federation. It will also help them to formulate an adequate Distribution Policy so as to solve forever the frequent. Oil shortages.

LIMITATIONS OF THE STUDY

Many limitations were encountered in the course of this study. I will however, highlight those that imposed some obstacles in terms of time, information gathering and financial resources invested in the study. These limitations include:-

1) Finance And Time:-

Telephones are absent in some of the business houses I visited and where they are available, some are usually out of use. This necessitated the costly and time consuming exercise of visiting all my sources of primary and secondary data. The financial limitations imposed on this study stem from the general economic recession in the country. This was a major factor since I had to travel to far-away locations like Maiduguri for the collection of data, and this involved spending a lot of money.

2) Lack Of Statistics:

There is generally a lack of vital statistics in Nigeria. Most documents could not be collected where they are supposed to be. The Kaduna Refinery could not provide most of the information required about other NNPC Depots.

3) ILLITERACY:-

High rate of illiteracy still persists in our society. This also affects the way information are kept. Most of the retail outlets visited could not provide adequate information that could have helped me to determine proper sales volume and periods when they have stock-out of products and determined their frequency of equipment failure.

4) Secrecy for Giving Out Information:-

NNPC being a government parastatals, some vital information could not be collected due to the general norm of not divulging official secret.

DEFINITION OF TERMS:

For uniformity in meaning and the need to abbreviate some technical words/terms, I hereby defined and explain the meaning of the following terms.

- 1) NNPC - Nigerian National Petroleum Corporation. This is the government arm that oversees the prospecting, drilling and marketing of petroleum products in Nigeria.
- 2) LPG - Liquefied Petroleum Gas. This is one of the by-products of the refractionating column in the refinery.
- 3) PPMD - Pipeline and Products Marketing Division. This is one of the divisions within the NNPC. The division is responsible for the storage and distribution of refined petroleum products to the various oil marketing company. The division also maintains the strategic depots and the network of pipelines throughout the Federation.
- 4) PMS - Premium Motor Spirit. This is the fuel we use for driving small cars. It is also commonly called super or petrol, and is equally a by-product of crude oil refining.
- 5) AGO - Automotive Gas Oil, is the fuel for driving heavy trucks, earth moving vehicles and lorries. It is also used by many industrial machines and is commonly referred to as diesel oil.
- 6) DPK - Dual Purpose Kerosine. This is the burning Kerosine used in the homes for lanterns and stoves.
- 7) ATK - Aviation Turbine Kerosine. This fuel is basically DPK, but it is refined further to remove impurities. It is the fuel used by aeroplanes.

8) **White Products -**

13

This is a general name used in the industry for the above fuels used for light engines. So all of these PMS, AGO, DPK and ATK are therefore regarded as white products.

9) **Bridging -**

This word in the petroleum industry means transporting products by either road or rail tank wagons from one depot to another. These depots could be either NNPCs or Marketers depots.

10) **Streaming -**

Streaming is usually used for a Depot or location that has been officially finished and commissioned with loading of trucks going on.

11) **Lifting -**

Lifting is another word for loading of products usually tank trucks.

CHAPTER 2

REVIEW OF RELATED LITERATURE

REVIEW OF LITERATURE

In my introduction, it was stated clearly that although Nigeria had incursion into the Oil Industry over seventy years ago, it was only in the last twenty-five years that this industry attained the dominant position of the bread winner for Nigeria. In the same vein, only very few research has been made by scholars on the problems of the Petroleum Marketing Industry which is the major revenue earner of the Federal Government of Nigeria. Mostly, all we have had were newspaper articles and reports on the problems generally with suggestions on their solutions which in most cases lack analytical reasoning.

However, there are a few published research work in Marketing of Petroleum Product which dealt extensively on Distribution of these products in Nigeria. Notably among these are the works of L.H. Schatzl, 'Petroleum Products Marketing', 1964; Ishola Giwa (1981) 'Petroleum Products Marketing in Nigeria', an Ahmadu Bello University M.B.A. project work and that of Moses A. Isiaku (1982) 'Distribution Problems And Determination of Future Demand for Petroleum Products in the Northern States of Nigeria' which is another Ahmadu Bello University, Zaria M.B.A. project work. The literature review will be done on these three works and other newspaper publications during the hay-days of petroleum products scarcity in the Country.

Schatzl (1964) in his book on the distribution of Petroleum Products in Nigeria talked about the determination of regional consumption of oil products in Nigeria. His information was gathered from the sales statistics of the oil marketing companies. For purposes of his study, the country was divided into 3-distribution zones. The zoning took into consideration the Rivers, Niger, and Benue as the boundaries. Zone I consists of the Western Nigeria, while Zone II is the East while Northern Nigeria represents Zone III. Schatzl recorded 1,300 retail outlet throughout the country and observed that retail outlets in the urban areas have higher output than those in the rural

areas. This indicates the difference in the level of development and commercial activities between the urban and rural areas.

The work went further to describe how products were evacuated before and after the first Refinery at Alesse-Elere near Port-Harcourt. Products were then received from the two ports of Apapa and Port-Harcourt. Oil marketing companies maintain storage depots by the use of rail tank wagons and road tank trucks. From these up country depots, the customers of the oil companies are supplied with products. The paper went further to state that the opening of the Refinery at Port-Harcourt precipitated a basic change in the Distribution of petroleum products, since products could then be lifted from the central depot at the refinery. He said in the paper that, about 61% of the refined petroleum products were disposed of in the West or Zone I, while the East or Zone II consumed only 12.5% while 17.5% was disposed of in Zone III.

Schatz1 went further to determine the future energy consumption consisting of the projection of established past trends of primary energy consumption from 1950 through 1964. This was compiled in a time diagram. The linear trend is calculated according to the method of least squares by which he assumed that the energy consumption in Nigeria in the past corresponds to a linear function. He used simple extrapolation of trend to calculate the future consumption of energy on the assumption that past figures will be very valid for the future as well. He however, sited the disadvantages of using this method of extrapolation to determine the future energy consumption as follows:-

1. Nigeria stands on the threshold of a fast growing process of industrialisation. It will then be unrealistic to expect the future consumption of energy to develop according to a linear function.

2. The automatic way of projecting consumption of primary energy by continuing past trends into the future as presented above does not take into account the casual factors of energy consumption. The trend established for the basic period and extrapolated into the future represents if one supposes a progressive economic development for Nigeria, a lower limit for future energy requirement.

Given the dearth of relevant data during the period of this research, I will rather say that Schatzl gave a fairly good account of petroleum distribution before the opening of the Port-Harcourt Refinery, and brief state of affairs after the refinery was streamed. He did a good job in pointing out the problems of using linear trend to project future demand of petroleum products for a developing country like Nigeria. May be if our planners had taken heed of this, we may not have experienced the type of scarcity we had in the 70s and early part of the 80s.

My project paper will touch on many of the points he mentioned in his work, but will update some of the information which were not available to him. This paper will then go further to show the current state of the industry with the establishment of N.N.P.C. and the strategic depots and pipelines throughout the country which has brought yet another dimension in the petroleum products distribution in the country.

Ishola Giwa, in his work 'Petroleum Products Marketing in Nigeria', dealt mainly with the analysis and prospects of Independent marketers. However, by their activities and volume of products lifted by these marketers which is still below of the total liftings from NNPC depots, these Independents are yet to make significant impact in Marketing of Petroleum Products.

Giwa (1981) went further to discuss the two - level, three-level and four-level channels of distribution of petroleum products by the NNPC, including the various institutions that make up the channel members/systems. He also distinguished the

several types of flows in the NNPC physical distribution.

These include:-

- The physical flow describing the actual movement of products from NNPC to the users.
- The title flow describing the actual passage or exchange of title (ownership) from one level to the other. That is from NNPC to the oil marketing companies and to the consumers.
- The payment flow that is the customer paying his bill to the dealers.
- The information flow, describes how information is exchanged among institutions in the system.
- While in the promotion flow, he dealt on how oil marketing companies and their dealers direct flow of influence to the industries and the general public.

However, a good knowledge of the oil marketing industry in Nigeria, will show that the work in review did not talk much on the actual physical distribution problems of effective marketing of refined petroleum products in Nigeria. NNPC owns all refined products which they market through the oil companies. And as such most of the problems being encountered today in the distribution/marketing of the products, stem from NNPC herself rather than the channel members. However, my work took care of these problems by having a more detailed study of NNPC activities at the Depot. The work will also reveal the reasons for the frequent stock-out of products at these depots and are the offerings by NNPC enough to satisfy demand for petroleum products in Nigeria.

Moses Isiaka in his work on the Distribution Problems and Determination of Future Demand For Petroleum Products in the Northern States of Nigeria, identified Distribution³ as the single factor that causes petroleum product shortage. He went further to categorize these problems into Operational Problems and Physical Distribution Problems.

Under Operational Problems, he tried to identify those problems originating from the NNPC Depots and these include:

- i) Break-down of loading arms, meters, and general lack of spare parts.
- ii) Loading disruption due to unruly behaviour of tank truck drivers.
- iii) Pipeline problems leading to inadequate receipt of products.
- iv) Poor employee/Industrial Relations leading to strikes and lock-outs.
- v) Inadequate office accommodation for marketers and poor truck parking space.

Under Physical Distribution Problems which I will rather refer to as problems originating from Channel members he listed the following.

- i) Fraudulent diversion of products by tanker drivers with the co-operation of some of the retail outlets dealers thereby creating artificial scarcity.
- ii) Programming for loading by marketers, tank trucks that are not in good working condition.
- iii) Inadequate retail outlets especially in the rural areas.

Most of the operational problems are very relevant to the experienced shortages of petroleum products, but the work failed to mention the most vital problems and that being NNPC through her strategic Depots has not been able to meet up with product demands in the Northern part of the country and this is due to poor planning. My paper however, identified this problem from the analysis of products supplied by the various depot from 1982 - 1984.

I also disagree with the writer's posture on the physical distribution problems which he tended to blame solely on the Oil Marketing Companies. These companies have salesmen who monitor the activities of their retail outlet dealers and can fire any of them that go contrary to the rules of the trade. Equally important is that these companies are multinationals and will not like to incur the wrath of the government by engaging in

obvious anti-government guidelines. The nationalization of ESSO now Unipetrol and British Petroleum now African Petroleum for going contrary to the Federal Government Policy on Petroleum Products marketing are good examples.

Some other works/publications which touched on the distribution problems of NNPC that led to nation-wide fuel scarcity were newspaper publications. The Nigerian standard for example in its publication of September 29, 1981 reported the strike action embarked by oil tanker drivers responsible for lifting petroleum products ex-Jos NNPC Depot. This caused serious fuel shortage in Jos and its environs.

Also the 'Business Times', of May 3rd, 1982 reported on the fraudulent action of some Nigerian businessmen who connived with oil tanker drivers to divert fuel meant for supply to some Northern States to neighbouring Niger Republic.

The 'New Nigeria' of May 5th, 1982 in a story titled 'Fuel Shortage hits Kano' went ahead to describe the scarcity as originating from the breakdown of pump station that supplies fuel via pipeline from Kaduna Refinery to Kano. The same paper also described the long queues at petrol retail outlets -in the city while -the price of fuel in the black market rose from the previous price of N3,50 per tin to N15.00.

I will therefore draw from the experiences of these research works and newspaper publications in my present study, of the Distribution Policy of the NNPC. Since most of the write-ups are talking about scarcity and problems of marketing petroleum product which some identified as distribution problems my work will take a more critical look at the Distribution Policy of the NNPC which I believe has created most of the problems in the marketing of refined petroleum products in Nigeria and the frequent scarcity experienced in the Northern and Kaduna Sales area of the NNPC.

CHAPTER 3.

PETROLEUM PRODUCTS DISTRIBUTION IN

KADUNA SALES AREA

CHAPTER 3

DISTRIBUTION BEFORE THE ESTABLISHMENT OF NNPC DEPOT & PIPELINE SYSTEM

As said earlier, the marketing and Distribution of refined petroleum products were done by the seven major oil marketing companies -namely- Mobil, National, African Petroleum, Texaco, Agip, and Unipetrol. That was before the streaming of our first refinery at Port-Harcourt and all the refined products were imported.

These companies, established Depots at Port-Harcourt and Apapa¹ Lagos. The Depots, just like the ones owned now by NNPC are connected by pipelines to the jetties, where ships can berth. Ships carrying products berth at the jetty and pump products via pipelines to the various companies storage tanks at the Depots which are usually not very far from the jetty. The various oil companies equally maintained storage/Depot facilities in selected up country locations for effective distribution to other parts of the country. The mode of feeding these up country depots is the same for all the companies. At the Depots at Apapa, products are pumped from storage into road tank trucks which transport them to the designated up country Depots. It is then the duty of the up country Depot to receive the product either for immediate delivery to a retail outlet or for storage, pending when a customer/retail outlet presents an order or request for product.

Most of these up country Depots are located in the Northern part of the country because of the distance from the sea ports. All the Oil Companies have their own Depots. Here I will concentrate only on Depots in the North. These depots are located strategically so as to serve specific areas with the depots situated at locations of assumed very high demand.

National Oil maintained what the company refers to as major and minor Depots. The major Depots are at Kaduna, Kano and Jos. These depots apart from the three normal products PMS, AGO and DPK, also stock Kerosene, Fuel oil and lubricated products. The minor depots are only carrying fuel oil and kerosene. The largest and best equipped depot of National Oil is at Jos. These depots are connected to the sea ports by pipelines and trucks. The pipelines are not always in use and trucks are used to transport the products from the sea ports to the depots. The trucks are used to transport the products from the sea ports to the depots. The trucks are used to transport the products from the sea ports to the depots.

stock ATK, fuel oil and Industrial Chemicals. National is the only company that deals a lot on herbicides. The Company also has sub-Depots at Gusau and Maiduguri. These sub-depots have smaller storage facility than the three mentioned above. Since National handles all Nigerian Airways fuel contract, all their Depots have storage for ATK.

Mobil Oil, also maintains up-country Depots at Kano, Zaria, Bukuru (in Jos) Gusau and a small one in Lokoja. The Lokoja Depot has since been closed. All Depots stock PMS, DPK and AGO; while Bukuru, Gusau and Kano stock fuel oil. Only Kano has facilities for ATK because of the International Airport in Kano. Mobil also has a Depot at Aminu Kano International Airport, Kano for effective servicing of her Airline Customers.

African Petroleum (AP) maintains two up-country Depots at Jos and Kano. As usual, these Depots stock PMS, DPK and AGO.

Total Oil Company has three Depots at Kaduna, Kano and Bukuru from where they service their customers in the Northern States with PMS, AGO, and DPK.

Agip equally has Depots at Gusau and Kano, while Unipetrol has depots at Kano, Kaduna and Jos.

Texaco has Depots at Kano, Jos and Maiduguri.

However, it is worth noting that these companies have a pull through arrangements within themselves. This means that they can make use of the Depot facilities of other oil companies in an area where it will not be profitable for them to operate. So Texaco for example can discharge products into the storage tank owned by Agip which she can always collect anytime to service her customers. My pilot investigation revealed that up till today, all oil companies still update the record of the other marketers' stock with them.

PIPELINE AND DEPOT FACILITIES

The severe shortages of petroleum products in the country during 1974 and 1975, were attributed to poor distribution network for petroleum products. Storage facilities provided by the seven petroleum product marketing companies were inadequate to hold sufficient stocks for the nation's consumption. To solve this problem therefore, the Government through the then Ministry of Petroleum Resources embarked on the planning for the construction of a country-wide petroleum products pipelines network totalling about 3000 kilometers linked to storage terminals (depots) in 17 towns. Three "white" products, namely:- Premium Motor Spirit (PMS) or (Petrol), Dual Purpose Kerosine (DPK) or burning kerosine and Automotive Gas Oil (AGO) or (diesel) are handled by this transportation and storage system. Contracts were awarded between 1976 and 1978 to three International pipeline construction companies and four depot construction contractors at an initial total cost in excess of N500 million. Survey and other preliminary work for the project started in 1977. The bulk of the work was executed in 1978. Some sections of the pipeline system were commissioned in 1979. The major portion was commissioned in 1980 and 1981.

The pipeline network is divided into five systems made up of pipeline sizes ranging in diameter between 6 inches and 16 inches. The system 2^A runs from Warri via Benin and one to Mosimi Depot near Shagamu. System 2^B originates from a marine receipt terminal at Atlas core -near Tarkwa Bay in Lagos. This terminal which was commissioned in 1981, handles refined products from local or overseas refineries and is connected to the Mosimi Depot by pipeline. There are four single product pipelines from Mosimi to Lagos Satellite Depot at Ejigbo Village near Isolo, an Aviation kerosine pipeline from Mosimi to Murtala Mohammed Airport and a pipeline from Mosimi to Ilorin Depot via Ibadan Depot. All these are in the system 2^B network.

The system 2^C pipeline originates from Warri, -and transports crude oil to Kaduna Refinery. The crude oil is pumped from Gulf Oil Company's Escravos terminal to Warri via the Escravos -Warri pipeline which supplies crude oil to Warri Refinery storage to Kano Depot via Zaria Pump station where there is a branch to Gusau Depot. Another pipeline originates from the Kaduna Refinery to Maiduguri Depot via Jos and Gombe Depots.

PETROLEUM PRODUCTS DISTRIBUTION AFTER THE ESTABLISHMENT
OF THE NNPC DEPOTS AND PIPELINE SYSTEM.

The Rationale For The Strategic Depots

With the commissioning of the Port-Harcourt Refinery and later two other refineries at Warri and Kaduna, coupled with the important role petroleum is playing in our economy, there became an increasing need for full Governmental participation and control of the Petroleum Marketing Industry. Effective participation and control then necessitated the building of strategic depots for petroleum products storage in Nigeria as both a response to market/economic challenges and the dictates of political reality. These factors can further be discussed under three sub-headings; the fundamental resolution of Organisation of Petroleum Exporting Countries (OPEC) member nations; the spate in economic activity and energy demand in Nigeria and Marketers' sluggish response to the national need for effective distribution in the oil industry. These factors per se combined to bring to the national consciousness, the need for a more to effective distribution system in the Nigerian petroleum Industry. These factors are further discussed below.

1) OPEC RESOLUTION

The real benefits of OPEC membership are only partially explained by the reasonable market prices for crude oil. The commitment to the fundamental resolution of the organisation is what generates the benefits of membership. Simply stated, the resolution enjoins all member nations to effectively take over the control of the full stream of petroleum industry activity in their nation states. These activities do not only constitute exploitation and marketing of crude oil but also refining, conversion to petrochemical products and the marketing of the output of these phases of production which are integral parts of the full stream of industry activity referred to in the resolution,

In our country Nigeria, the commitment to the resolution would mean not only the establishment of refineries but also the means through which the resultant output is distributed to the final consumers -hence the investment in the national grid of pipelines and depots. In our case, there was no choice (in a disparate country with competing political claims on national attention) the government had to step in to ensure that the energy requirements of all the geographical segment of the country were satisfied. The investment in the depots network system was as much a response to the fundamental resolution of OPEC as it is a fact of the political realities of Nigeria.

2) ECONOMIC ACTIVITY AND ENERGY DEMAND

With the implementation of the Second National Development Plan, the energy requirements of various industrial pursuits quadrupled. Then the simple means of distribution by road and rail from the refineries, import substitution source ex-Apapa and few hinterland depots owned by marketers could no longer handle the explosion in petroleum products demand in the country. A move for effective means of distribution had to be established. Government therefore decided to construct the network of pipelines and depots to ensure that the petroleum products needed to fuel the industrial establishments scattered over the country could be easily delivered from storage facilities in close proximity.

Table-1 below shows the trend of petroleum products consumption in Nigeria from 1967 to 1979, and the projection for the period 1980 - 1986. Except for the civil war years and the slight aberration in 1972, the trend is upwards and exploding. There was hardly any way such a demand base would have been effectively handled by the simple distribution network established and administered by the seven marketers.

TABLE 1: NATIONAL CONSUMPTION OF PETROLEUM PRODUCTS

<u>PERIOD</u>	<u>CONSUMPTION (METRIC TONS)</u>
1967	1,309,255
1968	1,131,305
1969*	{ }
1970	1,201,580
1971	1,628,265
1972	1,530,612
1973	2,337,460
1974	2,445,500
1975	2,896,275
1976	3,932,304
1977	4,346,055
1978	5,866,839
1979	6,066,337
1980	6,483,067
1981	7,103,643
1982	7,729,739
1983	8,359,290
1984	8,989,753
1985	9,609,777
1986	10,249,018

*Figure not very reliable, hence it is not included here.

3) MARKETERS' RESPONSE

Even in the face of this exponential growth in demand, marketers did more by asking government for freight and Import subsidy in order to meet consumer needs. It became obvious that government would have to intervene in the oil distribution system of the petroleum industry in order to ensure that the type of shortage which had become rampant by 1975 did not become perennial threats to the Nigerian economy. Although the investment level called for was high and the returns to government was expected to come in rather slowly, the advantages expected from the construction

of these depots were attractive enough to encourage government to provide for the requisite investment in the Third National Development Plan.

The advantages included the following:

- i) The existence and operation of the depots would help to insulate the Nigeria economy from the vagaries of the International Market supplies since the storage facilities would hold between 45 days and 90 days products requirements or the depot market segments.
- ii) The depots would bring products supply sources closer to the consumer and thereby minimise long haul, road supply programmes and costly road maintenance expenses.
- iii) Eliminate the economic disparity in the country which would have led to perpetual petroleum products shortage in certain parts of the country in the event that the Petroleum Equalization Fund experiment did not succeed. The scenario feared, is one where marketers would continue to ask for increased freight allowance and import subsidy, to such a level that would be intollerable to government. Any refusal to approve such allowance might lead to a curtailment of the limit of the catchment market areas serviced by the marketers. This situation will definitely lead to a political and economic crises of great magnitude. To ensure that such a situation did not occur, government felt sufficiently convinced that it had to take over a substantial part of the cost of petroleum products distributed in Nigeria.
- iv) It was equally hoped that the depot network system would put to rest the perpetual clamour for increased freight allowance by the marketers at the expense of government revenue or price subsidy to the consumer.

Therefore, for the above economic, political and market performance reasons, the Federal Government of Nigeria, decided to build a network of 3,000 Kilometers of pipeline and 19 depots. All these depots except Calabar are already in operation, dispensing products.

STRUCTURE & OPERATIONS OF NNPC DEPOTS

The physical dispersion of the strategic depots in Nigeria is mapped out on areas of population concentration and relatively high petroleum products demand. The depots as said earlier in the introductory chapter are reception centres along five pipeline network substructures:- 2^A which is the Warri - Benin - Ore - Mosimi line-; 2^B Atlas Core Mosimi - Ibadan - Ilorin - Mosimi-Airport; Mosimi - Lagos - Satellite; 2^C: This is the crude oil pipeline from Warri to Kaduna; 2^D: Kaduna - Zaria - Kano; Zaria-Gusau; Kaduna - Jos - Gombe Maiduguri; 2^E: Port-Harcourt - Aba - Enugu - Makurdi. Calabar is a coastal depot that will be supplied ex the two southern Refineries by coastal vessels. The Depot is not connected to any pipeline system.

The operation of the depots is the responsibility of PPMD of the NNPC. The PPMD interacts with the refineries to set the operational frame work of the depots. The operation of the depots is organised around four areas from which products movements and supplies are planned and effected. The Mosimi Area is responsible for the arrangement of pipeline supplies to the Mosimi - Ibadan, Ilorin, Atlas core, Lagos Satellite and Airport depots. The Warri Area takes care of pipeline supplies to the Benin and Ore depots. The Kano, Jos, Gombe, Maiduguri and Gusau depots are supplied by pipeline from Kaduna Area. And finally, the Port-Harcourt Area, handles the supply of products through pipeline to the Aba, Enugu, Makurdi Depots. Calabar depot is not supplied by pipeline.

While the plan and movement of petroleum products are conducted by the Market areas, the control centres supervise the actual traffic and maintenance of product quality through the various phases of transportation and at the depots. There are three control centres - Mosimi, Kaduna and Port-Harcourt. The Mosimi control centre has responsibility for the depots along pipelines systems 2^A and 2^B, Kaduna control centre handles those depots and pump stations on systems 2^C and 2^D while the Port-Harcourt Control centre supervises the distribution structure, based on system 2^E.

Essentially therefore, the operation of the depots is founded on the distribution logistics and products requirements determined by the PPMD of the NNPC. The PPMD carries out four main functions within the depot marketing system.

- i) The department determines the forward programmes of each Marketers by depot market segment and allocates quantities on the basis of agreed programmes, for Marketers' lifting each month. This is the planning and programming function of the department.
- ii) Local supplies for pipelines and depot distribution are usually augmented by imported quantities. The department arranges an offshore processing scheme from where imports are supplied for delivery to the depot storage facilities.
- iii) Liason with the refineries and Product movement Department of the Pipelines operations Department to determine products pumping and allocation schedules.
- iv) The department is incharge of the actual sales operations within the depots. The Products Marketing representatives at the depots account for product allocation and advise the Finance and Accounts Division accordingly for purposes of invoicing.

The product movement Department carries out through the Area control centres, the actual pumping of products from refinery off-takes or import receipts (as will be the case on the commissioning of the Atlas Core Depot) to the storage facilities at the depots. In addition to ensuring that stocks in the depots are healthy and consistent with the economic realities and strategic needs of the country, it is the responsibility of the products Movement Department that products pumping is effected in a safe, economical and controllable manner.

There are of course many other units within the depots with which you will interact in any relationship with the NNPC strategic depots. The security Department; the Fire Service; The Maintenance Crew and the Quality Control Unit. The latter's responsibility is to ensure that the products delivered at the depot facilities are consistent with the products specification of the refineries, and when there is any deviation, that such deviations are within limits safe enough for such products to be used by consumers and industrial establishments. What any visitor or marketer's representative should keep in mind is that these units and departments work together in a system and the services of every unit are directly needed to ensure the smooth operation of the depots.

PERFORMANCE OF STRATEGIC DEPOTS

As mentioned earlier, the depots are operational. In 1979 for example 1,549,449 m³ (metric tons) of products were pumped through the pipelines. Of this quantity, 143,500 m³ were used to fill the pipeline as dead stock. Therefore, about 21% of national consumption in 1979 was allocated to the marketers through the pipeline system.

This level of performance according to government and NNPC circles is encouraging indeed when one takes into consideration the fact that more than half of the operating depots were commissioned in the later half of the year.

The quantity received by each depot during 1979 is as follows:-

Benin	-	223,016 M ³
Ore		119,944 M ³
Mosini	-	104,349 M ³
Ibadan	-	1,516 M ³
Kaduna	-	74,668 M ³
Kano	-	43,530 M ³
Aba	-	292,012 M ³
Enugu	-	470,174 M ³
Makurdi	-	41,157 M ³

PERFORMANCE/SALES ACTIVITIES FOR DEPOTS IN KADUNA AREA FROM
(1982-1984)

The operation of the depots is the responsibility of the PPMD of the NNPC, and for effectiveness and proper co-ordination, all the Depots have the same organisational structure. Figure 1, therefore shows the organisational structure and operation of NNPC Depots.

Products lifting operations in the Kaduna Area had been fairly successful for the period 1982 - 1984. With the commencement of lifting operations in Gombe in May, 1982, all the other Depots and the Kaduna Refinery dispensed products to marketer. These other Depots include Kano, Jos, Maiduguri and Gusau. The performance of each location in terms of quantity of various grades of products evacuated is given below.

KADUNA REFINERY

Kaduna Refinery is easily regarded as the biggest depot in the Kaduna area. Product evacuation is being conducted at the Truck Loading Area of the Refinery. Unlike other depots, products loading at the Kaduna Refinery is most efficient because the system is computerised and has as many as 34 loading arms for all grades of products divided thus:-

Base Oil		6	Loading arms
PMS	-	8	Loading Arms
DPK and NIK	-	6	Loading Arms
AGO	-	4	Loading Arms
Fuel Oil	-	4	Loading Arms
Asphalt	-	6	Loading Arms.

Except for a few cases of computer breakdown, loading operations at the Kaduna Refinery had been fairly smooth. Summary of the quantity of various grades of products lifted ex-Kaduna Refinery and the corresponding sales value is given below. Table 2, shows summary of the Quantity of products lifted Ex-Kaduna Refinery by all Marketers in 1983, on monthly basis.

TABLE 2

MONTH	PMS	DPK	AGO (LMS)	LPFO	LPG (M/T)
Jan	37,516,137	9,472,592	33,976,509	17,905,634	783,542
Feb	34,561,858	9,005,490	31,725,336	21,921,367	487,997
March	35,075,269	6,943,204	35,545,006	21,621,693	1,077,027
April	29,608,406	5,967,349	33,563,557	32,934,962	878,283
May	31,700,083	6,538,609	33,097,715	35,634,870	924,786
June	25,073,317	7,806,770	25,073,317	19,911,992	1,375,799
July	21,411,884	7,393,948	23,131,296	37,442,266	1,201,330
Aug	24,033,070	19,355,867	19,430,713	27,276,877	1,344,700
Sept	26,251,572	21,053,555	18,811,424	19,519,878	1,064,79
Oct	22,125,144	15,116,327	20,800,844	18,999,263	942,400
Nov	19,717,644	9,088,848	18,591,342	13,703,974	200.00
Dec	21,404,529	12,877,096	18,699,763	51,087,314	566.57
TOTAL:	328,478,913	130,619,652	312,454,622	320,959,300	10,845.824

Table 3 Below, shows the corresponding sales value.

TABLE 3

MONTH	PMS (N)	DFK (N)	AGO (N)	LPFO (N)	LPG (N)
Jan	5,923,343.55	590,805.14	2,311,022.06	641,021.70	11,232.91
Feb	5,460,056.79	566,002.58	2,134,625.15	784,784.94	37,083.03
March	5,551,168.78	437,818.34	2,418,038.25	783,295.24	58,051.75
April	4,695,554.22	376,208.18	2,277,029.00	1,204,430.21	47,339.45
May	5,119,573.88	431,848.47	2,352,243.97	1,187,093.79	49,845.96
June	4,186,085.92	559,711.50	2,429,335.42	758,646.89	74,155.59
July	3,572,589.76	531,216.84	1,786,109.00	1,426,550.33	64,751.68
Aug	4,008,422.74	1,327,731.26	1,496,170.78	1,039,216.91	72,441.60
Sept	3,521,398.18	1,547,360.45	1,448,666.26	863,034.27	57,354.45
Oct.	3,693,330.89	1,081,003.28	1,601,832.17	723,911.92	50,795.35
Nov	3,290,302.27	652,596.76	1,432,980.20	423,835.71	10,779.99
Dec	3,572,960.67	929,087.81	1,438,972.63	2,060,726.67	30,538.12
TOTAL	52,594,787.65	9,031,390.61	23,127,024.89	11,896,508.58	595,369.86

TABLE 4 below, shows the summary of all products sales.

TABLE 4

Products	Quantity	Value (N)
PMS	328,478,913	52,594,787.65
DFK/ATK	130,619,652	9,031,390.61
AGO	312,454,822	23,127,024.89
LPFO	320,959,300	11,896,508.58
LPG	10,845,824	596,369.86
TOTAL:		N97,245,081.59

These sales figures for 1983 are then compared with the 1982 sales figures for liftings Ex-Kaduna refinery. The comparative Analysis is shown in Table 5 below:

TABLE 5

35

<u>Products</u>	<u>1982</u>	<u>1983</u>	<u>Variation</u>	<u>% Variation</u>
PMS	411,993,679	328,478,913	-83,514,766	-20.3
DPK/ATK	162,662,907	130,619,652	-32,043,255	-19.8
AGO	385,216,086	312,454,822	-72,761,264	-18.9
LPFO	248,532,164	320,959,300	+72,427,136	+29.1
LPG	5,608,164	10,845,824	+ 4,237,660	+64.1
T/KERO	1,573,102	1,686,213	+113,111	+7.1

During 1984 equally, the following quantity of white products were lifted and the figures and corresponding sales values are shown in Table 6 below:

TABLE 6

<u>Product</u>	<u>Quantity</u>	<u>Value (N)</u>
PMS	313,903,910	52,315,668.65
DPK	111,694,972	7,998,321.56
AGO	242,776,553	18,605,420.52
LPFO	290,235,911	11,057,988.48
LPG	15,436,226 (M/T)	832,013.33
T/KERO	1,726,342 (TINS)	5,453,573.24
		<u>96,262,985.78</u>

The above sales figures for 1984 are further compared with the 1983 sales figures. The comparative analysis is shown on Table 7 below:

TABLE 7

<u>Products</u>	<u>1983</u>	<u>1984</u>	<u>Variation</u>	<u>% Variation</u>
PMS	328,478,913	313,903,910	-14,575,003	-4.44
DPK/ATK	130,619,652	111,694,972	-18,924,680	-14.49
AGO	312,454,822	242,776,553	-69,678,269	-22.30
LPFO	320,959,300	290,235,911	-30,723,389	-9.57
LPG	10,845,824	15,436,226	+4,490,402	+42.32
T/KERO	1,686,213	1,726,342	+40,129	+2.38

OTHER PRODUCTS LIFTED BY THE KADUNA REFINERYa) TINNED KEROSENE:-

Tinned Kerosene is another product of the Kaduna Refinery. production of this product was affected in October, 1983, due to fire outbreak at the Refinery which affected the coding tower. Table 3 below shows the monthly lifting and the corresponding value for the year, 1983.

TABLE 3

<u>MONTH</u>	<u>QUANTITY LIFTED</u>	<u>SALES VALUE</u>
JANUARY	200400	581,160.00
FEBRUARY	157860	457,794.00
MARCH	155840	541,936.00
APRIL	19305100	290,290.00
MAY	121500	352,350.00
JUNE	166197	481,971.30
JULY	147400	427,460.00
AUGUST	142300	412,670.00
SEPTEMBER	157700	457,330.00
OCTOBER	147600	424,040.00
NOVEMBER	151800	440,200.00
DECEMBER	116800	338,720.00
<u>TOTAL:</u>	<u>1765497</u>	<u>5,209,921.30</u>

b) SPECIAL PRODUCTS

The lube section of the Kaduna Refinery was commissioned on 27th July, 1983. This section of the refinery processes foreign crude. The resultant products are various grades of base oils, Asphalt, Sulphur and Wax. Some of these products became available and were lifted by Marketers during the last quarter of the year. These were Asphalt and Sulphur.

i) ASPHALT

The Refinery produced two grades of Asphalt initially. The grades are 60 - 70 and 80 - 100. These grades of the product were available in drums (packed) and bulk.

Lifting of Asphalt commenced on 7th September, 1983, with the 80 - 100 and later 60 - 70 grade. National Oil and Chemical Marketing Company (NOCHEM) started the liftings and was followed by Egip Oil. Table 9 below shows the quantity of the grades of the product lifted in 1983. Also in December 1983, the 200 grade was produced and lifted by Marketers. The quantity lifted is also shown in table 9, below.

TABLE 9

MONTH	60 - 70	80 - 100	60- 70	
			DRUM	MCO
SEPT	330,980	429,260	3,540	-
OCT	5,347,445	3,548,960	3,829	-
NOV	7,928,772	1,518,420	3,461	-
DEC	12,019,560	1,553,293	-	496,100
TOTAL	25,626,757	7,049,933	15,850	496,100

ii) SURPHUR

This is another product from the lubes section of the Refinery that was available for sale. Lifting of the product commenced in October, 1983. The product was lifted by the Federal Superphosphate Fertilizer Company Limited, Kaduna. Table 10 below shows the quantity lifted and corresponding value.

TABLE 10

MONTH	QUANTITY (M/T)	VALUE (N)
OCT	85.25	18,511.19
NOV	87.00	18,891.18
DEC	172.25	37,402.37
T O T A L:	344.50	74,804.74

OTHER DEPOT OPERATIONSa) KANO DEPOT

The Kano Depot commissioned in September, 1979 is the second largest depot after Kaduna Refinery/Depot in the Kaduna sales Area. The depot has a total storage capacity of 150,000 M³. This storage capacity can be broken down as follows:-

AGO	-	64,000 M ³
PMS	-	62,000 M ³
DPK	-	24,000 M ³

The Depot dispenses products with 8 loading arms, divided as follows:-

AGO	-	2 Arms
PMS	-	4 Arms
DPK	-	2 Arms

It usually takes about 20 minutes to load a truck at the loading bay, and if all the loading arms are working, Kano Depot can load up to 90 trucks of PMS and 40 trucks each of DPK and AGO. It is assumed here that each truck has a standard capacity of 30,000 litres.

During 1983, the following products were lifted at the Depot. Table 11 therefore, shows the monthly liftings by all marketers, in litres.

TABLE 11

MONTH	PMS	DPK	AGO
JAN	23,559,680	8,305,110	10,554,104
FEB	32,548,333	7,717,570	11,542,901
MARCH	32,461,194	6,129,737	14,043,899
APRIL	25,712,919	6,383,362	16,199,358
MAY	24,791,913	5,679,548	15,445,976
JUNE	20,004,337	9,535,575	15,445,576
JULY	18,967,135	8,016,652	15,867,547
AUG	22,546,942	9,563,750	17,647,323
SEPT	19,071,298	9,469,939	19,297,262
OCT	19,252,000	9,766,000	16,773,000
NOV	20,027,036	11,000,320	20,462,710
DEC	11,982,986	5,690,135	20,909,164
TOTAL:	270,926,773	97,246,217	192,189,220

The above 1983 sales volume is further compared with the corresponding figures lifted from the same Kano Depot in 1982. Table 12 below shows the comparative analysis including the variations and percentage variation.

TABLE 12

PRODUCT	1982	1983	VARIATION	% VARIATION
PMS	308,865,601	270,926,773	-37,938,728	-12.3
DPK	62,403,882	97,246,217	+34,842,335	+55.8
AGO	167,442,350	192,189,210	+24,746,860	+14.8

Table 13 below shows the sales volume in litres and the corresponding sales value in Naira (N) for Kano Depot for the year 1984.

TABLE 13

PRODUCT	QUANTITY	VALUE
PMS	328,465,387	33,529,329 - 74
DPK	103,333,716	5,356,593 - 73
AGO	166,737,444	7,483,585 - 19
TOTAL:	598,536,547	51,375,008 - 66

A comparative analysis is further done between the 1983 and 1984 sales volume. Table 14 shows this comparative analysis showing the variation and percentage variation.

TABLE 14

PRODUCT	1983	1984	VARIATION	% VARIATION
PMS	270,926,773	328,465,387	+57,538,614	+21.24
DPK	97,246,217	103,333,716	+6,087,499	+6.26
AGO	192,189,210	166,737,444	-25,451,766	-13.24

JOS DEPOT.

Jos Government Depot, like Kano Depot was also commissioned in September, 1979. It has a total storage capacity of 57,000M³. Three petroleum products are equally stocked there, with the following capacity.

PMS	-	27,500M ³
DPK	-	9,500M ³
AGO	-	20,000M ³

The depot operates with 4 loading arms, divided as follows.

PMS	-	2
DPK	-	1
AGO	-	1

It has the same loading equipment with Kano Depot and can load equivalent volumes and number of trucks under normal circumstances. Jos Depot, apart from receiving products direct from the Kaduna Refinery, also pumps to Gombe and Maiduguri Depots.

Table 15 below, shows summary of products lifted from Jos Depot by all marketers on monthly basis for the year 1983.

TABLE 15

<u>MONTH</u>	<u>PMS (LITS)</u>	<u>DPK (LITS)</u>	<u>AGO (LITS)</u>
January	28,093,839	6,902,807	9,371,327
February	34,097,975	5,745,805	9,321,215
March	29,423,623	4,708,028	8,119,935
April	29,456,503	4,419,194	4,885,811
May	16,709,796	6,685,939	11,370,691
June	14,039,532	7,099,374	9,406,596
July	16,581,335	5,997,442	10,000,822
August	14,226,326	7,075,774	10,407,515
September	14,226,326	5,829,143	7,820,765
October	13,724,145	6,641,340	9,671,815
November	11,260,831	3,598,125	8,369,979
December	13,520,981	6,145,864	9,618,819
T O T A L:	250,725,330	70,848,635	113,285,290

Table 16 below, also shows the corresponding monthly sales value for the same 1983 volume, lifted Ex-Jos depot.

TABLE 16

MONTH	FMS (N)	DPK (N)	AGO (N)
January	4,498,155.05	458,919.26	657,728.61
February	5,445,539.07	381,096.12	654,977.64
March	4,792,870.01	314,243.48	571,651.25
April	4,727,476.81	296,172.69	690,443.46
May	4,079,843.93	355,435.15	760,210.46
June	2,784,989.05	514,789.52	720,108.28
July	2,336,731.77	433,334.08	762,674.65
August	2,759,815.54	513,437.18	793,744.65
September	2,368,622.75	424,459.95	597,386.74
October	2,278,820.81	471,535.14	735,057.94
November	1,874,998.39	260,814.07	640,388.41
December	2,250,962.79	443,951.77	734,983.62
T O T A L:	40,198,825.96	4,868,188.40	8,318,755.71

The above volume of products lifted in 1983 is further compared with the total volume lifted for 1982. Table 17 below shows the comparative analysis, showing the variation and percentage variation.

TABLE 17

PRODUCTS	1982	1983	VARIATION	% VARIATION
FMS	274,950,683	250,725,330	-24,225,353	-8.8
DPK	56,150,193	70,848,835	+14,698,642	+24.2
AGO	96,463,813	113,285,290	+16,821,477	+17.4

Table 18 below also shows liftings ex-Jos Depot for the year 1984. The figures show both the volume lifted for the year and the corresponding sales value in Naira (N).

TABLE 18

PRODUCTS	QUANTITY (LTS)	VALUE (N)
PMS	231,542,296	38,529,329.74
DPK	74,165,376	5,356,593.73
AGO	97,930,284	<u>7,488,585.19</u>
		<u>N51,375,008.66</u>

The 1983 sales volumes is further compared with that of 1984. Table 19 shows the comparative analysis showing the variation and percentage variation equally.

TABLE 19

PRODUCT	1983	1984	VARIATION	% VARIATION
PMS	250,725,330	231,542,296	-19,183,034	-7.65
DPK	70,848,035	74,165,376	+3,316,541	+4.68
AGO	113,285,290	97,930,284	-15,355,006	-13.55

MAIDUGURI DEPOT

The Maiduguri Depot which was commissioned in April, 1981 serves the refined petroleum requirements of parts of Borno, Gongola, and Bauchi States. The depot operates with five loading arms arranged thus:

PMS	-	25,137 M ³
DPK	-	15,387 M ³
AGO	-	17,690 M ³

Liftings of products, commenced from the depot after commissioning with identical problems like other Depots in the Kaduna area. These problems are discussed in a separate chapter. However, Table 21 below shows summary of the quantity of products lifted on monthly basis by all marketers in 1983.

TABLE 20

MONTH	FMS (LTS)	DPK (LTS)	AGO (LTS)
January	14,803,110	6,330,229	10,707,390
February	9,185,110	4,850,330	12,126,680
March	20,267,410	6,525,710	11,740,980
April	6,349,680	3,273,990	12,340,090
May	8,263,260	2,143,210	5,327,890
June	5,687,620	3,417,910	7,576,570
July	7,027,220	3,834,530	7,335,000
August	7,077,200	3,765,080	7,376,210
September	7,222,920	3,222,120	4,417,910
October	8,343,930	3,277,580	10,226,010
November	8,203,240	3,607,940	7,783,090
December	8,868,956	4,462,145	5,175,164
T O T A L:	111,499,686	48,811,274	102,693,984

Table 21 below also shows the corresponding sales value for these products lifted in 1983.

TABLE 21

MONTH	FMS (N)	DPK (N)	AGO (N)
January	2,382,754.27	415,004.59	768,210.75
February	1,478,724.00	328,958.69	847,620.29
March	2,169,411.96	321,765.52	618,923.21
April	1,023,098.11	216,038.03	878,990.14
May	1,347,668.74	148,416.68	432,854.38
June	887,676.26	248,431.69	586,690.66
July	1,179,224.22	278,433.63	570,422.56
August	1,189,986.70	274,009.43	576,694.13
September	1,215,335.88	240,965.76	346,144.28
October	1,385,092.38	232,788.18	777,176.76
November	1,410,050.78	289,358.13	640,388.41
December	1,489,989.65	325,736.59	403,662.79
T O T A L:	17,259,212.85	2,319,827.02	7,446,778.36

The above two tables are further summarised in table 22 below.

TABLE 22

PRODUCT	QUANTITY (LTS)	VALUE (M)
PMS	111,499,868	17,259,212.85
DPK	48,811,274	2,319,827.02
AGO	102,693,984	7,446,778.36
T O T A L:	253,005,126	27,025,818.23

The above sales figures for 1983 are further compared with equivalent sales figures for 1982. Table 23 below shows this comparative analysis including the resultant variation and percentage variation.

TABLE 23

PRODUCT	1982	1983	VARIATION	% VARIATION
PMS	109,360,985	111,499,868	+2,138,710	+2.0
DPK	49,850,963	48,811,274	-1,039,689	-2.1
AGO	121,558,225	102,693,984	-18,864,241	-15.5

Table 24 below also shows summary of product liftings for the year 1984, with their corresponding value.

TABLE 24

PRODUCT	QUANTITY (LTS)	VALUE (M)
PMS	121,475,520	20,402,753.05
DPK	32,682,312	4,411,617.19
AGO	90,701,830	7,041,906.51
T O T A L:		29,816,276.75

The above volume liftings for 1984 is further compared with the various previous volume liftings for 1983. Table 25 therefore, shows this comparative analysis with the resultant variation and percentage variation for the two years.

TABLE 25

PRODUCT	1983	1984	VARIATION	% VARIATION
FMS	111,499,685	121,475,520	+9,975,834	+8.95
DPK	48,811,274	32,682,312	-16,128,962	-33.04
AGO	102,693,984	90,701,830	-11,992,154	-11.66

GUSAU DEPOT

Gusau Depot, which was commissioned during the last quarter of 1982, serves the refined petroleum products requirements for the greater part of Sokoto State. The depot has five loading arms for products lifted from there.

FMS	-	2 Arms
DPK	-	1 Arm
AGO	-	1 Arm

The depot being second to the last to be commissioned, had initial problem of spare parts, since some of the installed parts were used to service the older depots like Kano, Jos and Kaduna. Though liftings started during the last quarter of 1982, this paper will look at liftings at Gusau from the beginning of 1983 since what was lifted in 1982 will not be of much analytical use to this paper.

The performance of the Depot in 1983 was impressive, given the time the Depot was commissioned. During 1983 therefore, the quantity of products lifted on monthly basis by all marketers are shown on table 26 below:

TABLE 26

Summary of Products lifted Ex-Gusau Depot by all marketers in 1963.

<u>MONTH</u>	<u>PKS (LTS)</u>	<u>DEK (LTS)</u>	<u>AGO (LTS)</u>
JANUARY	396,962	307,098	140,803
FEBRUARY	6,511,362	2,209,559	2,921,100
MARCH	11,105,674	1,906,537	4,751,979
APRIL	10,613,214	3,287,144	3,518,354
MAY	6,765,160	2,792,970	6,025,171
JUNE	4,771,801	2,211,954	5,161,500
JULY	6,870,360	2,275,900	6,625,676
AUGUST	9,752,803	3,995,996	6,784,037
SEPTEMBER	1,174,003	3,510,972	3,570,149
OCTOBER	8,135,718	4,404,746	4,666,197
NOVEMBER	7,961,545	1,990,651	7,527,263
DECEMBER	7,734,412	-	6,575,734
T O T A L:	89,375,540	29,079,535	53,293,963

Table 27 below, also shows the corresponding sales value for the above product liftings by marketers during the year 1963.

TABLE 27

<u>SUMMARY OF SALES VALUE</u>			
<u>MONTH</u>	<u>PMS (N)</u>	<u>DPK (N)</u>	<u>AGO (N)</u>
Jan	137,515.79	22,490.41	8,884.66
Feb	396,965.94	128,375.28	184,321.37
March	1,712,526.67	110,769.70	299,849.85
April	1,624,883.06	190,903.07	222,008.14
May	1,035,749.06	162,272.02	380,188.29
June	192,119.96	157,048.73	393,794.00
July	1,140,479.76	161,568.90	503,351.38
Aug	1,641,685.15	283,715.73	515,586.80
Sept	1,357,671.75	256,379.01	272,345.11
Oct	1,366,800.62	321,546.45	363,963.37
Nov	1,321,633.07	141,762.22	572,671.99
Dec	1,299,361.22	-	512,907.25
TOTAL	14,427,512.05	1,936,931.52	4,229,972.21

Table 28 below summaries the total quantity of products lifted in 1983 and their corresponding sales value.

TABLE 28

<u>PRODUCT</u>	<u>QUANTITY (LTS)</u>	<u>VALUE (N)</u>
PMS	89,375,540	14,427,512.05
DPK	29,079,535	1,936,931.52
AGO	53,293,963	4,229,872.21

By 1984, Gusau Depot has become fully operational and most of the teething problems encountered in 1983 had been resolved considerably. Table 30 below therefore, shows the summary of products lifted in 1984 and their corresponding sales value.

TABLE 29

<u>PRODUCTS</u>	<u>QUANTITY (LTS)</u>	<u>VALUE (N)</u>
PMS	141,714,974	23,700,112.53
DPK	36,222,287	2,306,403.93
AGO	62,956,659	4,865,866.00

The above volume for 1964 is further compared with the volume liftings for 1963. And Table 30 below, shows the comparative analysis with the variations and the percentage variation between the liftings for those two years.

TABLE 30

<u>PRODUCT</u>	<u>1963</u>	<u>1964</u>	<u>VARIATION</u>	<u>%VARIATION</u>
PMS	89,375,540	141,714,974	+52,339,434	+58.56
DPK	29,079,535	36,222,287	+7,142,752	+24.56
AGO	56,293,963	62,956,659	+ 4,662,696	+8.00

GOMBE DEPOT

Gombe Depot, which is the last of the Depots to be commissioned, started lifting of products in May, 1963. One of the major problems of the Depot that delayed the commissioning was the inability of the contracting firm to instal a bore-hole for the Depot operations.

However, due to the late commencement of liftings in 1963 the figures recorded will not lend itself to any analytical purposes. I will therefore, show only the volume lifted for 1963 and 1964 and their corresponding values.

Table 31, shows the summary of product liftings at Gombe Depot for the year 1963 effective May till December.

TABLE 31

<u>MONTH</u>	<u>FMS (LTS)</u>	<u>DPK (LTS)</u>	<u>AGO (LTS)</u>
MAY	4,467,262	24,800	1,744,880
JUNE	4,922,542	676,121	445,504
JULY	6,478,330	663,339	5,357,261
AUGUST	4,659,840	1,321,653	4,549,245
SEPTEMBER	3,793,573	2,405,428	2,301,169
OCTOBER	6,152,000	3,747,000	1,449,000
NOVEMBER	4,800,111	5,010,434	4,813,944
DECEMBER	5,911,970	3,295,129	4,649,938
T O T A L:	41,205,606	15,302,129	25,310,941

Also Table 32 below then shows the sales value for the above volume liftings for 1983.

TABLE 32

<u>MONTH</u>	<u>FMS (N)</u>	<u>DPK (N)</u>	<u>AGO (N)</u>
MAY	1,744,885.47	1,705.05	167,508.50
JUNE	817,264.63	48,004.80	426,668.80
JULY	1,675,411.08	61,297.07	1,543,859.99
AUGUST	773,532.85	186,169.34	1,296,429.79
SEPTEMBER	658,037.80	170,785.34	1,022,478.51
OCTOBER	1,212,320.00	266,037.00	110,124.00
NOVEMBER	889,375.45	214,308.78	366,888.50
DECEMBER	932,006.37	230,525.23	354,752.10
T O T A L:	7,102,833.68	1,078,892.61	5,288,730.30

During 1984 lifting of products was uninterrupted for the whole year from January through December, Table 33 below therefore, shows the volume of products lifted and their corresponding sales value.

TABLE 33

<u>PRODUCT</u>	<u>QUANTITY (LTS)</u>	<u>VALUE (N)</u>
PMS	32,110,691	5,358,123.12
DPK	24,293,865	1,743,414.94
AGO	32,536,775	2,493,979.35

All the tables in this chapter were culled from the NNPC Kaduna Sales activities reports for the years 1982, 1983 and 1984.

BRIEF ANALYSIS OF DATA

This analysis of the data collected from the liftings of petroleum products from the various depots will only be limited to the Kaduna, Kano, Jos and Maiduguri Depots, which were operational before 1982. Gusau and Gombe Depots which were commissioned in the last quarter of 1982 and middle of 1983 respectively will not be used since data obtained from them will not be useful for the purpose of this study. However, details of liftings in these two depots are shown on tables 27 to 233.

The analysis will only be limited to three types of white products equally lifted by the four depots under consideration.

Kaduna Refinery, since inception, showed a steady drop in the volume of PMS lifted from 1982 through 1984, table 5 shows that in 1982, 411.9million litres of PMS was lifted from the Refinery, but this came down to 328.4 million in 1983, showing a negative variation of 20.3%. Table 7 further showed that in 1984, the volume of PMS lifted was 313.9million litres, a drop of 4.44% from the 1983 volume. Kano Depot as shown in table 12, recorded a volume of 308.8million litres in 1982 and 270.9million in 1983, which represents a negative variation of 12.3%. Table 14 shows a reversal in 1984 where where 328.4 million was lifted as opposed to 270.7million in 1983 an increase of 57.5million or 21.24%. Table 177 for Jos Depot shows that while 274.9million litres were lifted in 1982 the figure came, to 250.7million in 1983 which represents a negative variation of 8.8%. Table 19 also for Jos Depot shows also a volume of 231.5 for 1984 which represents a further 7.65% negative variation. However, the result from Maiduguri depot for PMS in table 23, shows a positive variation of 2% which represents an increase in volume from 109.3million litres in 1982 to 111.4million in 1983. This positive trend continued in 1984 as shown in Table 25 where 121.4million litres were lifted showing a positive variation of 8.95%.

From the above, apart from Maiduguri and Kano in 1984, the other depots under review showed a decrease in the volume of PMS lifted for supply to consumers. If one compares these variations to the rate of development of the Nigeria Economy as an oil producing country, then one can easily see the obvious reasons behind the storage of PMS in the area under study. The steady increase in the number of automobiles using PMS for fuel without a corresponding increase in supplies of the fuel is another pointer to the scarcity of these products.

The lifting of DPK showed a rather encouraging result. This is very much in order since there has not been stories of shortage or scarcity of DPK or burning kerosine. However, Kaduna Refinery on Table 5 recorded 19.8% negative variation for 1983 and 14.49% negative variation for 1984 as shown in table 7. But tinned kerosine showed positive variations of 7.2% and 2.38% for 1983 and 1984 respectively. The negative variation for DPK can therefore, be identified to the fact that the figure represents also ATK liftings from the refinery which has not been very steady since 1982. Other depots, showed steady increase in the volume of DPK lifted. Kano for example showed 55.8% in 1983 and 6.26% in 1984 from tables 12 and 14 respectively, while Jos Depot showed that a total of 56.1million litres were lifted in 1982 as given on table 17 as against 70.8million in 1983 an increase of 26.2% while in 1984, it further increased by 4.68% to 74.1 million. Maiduguri however, from table 23 showed a decrease in liftings of 2.1% in 1983 and 33.04 in 1984. This will most likely be due to the level of demand in these years since not much of scarcity of DPK was recorded in that sales area during the periods.

... ..

The liftings of AGO in the depots did not show any particular trend. Kaduna Refinery however, recorded a negative variation of 18.9% in 1983 and 22.3% in 1984 from the details given on table 5 and 7 respectively. Kano on the other hand showed an increase of 14.5% in 1983 and a decrease of 25.4million or 13.24% in 1984, see Tables 12 and 14 also, while Jos depot showed an increase of 16.8million litres in 1983 from 96.4 million in 1982. This is shown on table 17, while on table 19 it decreased by 15.3million to 113.2million. Maiduguri like Kaduna showed a negative variation of 15.5% in 1983 and 11.68% in 1984. These variations are shown on tables 23 and 25 respectively.

CHAPTER 4RECOMMENDATION AND CONCLUSIONS

The object of this project is to do a critical analysis of the NNPC Distribution Policy with emphasis on the Distribution are of Refinery which covers states like Kaduna, Plateau, Bauchi Borno, Kano and Sokoto. There has been a progressive effort towards improved distribution of products since the commissioning of the Refinery and the initial Depots. By 1982 only Maiduguri, Kano, Jos and Kaduna Depots were operational, today the Gombe and Gusau Depots have been commissioned thereby completing the network of pipelines and Depots originating from the Kaduna Refinery.

From the body of the project itself I make the following recommendations/Findings.

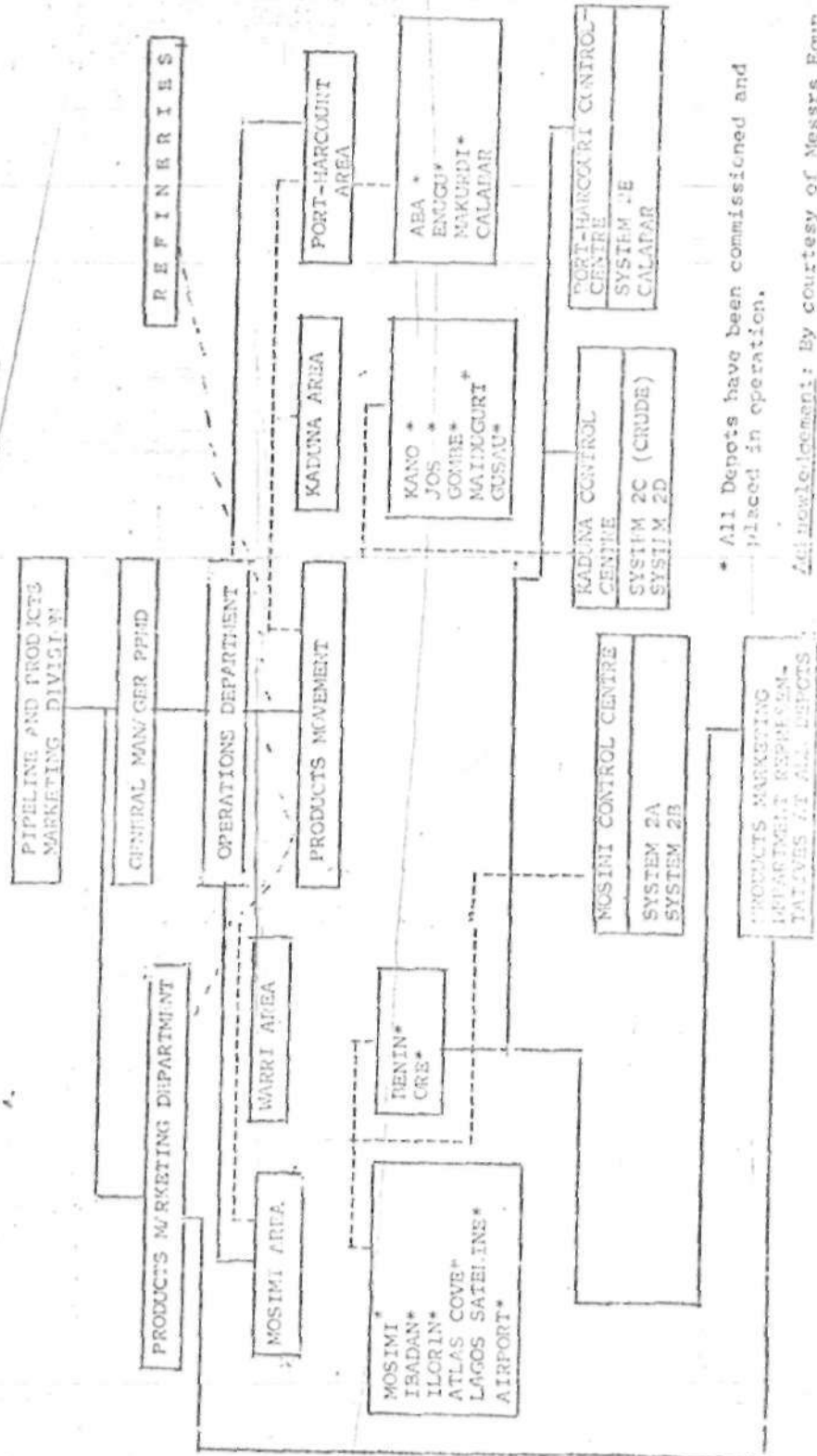
The major problem with the Distribution policy of the NNPC is the NNPC itself. The corporation has been bedevilled with a lot of problems which she has not been able to solve. These include:

- 1) Mechanical Problems - Equipment failure is a major problem that has not been solved since the streaming of the Kaduna Refinery and other Depots. There is a constant breakdown of loading arms from which products are loaded into tank trucks. NNPC has not been able to do accurate projection of her spare part requirements and this has greatly impaired operations to grave level. A good example was that before the streaming of Gusau and Combe Depots, Spare parts were removed from some of the equipments in these depots to service functioning Depots like Kano, Jos and Maiduguri. This even helped to delay the commissioning of these two depots since spare parts could not be procured on schedule. Therefore the maintenance section of the NNPC should have accurate projection of spare part requirements and place orders in advance for them. Oil today is responsible for over 80% of our revenue and as such the oil section should be well catered for.

To solve this problem, outlets should be made big enough to hold a minimum of five-day volume off-take by motorists. This shortage capacity should be adhered strictly to before licence is issued for a new outlet, and the product to be chiefly concerned will be PMS. NNPC has not been able to meet demand for this product for the past five years.

- 6) From the analysis of data in chapter three, it is very obvious that the demand for PMS has never been met. This shows the lack of good projections on the side of the NNPC on the number of vehicles (cars) manufactured yearly by the country's two major car assembling plants and the few that are imported and in some cases smuggled. The Research Department of the NNPC should therefore, evolved a more scientific method of estimating the quantity of cars expected in any given year and their probable level of fuel consumption. If this is done by the use of Time series analysis, the problem of fuel shortage in our retail outlets will have been a thing of the past.

ORGANIZATION, STRUCTURE AND OPERATION OF
PIPELINE AND PRODUCTS MARKETING DEPARTMENTS
AND DEPOTS



* All Depots have been commissioned and placed in operation.

Acknowledgement: By courtesy of Messrs Egan and Howard of Pipeline Operations Department.

NOTES

- 1) Schatzl; J.H. Petroleum In Nigeria. Oxford University Press, Ibadan 1969. Pp 140 - 142.

- 2) Giwa I; Petroleum Products Marketing In Nigeria,
An Analysis Of The Prospects Of Independent
Marketers. ABU Zaria, MBA Research Project 1982
Pp 9 - 11

- 3) Isiaku M.A.; Distribution Problems and Determination Of
Future Demand For Petroleum Products In The
Northern States Of Nigeria. ABU Zaria Research
Project 1982 Pp 84 - 88.

-----000000000000-----

B I B L I O G R A P H Y

- 1) AMU L.A. A Review Of Nigeria's Oil Industry
- 2) Brown, L.O. And Beik L.L. Marketing Research And Analysis
4th edition, Rowland Press Company New York 1969.
- 3) Giwa I. Petroleum Products Marketing In Nigeria; An
Analysis Of The Prospects Of Independent Marketers
ABU Zaria 1981.
- 4) Green, P.E. And Tull, D.S. Research In Marketing Decisions.
Prence - Hall International Series, 1978.
- 5) Isiaku, M.A. Distribution Problems And Determination Of
Future Demands For Petroleum Products In the
Northern States Of Nigeria ABU Zaria 1982.
- 6) Paik J.A. Organisation, Structure and Administration of
Strategic Depots. Being A lecture delivered to
NNPC Senior Staff - July, 1984.
- 7) Pearson, S.R. Petroleum And The Nigerian Economy. Stanford
University Press, Stanford California, 1978.
- 8) Schatzl, L.H. Petroleum In Nigeria. Oxford University Press,
Ibadan, 1969.
- 9) Thorpe, D. Research Into Retailing And Distribution.
Saxon House, D.C., Health Limited, England 1974.
- 10) Annual Progress Report. N.N.P.C. Publication 1984.
- 11) Facts About N.N.P.C. - NNPC Publication 1977 - 1982.
- 12) Progress Of Public Sector Participation In the Nigerian
Oil Industry - NNPC Publication 1980
- 13) Product Sales Activities For The Northern Area NNPC
Publication 1983.

- 14.) The NNPC Products Pipeline And Depot System
NNPC Publication 1980.

- 15) To Commemorate The Official Commissioning Of The Jos
and Kano Petroleum Products Storage Depots -
NNPC Publication 1979.