AN EVALUATION OF INLAND WATER TRANSPORTATION IN NIGERIA

(A CASE STUDY OF INLAND WATERWAYS DEPARTMENT)

BY

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CERTIFICATION

This project titled **"An Evaluation of Inland Water Transportation In Nigeria, (A Case Study of The Inland Waterways Department)"**, by S.I. Makama meets the regulation governing the award of the Degree of Masters in Business Administration (MBA) of Ahmadu Bello University, Zaria and is approved for its contribution to library and literary presentation.

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DECLARATION

I hereby declare that the project has been composed by me, and that it is a record of my own research work. It has not been accepted in any previous application for a higher degree. The various sources of information are clearly indicated in the references. I therefore bear full responsibility for interpretations made and all opinions expressed.

MAKAMA SAMSON ILIYA		25/11/1997
.....	.....	.....
NAME	**SIGNATURE**	**DATE**

DEDICATION

This work is dedicated to The Most High God, and my Late Brother PETER MAKAMA.

ACKNOWLEDGEMENT

Thanks be to God for giving me the knowledge, strength and guidance throughout the study period.

In the course of this study, I have depended on the assistance of numerous individuals whose contributions made the completion of this research a reality. While it is impossible to mention names of all those who helped me individually, there are some whom I am so indebted to that I must thank them individually.

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ABSTRACT

In this paper, the author attempts to draw attention to the great potentials for cheap transportation within the country, which the Niger and Benue rivers and their tributaries offer Nigeria. The rivers which provided the first lines of communication from the coast into the hinterland of the country were used extensively in the past in the evacuation of agricultural produce from the hinterland to the sea ports, on their way to world markets. Their navigability however was limited to the wet seasons, when the high discharges afforded sufficient depths in the channels for commercial navigation.

Extensive studies and investigation have been conducted into the problems for year-round shipping on these rivers, and recommendations made for ameliorating their navigability. The paper outlines these recommendations and goes on to state that so far, apparent neglect and inadequate funding have hindered significant implementation of the recommended improvements. Inland Water Transport, in-spite of its acknowledged potentials lost out in Nigeria to road, even for bulk goods over land hauls.

The paper goes on to suggest that this apparent neglect of a major natural resource should end and the Federal Government of Nigeria be persuaded to embark on the recommended works which will result in significant increase in the available depths in the channels of these rivers in the dry season and engender year-round navigation. Also, the government should be encouraged to show that it has the political will needed to develop these rivers for inland water transport and provide necessary funds for their improvement.

CHAPTER ONE

1.1 PREAMBLE

In any socio-economic system, transport development is one of the indispensable catalysts for activating and stimulating the tempo of economic, social, political and strategic development. The development of an efficient, flexible and dynamic transport system is therefore very vital for meaningful socio-economic development and for binding the various component parts of any society. It contributes significantly to the value and utility of goods and services by moving them promptly from where they are produced to where they are needed. In a socio-political context, transport provides parts of the instruments for enhancing human interaction, blending of cultures and tradition as well as integration of socio-political entities. Thus, strategically, transportation will provide responsive and adaptable facilities needed for national security and defense both in times of peace and war.

In view of the foregoing, it is incumbent on every nation on earth to use the resources available to it to develop a functional, appropriate and reliable transport system.

Nigeria, having a total land area of 923,772 km (2) and a good terrain for the development of urban, intra-urban and inter-urban roads, motorways and a good network of railway tracks is fortunate to be in a position to harness the potentials of all known modes of transportation viz.: road, rail, water, pipe and air.

Water transport among the above-mentioned modes is the oldest. This is because 2/3 of the earth is water, which is usually a natural medium. Initially travel by water was restricted to only the natural waterways, this led to the building of canals for the carriage of people and goods using boats and ferries in parts of Britain, Italy, Holland, Germany and Austria where well established commuter ferry services have developed.

A noticeable feature of water transportation is that it is the cheapest mode of transport because, unlike other modes, nature plays a significant role in the provision of the basic infrastructure i.e. the watercourse. Utilization of these resources only requires keeping the watercourse navigable.

Nigeria, with about 12 navigable rivers and a reasonably long coastline operates both urban and inter-city ferry service. However, the availability of resources for the operations of inland water services by Government, organizations, and individuals, inspite of its relative cheapness, inland water transport is generally not popular with Nigerians. This has resulted from inadequate budgeting provisions, relegation of the mode to the background by Government as well as poor development of the watercourses even in reverine areas. Also, the availability and low fare charged by other transport modes other than inland water transport in the early history of this country could serve as the reason for the neglect or lack of serious attention given to the development of inland water transportation in the successive government development plans. However, the recent high fare charges by these modes with its consequent rise in the prices of goods and services call for a redirection of investment in the inland water transport since it has the relative advantage of being the cheapest, safest and capacity to carry bulk cargo.

Due to the hard economic condition of this country in recent times, it is therefore important (if not necessary) to develop this cheap means of transportation as an alternative mode in order to:

a) Reduce the high transport fare being currently charged and thereby reducing the high cost of consumer goods and services;

b) Reduce high dependence on the road system, which are already in their deplorable conditions;

c) Develop our inland ports for patronage by operators within the West African sub-region;

d) Enlighten the public on the relative advantage of water transport as the cheap, safest and comfortable transport means.

1.2 STATEMENT OF THE PROBLEM

Inland water transportation despite its relative advantage of being the cheapest, most convenient and safest mode of transport has over the years received little or no attention from the successive governments in the development plans of this country. Also, the low enlightenment of the members of the public to the use of this mode, made it unpopular and the domination of the transport system by other modes who charge high transport fare brought about the rise in prices of consumer goods and services.

According to a study carried out at the Nigerian Institute of Transport Technology (NITT), Zaria, there are about 12 navigable rivers in the country. These rivers together with the intercoastal waterways from the West to the East frontiers provide about 3,000km of navigable waterways which in the past provided the main communication routes and accesses from the Coast into the hinterland of the Country. Foreign trading Companies such as John HOLT LTD, U.A C LTD C.F.O, etc used the waterways extensively to transport agricultural produce such as groundnut, cotton, palm produce, beniseed and soyabeans from hinterland to the Coastal Ports enroute to European markets. In return, they moved imported goods such as kerosene, cement, salt, sugar, bicycle, etc. up into hinterland markets. River Ports such as Onitsha, Idah, Lokoja, Baro and Yelwa on the river Niger and Markudi, Ibi, Lau, Numan and Yola on the river Benue grew and flourished during that period. In those days (before early 1960s) inland water transport was very prominent and accounted for well over 38% of produce transport in the Country.

In 1956, the Federal Government issued a white paper in which it established a department which would undertake not only the development of all inter-regional waterways, but also the operation and maintenance of essential marine services. The department started in earnest and established bases at lagos, Forcados, Port-Harcourt and Lokoja.

Today however, the department is living in the shadow of its past. None of the river ports mentioned which used to be bursting with activities is in existence today. Although the use of these rivers for activities other than navigation has been a retarding factor, other

factors are responsible for the present state of collapse of the inland water transport system in general and the Inland Waterways Department in particular.

The approach to water transportation planning, as in other sectors in Nigeria, has been haphazard with little or no coordination and without the application of economic rationality in project selection. Therefore the tremendous potentials of these waterways are yet to be fully exploited.

1.3 THE OBJECTIVE OF THE STUDY:

The objective of this study is to highlight the factors responsible for the stunted growth in inland waterways mode of transport with a view to suggesting ways of overcoming them so that the mode could fully integrate with other transport modes in achieving the said objectives of the National Transport Policy viz: efficiency, safety, reliability, etc. these will be done through:

- Over view of the mode system in Nigeria.
- Trace the evolution of inland water transport in Nigeria.
- Appraise how the system has been used in other parts of the world
- Point out the relevance and efficiency of inland water transport service in Nigeria
- Highlight the problems and prospects of the mode and Inland Waterways Department in Nigeria.

1.4 THE SCOPE OF THE STUDY:

This project considered the background development to transportation in Nigeria, as well as historical evolution of inland water transportation in the country, particularly the history, structure and operational units of Inland Waterways Department with a view to understanding the constraints under which it operates and the prospects of inland water transport mode in Nigeria.

1.5 METHODOLOGY:

In carrying out this research, both primary and secondary sources of data collection are to be utilized as follows;

Primary Source: This will involve interview with some management staff of the Inland Waterways Department and discussions with some users of the mode at Lagos and Lokoja Inland Ports.

Secondary Source: This research intends to benefit from text books, maps, Newspapers, magazines, journals and conference papers for the required information needed for this research work.

Consequent to the adoption of imperical and historical methods of research for this study, conclusions on the data presented would be based on theoretical analysis.

1.6 LIMITATION OF THE STUDY:

In undertaking the study, problems encountered were lack of current data and time for travelling to all inland water ports in the country. However, visits were made to some port and Inland Waterways Department in Lagos. Data obtained were mostly from records obtained at Inland Waterways Department in Lagos and Lokoja as well as through literature review.

Despite the limitations outlined above, analysis proved adequate and suggestions proffered for salvaging the mode's operation are deemed sufficient given resource constraints, such as finance, lack of recent data and enough time to cover all the ports for up to date information.

1.7 THE SIGNIFICANCE OF THE STUDY:

A good and reliable mass transit system is one of the pre-requisites for a sound economic well being of a nation. Sadly, no urban center in Nigeria of today has what can really be

called a mass transit system. Consequent upon this, commuters wait for hours or end up everyday at bus stops for the only available means of transport, i.e. buses and taxis, most of which are not even road worthy. Ideally commuters should have a choice. This is possible if all the possible means of transport are available and exploited i.e. the true concept of intermodalism. This in turn is only possible if adequate and dispassionate consideration is given to the development of all the transport modes.

Also given the interest shown on the issue of transportation by Government, businesses, academic and the general populace due to its central role in the scheme of all day to day issues, a study that focuses on a way of providing alternative mode of transport to the ones already widely accepted is timely.

To the government, a study on an alternative mode of transport to those already consuming a lot of public money to operate and maintain will provide an alternative frame work of decision-making in key investment areas of the transport sector.

To the business community, the study's analysis of cost variables associated with the use of alternative modes of transportation, including inland water ways, will provide a background to re-assessing and optimizing costs (prices and time) associated with transportation.

To academics, this study will provide an insight in the operational background and peculiarities of the mode as well as basis for comparison with other modes for intermodal analysis.

In essence therefore, this study is an attempt to highlight the potentials of the Inland Waterways mode of transport in providing transportation to a significant portion of the country as well as its ability to integrate with other modes of transportation. The study

will also serve as a basis for further study of the subject intermodalism, and transportation in general in Nigeria.

The project draws its conclusion from analysis of factors that must be considered in the planning and development of Inland Waterways such as: The determinants of demand and supply of water transport services, population, residential locations, activity centres, characteristics of water transport service users, water transport operators, inland water transport system itself and competing modes.

The approach of this project will point to the need to reduce instances of mis-investment and to ensure reasonable return on investments. The benefit to society of any complete developed mode of transport system is efficiency, decongestion of cities and reduction in costs and each mode carries the traffic it can advantageously bear.

1.8 DEFINITION OF TERMS

For the purpose of clarity, the key words used in the context are defined as follows:-

a) Transportation: This refers to the movement of people, goods and services from one location to another.

b) System: A group of things or parts working together in a regular relation is referred to as a system.

c) Natural Way: The Natural Way are basically air and water. They are usually advantageous in the sense that they occur naturally, consequently they require little or no construction and maintenance cost. Natural way (water in particular) can be improved by dredging.

d) The Terminal: The terminal can be defined as a point or place of traffic embarkation and/or disembarkation on the way. It is a place of traffic transshipment. There are generally two types of terminals, these are; the passenger and freight terminals. Terminals are usually peculiar to the different transportation modes.

e) Water Terminal: These are referred to as Seaport for the sea way and Inland River port for the river way. The water terminal facilities include gantry cranes, control towers, warehouses, vehicle parking space, etc.

f) Land Terminal: The road way has motor park as terminal, they usually have few terminals facilities such as kiosks, restaurants and retail shops. The Railway terminal is called station. the railway station facilities include platforms, waiting rooms, booking offices and goods shed.

g) Rural Areas: Refers to settlement that does not have more than 10,000 people and their economy is predominantly agricultural.

h) Urban Areas: This refers to a settlement whose population is more than 10,000 who depend on transportation for the marketing and distribution of goods and movement of their members.

i) Private: Simply means not public.

j) Public: Belonging to community, state or nations.

CHAPTER TWO

LITERATURE REVIEW

2.1 *INTRODUCTION*

The movement of goods and people dates back to earliest times. It was the early man's best means of extending the range of his activities, broadening his horizon and improving his living standards by securing raw materials, exchanging goods and culture between himself and other people. Records of man's attempt at movement by various modes since time immemorial has been depicted in various forms. Rock painting depicting early man's attempt at transportation using animals and canoes abound in various parts of the world while other forms of record keeping abound with accounts of man's progress in transportation. Thus the hieragraphics of the ancient Egyptians, down to Chinese literature and modern scriptures all relate various modes of transportation shaped by environmental factors, technology and demand.

In Nigeria, various studies (Ijioma 1990, Kaira 1991, NPC 1991, Abubakar 1994) have identified the lack of adequate transport network as representing a major bottleneck for economic development and inefficient movement of a nation's commerce and people. Ijioma (1990) maintained that the above situation has now been further exacerbated as economic development and construction that has taken off in the newly created states and local government areas requires that larger quantities of goods and services be moved to an ever increasing number of destinations. The bulk of agricultural products and energy which require modern transport systems, particularly water ways (since the country is richly endowed with these resources) is greatly needed to move products to markets.

2.2 BACKGROUND TO TRANSPORTATION IN NIGERIA

Before 1914, trade among the regions that now make up Nigeria was carried out by the use of 'beasts of burden', human portage, and caravans. During the Colonial period transport development (Oguntoyinbo, 1982) was dictated by the need to evacuate cash crops from the interior to the Ports at the coasts. The major transport at that time therefore, was in the rail constructed within cash crops production centres of the North to the Sea Ports in the South. The rail was making significant profits until 1959/60 when it suffered a financial loss for the first time in many years. This was a course for concern by the various governments who directed attention to economic and operating conditions of various modes of transport. Over time, it was recognized that transport was to be planned. The first national development plan (1962-1968) emphasized economic efficiency and coordinated development of the various modes of transport. The second national development plan spanned the period from 1970 to 1974. The transport sector was allocated the highest percentage share in the plan, emphasizing the transport infrastructure which were either damaged or neglected during the period of civil war, and which needed construction and rehabilitation. The oil boom of the period expanded economic and social activities and created excess demand in transport facilities and services. The government adopted the policy of "Opening Up" (FGN 1970) the vast areas of the country and binding together the people of Nigeria. However, most of the infrastructure slated to be provided during the second plan period could not be achieved due to dependence on foreign capital which was not forthcoming (Asadu, 1991), therefore the Third Development Plan (1976 - 1980) took off when the whole transport infrastructure had deteriorated badly. The roads needed repairs from the war effect, the ports had become bottlenecks in face of increasing sea-borne trade. The aim of the plan was to ensure continued availability and expansion of fast and economical transport services needed in a growing and changing economy. The plan's achievements include new roads, six new air ports, six new berths at Apapa port and four at Warri, Calabar and Port-Harcourt. By the 4th plan period (1981-1985) (FGN, 1981) maintenance and management of the facilities put in place during the earlier plan periods became a problem

and therefore the objective however, throughout these plan period tended to place heavy emphasis on the land mode of transport, especially road (Asadu, 1990) where over 60% of total sector allocation was expended. This bias in favour of the road mode is responsible for the fact that road mode has over 80% of total freight and passenger traffic.

The utter neglect of other modes of transportation especially Inland Waterway transport in favour of the road has been decried by various write-ups. The draft National Transport Policy (FGN, 1992) has pointed out that the use of economic analysis to determine the viability of a project in a mode, or whether a project in another mode is more suitable or what combination of investment in the various modes will achieve optimal returns and more efficient services have received little, if any, consideration. Rather social/political factors have influenced investment decisions in the sector. The result has been unbalanced investments whereby excess capacities are created in some modes like sea-ports and air ports, while railway and inland waterways modes are left with little or no investments allocations. The Federal road network is heavily trafficked compared to other highways in other countries, leading to the very poor conditions of the system consequent upon absence of control over maximum axle roads. Other modes that could conveniently carry heavy goods like the rail and inland waterways are faced with problems of inadequate facilities, insufficient funds allocation, and patronage.

2.3 INLAND WATERWAYS AND WATER COURSES IN NIGERIA

Nnama (1988) has appraised the entire inland waterways and identified the problems of, and limitations to year round navigation. According to him, the river Niger widens at Onitsha to 3.2 km and has a draught of 9m to 15m between June and July. At the Delta, the Niger divides into fourteen (14) outlets with Bonny and Forcados river as the important ones (being navigable throughout the year and can take 20,000 ton ships). River steamers can navigate along the Niger up to Jebba from where the problems of rapids and falls start. The river Benue is navigable up to Yola for three and half (3 1/2)

months of the year for vessels with draught of 2 m. The ports on the Benue handled 50,000 tons of traffic at their peak in 1950 (Abubakar, 1988).

Abubakar (1980) dwelt on the problems of ferry services and inland waterways in Nigeria and their implications for mass transportation. In his opinion, good ferry services should supplement the conventional transportation modes in our urban centres to ease congestion. However, ferry services suffer from some problems such as ferries tied up by the Inland Waterways Department (IWD) as only few of the Department's nineteen (19) vessels are on commission. There is also the problem of lack of maintenance due to:

a) Inadequate trained technical staff;

b) Lack of Spare parts;

c) Inability to use Lokoja and Warri Dockyards for maintenance of vessels; and

d) Lack of funds and civil service bureaucracy.

Other problems of ferry service include frequent and erratic services, fear of water by users (hydrophobia), and insufficient patronage because ferry services are provided as supplements to other transport modes. There are also improper facilities (Jetties) at the terminals for embarkation and disembarkation of passengers. Tariff charges are unreasonably low and ferries face competition from other modes. There are also crippling government policies. Navigation routes face obstruction from weeds, wreckage, silt, and unstable water level. Shortage of vessels is also another dimension to the problem, while the number of vessels in operation is relatively lower than the other modes.

2.4 INLAND WATERWAYS AS AN ALTERNATIVE MASS TRANSIT MODE

Abubakar (1988) defined transportation as a system in which a large number of people are moved from one place to another at a time. Its effective operation requires trains, trams, buses, and ferries. Ferries are used to move people and goods in urban areas with waterways or where settlement is separated by water. The Federal Government accords

high priority to water based projects in its mass transit system. However, for effective mass transportation, the following operational requirements are necessary:

a) Identification of viable routes by studying movement characteristics of city dwellers;
b) Securing the right type of vessels to match expected number of passengers on identified routes;
c) Sound jetties for easy and safe boarding and disembarkation of passengers;
d) Good terminal building analogous to the departure/arrival lounge of an air port/train station;
e) Employment of the right caliber of staff for continuous and hitch-free operations;
f) Continuous supplies of fuel, lubricants and spare parts in the right quantities;
g) Provision of slipway/dry-dock analogous to vehicle maintenance workshop.

The author therefore calls for public enlightenment on the fact that water transport is the safest means of transportation, and to remove the phobia attached to it, he advised against break in services, and recommended the dredging of waterways from time to time.

Anyoku (1985) noted that government recognizes and accepts the need to develop our inland waterways because of their prospect in the industrialization of Nigeria. He however, identified difficulties encountered in navigation on the Niger-Benue waterway system such as insufficient depth during the dry season, unstable riverbeds, and shallow channels. The waterway is also narrow and winding below the bifurcation. This reduces low sizes to less than economic proportions.

The advantages of the mode, on the other hand include being the cheapest and safest mode, ability to carry bulk cargoes over long distances and the economic usage of fuel.

2.5 EXISTING CONDITION OF NAVIGABILITY ON THE NIGER AND BENUE RIVERS

The major problem for commercial navigation on Niger and Benue rivers, as has been stated, is caused by limitations in available depths in the channels during the dry seasons. For viable Commercial navigation nowadays, least available depths (L.A.D) in the channels should not be less than 1.5 metres. LADs up to 3 metres and above greatly improve profitability. APPENDIX 5(A&B) shows average LADs on the Niger and Benue rivers observed over the years. Commercial navigation can be practiced on the Niger for seven months - from June to December in an average year and for three and half months - from Mid-July to October - on the Benue river. Studies have been carried out on the existing conditions of these rivers and recommendations for navigability improvement made. One of most notable of these studies was carried out by Netherlands Engineering Consultants (NEDECO) between 1953 and 1958. Their report submitted to Federal Government in February 1959 was accepted. In addition to general information on the regime and navigability of the rivers, the report recommended a programme for Successive improvements to shipping conditions on the rivers as follows:

2.5.1 RIVER MANAGEMENT:

This would entail continued studies, research and regular surveys of the rivers; channel patrols and buoyage, water level and discharge measurement and predictions and regular dissemination of information on Channel Conditions for the benefit of navigators. Inland Waterways Department has since been carrying out these activities.

2.5.2 NIGHT NAVIGATION:

This would be introduced as soon as the necessary buoys, beacon, and leading markings for the night navigation are installed. River operators would also be encouraged to equip their vessels for night navigation.

2.5.3 MAINTENANCE DREDGING:

This would involve dredging of restrictive sills at crossings in the river in middle/low water season to increase least available Depths. Dredging was carried out on the lower Niger between 1977 and 1983. The operation confirmed that with the right equipments and sufficient know-how, dredging could be adopted as a method of achieving temporary improvement in LADs. But such improvements would at best only last till the following high water season when the flood flows would obliterate the dredged channels. Dredging for Channel Improvement would therefore need to be repeated every year, following each high season.

2.5.4 DISCHARGE REGULATION:

This would entail construction of dams and locks at suitable sites to hold back excess high water discharge in reservoirs for regulated release to supplement deficient low water flows. Such dams have since been built at Kainji and Jebba, primarily for hydropower, but the potential for ancillary navigation benefits exists.

2.5.5 FREE FLOW RIVER DEVELOPMENT:

This method of improvement would involve construction of structures such as longitudinal dukes, grayness and revetments at selected sites to increase the resistance of erodible banks, and transfer the erosive force of the current from the bank to the river bed, and thus increase depths.

On accepting the NEDECO report, the Federal Government established Inland Waterways Department and charged it with the responsibility under the Honorable Minister of Transport for aiding Inland navigation and working for progressive improvement of Niger and Benue rivers.

Succeeding Administrations of the Federal Government have invariably supported development of Inland water transport in the country and funded it. But the priority accorded this mode of transport, and the level of funding have so far not been such as to

support major river improvement work. River management therefore started with the Inland Water Department building up an invaluable hydrological data bank on these two rivers.

Over the last decades, Government in its effort to open up the country for development has invested heavily on the road transport sector while the railway and the waterways have somewhat been neglected. Though in private economics, road transport may be preferred, the three modes - road, rail, and river transports are essential in the development of our country's economy. Government has a duty to ensure (fairly) even development in all the three modes.

2.6 SAFE NAVIGATION AND INLAND WATERWAYS NETWORK IN NIGERIA:

To provide safety, efficiency and reliability of navigation on the waterways, the following hydraulic engineering options were considered basic (NITT 1988):

a) Recurrent Dredging: Which is a temporary measure to provide deeper channels through crossings. This measure has been used on the Niger at =N=8 million (1983) to enable moving of 1 million tons of cooking coal from Warri to Ajaokuta.

b) Permanent channel regulation works through use of transverse structures to concentrate low water flow in the channel. This has been planned for River Niger from Baro to Forcados (560km).

c) Storage dams over channels to control flow by holding floodwater of rainy season and releasing them during dry season to keep water level for navigation. Examples include Jebba and Kainji on the River Niger and Shiroro on Kaduna River.

d) Barrages that are low dam across river to ensure minimum water level during dry season low flows. (None exist in Nigeria).

Faulks (1969) viewed freight transport in Inland waterways as the interaction of two or more undertakings providing the same or different forms of transport to both providers and users. Accordingly, by this method, wasteful duplication is avoided and resources are thereby utilized to maximum advantage.

A study carried out by ENPLAN GROUP (1990) for the Inland Waterways Department emphasized that the present freight transport system between passenger and freight services in Nigeria is both wasteful and unfair to the waterways.

2.7 THE DECLINE OF WATER TRANSPORT IN NIGERIA:

The Nigerian civil war (1967 to 1970) disrupted water transport severely as the lower Niger and Delta waterways were in war theatre. Produce from the northern parts of the country therefore had to find an alternative route to the SeaPorts for export. To a large extent, road transport filled the gap. The reconstruction period after the war saw the Federal Government of Nigeria making relatively large investment in road development. This resulted in significant improvement and expansion in our road network. Our waterways received no such investment and had no improvement. Some of the shipping companies lost most of their floating and cargo handling equipment in the war and needed to repair/replace them to operate. Also, the fact that road transport requires comparatively much smaller initial investment and relatively simple organization to operate on small scale brought motor transportation business within the reach of many Nigerians. Unlike water transport, which requires much larger start-up capital, elaborate organization and more skilled staff to operate, road mode, which requires less initial start off capital, took over a major share of the Nigerian produce traffic. The disadvantage of this development to the country is that road transport which is normally the most expensive mode for bulk goods over long hauls gained a pre-eminent position at the expense of water and rail transport.

2.8 REVIEW OF TRANSPORT SECTOR INVESTMENT IN 1ST TO 4TH PLAN PERIODS:

Government expenditure on water transport has been comparatively very low. Percentage expenditure on water transport has declined from 25% of the total government expenditure on transport in the National Development Plans of 1962-1968 to 9% in 1981-1985. (See table 2.8.1 below.)

TABLE 2.8.1

INTERMODAL SHARE OF TRANSPORT SECTOR INVESTMENT (PERCENTAGE)

PLAN	ROAD	WATER	RAIL	AIR	TOTAL
1962 - 1968	58.0	10.0	25.0	7.0	100
1970 - 1974	67.0	9.3	13.0	10.0	100
1975 - 1980	70.6	9.4	10.0	10.0	100
1981 - 1985	60.0	25.0	9.0	6.0	100

Source: 4TH NATIONAL DEVELOPMENT PLAN

Table 2.8.2 shows that by the 1980 - 1990 and 1991 - 1995 Plan Periods, Inland Waterways Planned allocation declined from 3.8% to 3.2% respectively.

TABLE 2.8.2

TRANSPORT SECTOR ALLOCATION IN 5TH AND 6TH ROLLING PLANS

PLAN	HIGH WAYS	PORTS	RAIL WAYS	INLAND WATERWAYS	AIRPORTS	OTHERS
1986-1990	72.4%	5.8%	4.0%	3.8%	5.6%	8.4%
1991-1995	65.0%	7.5%	14.2%	3.2%	2.6%	7.5%

Source: Cumulative Budget Allocations.

The level of efficiency of any transport system depends basically on the quality of funding and organization to enable it carry out the task of provision of commercial services, conservancy, development and planning. Due to inadequate funding, the Inland Waterways Department finds it difficult to render these services adequately. In fact the situation at hand appears as if there is no definite policy existing for the development of this mode.

2.9 SUMMARY:

The existing documented literatures on transportation in general, water transportation in particular, and especially in Nigeria was reviewed. The role of transportation in evaluation of civilization from ancient times was traced. Similarly, background to transportation in Nigeria and its impact on past and current spatial pattern of development was discussed. The role played by transport in shaping the socio-economic and strategic variables and its international status was highlighted. The ways various governments and their plans treated the transport sector in the various fiscal-planning periods was evaluated. The position of Inland waterways in government transport development programmes was also identified. While its possible role in mass transit concept was appraised, as well as the facilities needed to make it effective was equally deduced.

Based on the related literatures reviewed, it can be clearly seen that the general opinion of the authors on Inland water transport is that, it has over the years been under-funded, therefore it suffered inadequate provision of the necessary operating facilities, insufficient patronage and lack of proper coordination with other transport modes.

CHAPTER THREE

RESEARCH METHODOLOGY

.1 ***METHODS OF RESEARCH:***

There are many methodological approaches for handling a research, ranging from empirical, historical, longitudinal, attitudinal, experimental, behavioral, statistical, and survey researches. Most research works usually transcend the boundary of a particular approach to embrace variety of methodologies in an attempt by the researcher to currently define the problem, formulate hypothesis, collect and critically analyze data, interpret and report findings.

i) Empirical Research: This kind of research involves the researcher going to the field to collect data, choosing the most appropriate means of data collection depending on the study topic.

ii) Historical Research: This category of research is based on time frame of which the research has to be conducted. Where the research pertends to the past then it is historical. Where it relates to the present, it is better called contemporary research. When it pertends to the future, it is called diagnostic or predictive research (not presently feasible). You can only research into past to look into the future.

iii) Longitudinal Research: Pick a sample and study the sample at a specified time. The advantage of this is that you can be able to see behavioral change over time.

iv) Experimental Research: Involves studying the phenomenon under a controlled situation designed by the researcher.

v) Attitudinal Research: Focuses on attitudes and beliefs of people pertending to particular phenomenon. This is highly subjective and should not be used for research, as opinion may be at variance with the real facts.

vi) Behavioral and Statistical Research:

Behavioral research is non quantitative in nature, while statistical research is highly quantitative or statistical in nature.

vii) Survey Research: This involves examining a relatively large population, while the case study focuses on the narrow or microscopic population. The advantage of the Survey research is that it supplies large evidence to support the conclusion reached. Generalization is therefore validly made with respect to surveys than cases.

The historic nature of this research therefore, made the adoption of the empirical and historical methods of sourcing data most effective due to lots of information acquired through these sources which helped in identifying the problems and prospects of Inland water transportation in Nigeria.

3.2 DATA COLLECTION METHODS:

There are two types of data: Primary and Secondary data. For the purpose of this project, both methods of data collection were used in obtaining the required information.

i) Primary Data: Are those collected for specific purposes of research from the original sources.

The primary method employed in information collection for this project was based on unstructured interview with the Acting Director, Navigation (Ag D/N) and Chief Hydrology Survey Officer (CHSO) of the Inland Waterways Department who were directed by the Director of Inland Waterways Department to attend to me because he could not do so due to his busy schedule.

To get the required information therefore, discussions were centered on:

* The structure and management of Inland Waterways Department;
* The operational routes and fare charged on the different routes by private and public operators of Inland waterway transport;
* Navigational facilities at the inland ports;
* Revenue generated by Inland Waterways Department on the different routes;
* Records of previous allocation in the National Development Plans.

ii) SECONDARY DATA: They are those data that are meant for a purpose other than the present research, but which is relevant to your research though not primarily meant for the problem under investigation.

Information collected through this method was obtained largely from Ministry of Transport's annual report, Newspapers, Magazines, Conference papers, and textbooks. After scanning through these publications, information on the following topics were obtained:

* Historical background of transportation in Nigeria;
* History and objectives of Inland Waterways Department;.
* Safe navigation and Inland Waterways network in Nigeria;
* Cost/benefit analysis of Inland Water Department services;
* Integration of Inland Waterways transportation and other modes of transportation in Nigeria.

In an effort to acquire more information for this study, the researcher visited some private operators of this mode (RED FAN LTD and CROSS MARINE CO. LTD) at Apapa Wharf, Lagos. At RED FAN CO. LTD, the researcher was told that the Managing Director of the Organization traveled out of the country, and therefore nobody could release such sensitive information without his consent. While at CROSS MARINE CO.

LTD, despite the researcher's repeated visits, he could not get the Managing Director for discussion due to the field nature of his work.

3.3 **INSTRUMENTS OF DATA COLLECTION:**

There are several means of collecting data, notable among them are:-

i) Questionnaire: There are two types;

a) Structured Questionnaire:- This type restricts the respondent to the kind of answers he/she is to give.

b) Unstructured Questionnaire:- This could be postal questionnaire or questions which are to be answered in the manner dimmed fit by the person answering.

ii) Interview: Can be structured or unstructured.

a) Structured:- The list of questions to be answered is sent to the interviewee to enable him/her prepare the answers before the interview.

b) Unstructured:- It is done by taking the questions direct to the person intended to answer or by asking him/her questions while the interviewer fills in the answers.

iii) Observation: When the researcher takes time to observe the issue under investigation. When the researcher does such observation, it is a direct observation, but if it is someone else, it is an indirect observation.

iv) Experimentation: Studying the phenomenon under a controlled situation created by the researcher in order to collect the needed information.

v) Documentation: This involves extracting the data needed by the researcher from documents checked by the population or sample under study with respect to the research problems.

3.4 DATA ANALYSIS:

Using information collected to back-up the problem under investigation, data analysis involves coming out with result(s) or findings with respect to the subject being studied based on the facts assembled through the various sources and methods. The interpretation of the data should bring out facts based on which references on your findings can be made. Due to the historic nature of this research therefore, conclusions on the data presented are based on theoretical analysis.

CHAPTER FOUR

HISTORICAL BACKGROUND

4.1 *HISTORICAL BACKGROUND OF INLAND WATERWAYS DEPARTMENT*:

In a White Paper issued by the Federal Government in 1956, a general policy on Federal waterways was spelt out, in which government disclosed its intentions of establishing a new department which would undertake not only the development of all inter-regional waterways but also maintenance and operation of all marine services for which the Federal Government is responsible. This department was then known as the Federal Department of Inland Waterways (FDIW), and became operational on 1st April 1957. However, prior to the establishment of Federal Department of Inland Waterways, all matters concerning inland waterway transportation were handled by the Nigerian Marine.

By providing the most economical means of evacuating the country's agricultural produce from the hinterland to the seaports, the inland water transport system grew and flourished during the 1st half of this century. And because the agricultural produce for export came on the market seasonally, and these seasons largely coincided with the navigable seasons of these rivers, the seasonal pattern of navigability did not detract very seriously from the competitiveness of the Inland waterways as a means of transporting produce. There was therefore no compelling argument for the costly investments to extend the period of navigability.

The Niger-Benue river system regime is dominated by the typical monsoon pattern of rainfall distribution in the catchment areas, they are characterized by two defined seasons - the high and low water seasons which correspond respectively with the rainy and dry seasons.

The growth of river transport continued until the outbreak of the Nigerian civil war. During the war, parts of the Trunk River lay in the theatre of hostility; thus alternatives had to be developed to move produce from the hinterland down to the seaports for export. This alternative was the road.

The sharp rise in import of consumer goods during the oil boom days created the demand for reliable all year-round transportation for the movement of goods into the country. The seasonal navigability of the Niger-Benue waterway system and the absence of developed conditions to meet such year round commercial transport demand. The decline in agricultural produce available for export as a result of the neglect of agriculture and increased internal consumption in this produce made matters worse for Inland Waterways Department.

The Department started within the first year of its existence, and established permanent bases at Lagos, Forcados, Port-Harcourt and Lokoja and assumed full responsibility for the conservancy of the main Federal, Inter-regional and regional waterways. The Department provides services such as:

1. **Lagos Service:** Carriage of people and cargo from Lagos to Patani, calling at Epe, Atigere, Argbo, Young Town, Forcados, Burutu, Warri, Frukuma and Bomadi.

2. **P/Harcourt:** a) This operates Kiama-Odi, Creek main service operating from Port-Harcourt to Sabuega through Degema, Nembe, Brass, Ekowe, Oporama, Amasame and kiama.

   b) Operates Bonny creek mail service from Port-Harcourt to Okrika through Bonny.

The Inland Water Vehicular Service was extended to Enwang and Ebulu in Akwa-Ibom State and Ibi Kudu in Taraba State. While the ferry service was extended to Calabar and Oron, Creek Town, Port-Harcourt-Degema-Buguma, Yelwa-Dolekina, Yelwa-Lolo, Yelwa-Zamare and Lokoja-Shintaku.

An urban ferry service was also established in Lagos, and were provided initially for:-

* Marina - Apapa
* Marina - Mile 2
* Marina - Festac Town
* Marina - Maroko

4.2 STATUTORY RESPONSIBILITIES:

The main objectives of the Inland Waterways Department are as follows:-

1) The collection, Compilation, and study of hydrological data, the execution of detailed hydrographic surveys and production of river maps.
2) The maintenance and improvement of all navigable channels outside the ports and their respective approaches.
3) The control of Inland water navigation, lights bouyage, piers, wrecks, and government dockyards.
4) The operation and maintenance of all government crafts and ferries.
5) The survey of all crafts and conducting of examination under the shipping and navigation ordinances.

Other activities carried out by the Inland Waterways Department include:-

1) River patrols to take care of the unpredictable movement of sand banks and periodic variation in water level.
2) Erection of buoys and beacons to aid navigation
3) Salvage operations and attendance to shipping casualties.
4) Construction of new vessels.
5) Dredging and reclamation works.

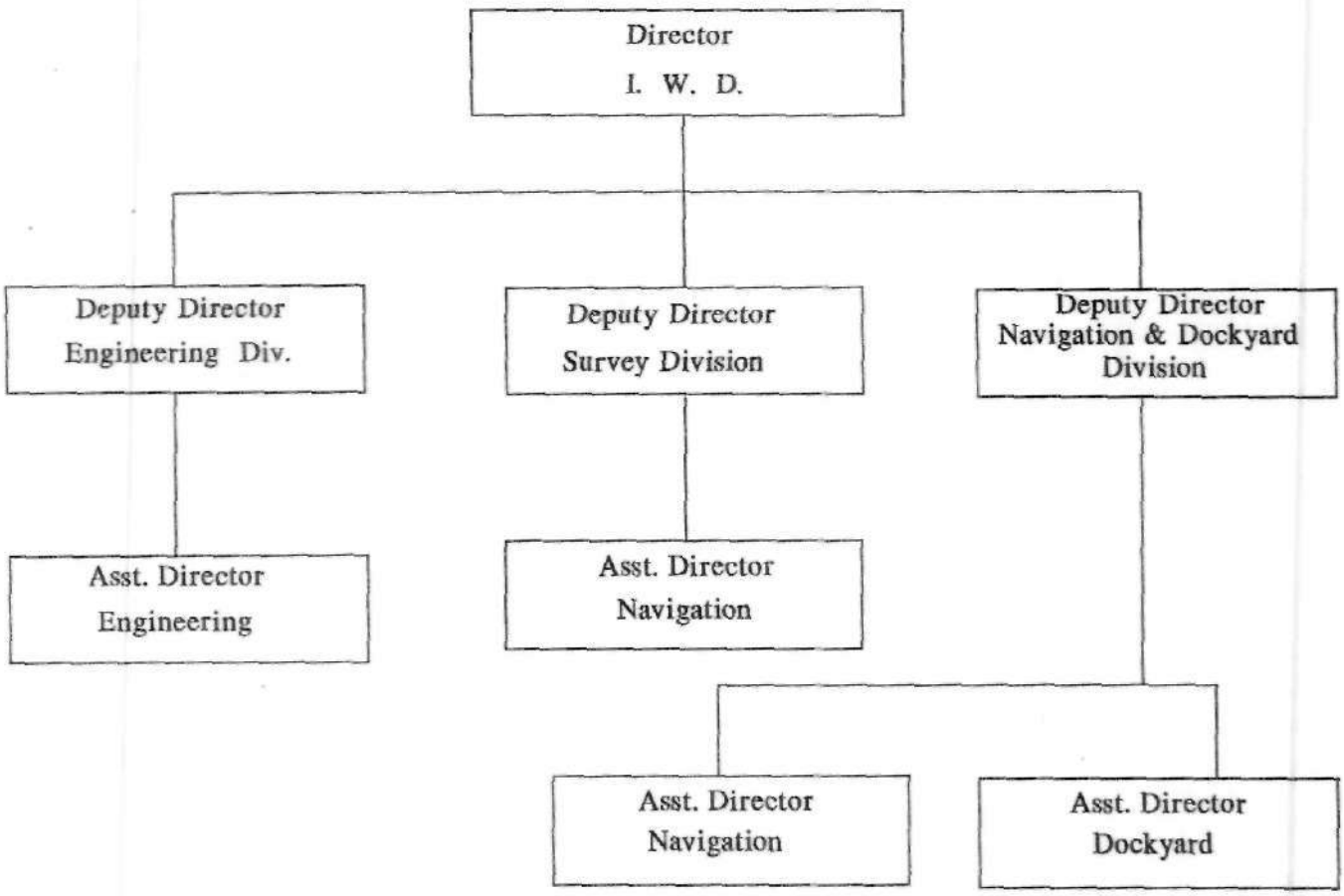
4.3 STRUCTURE AND MANAGEMENT OF INLAND WATERWAYS DEPARTMENT:

The Inland Waterways Department is a unit of the Federal Ministry of Transport. The Ministry itself is charged with the responsibility of formulating and implementing an efficient transport policy essential for the economic, social and political development of the country. In order to achieve these objectives, several departments including Inland Waterways Department were created and existed within the Ministry. These are: Administration and Finance, Planning, Research and Statistics, Maritime Services, Land Transport, Transport Coordination and Inspectorate, and Inland Waterways Departments.

The Inland Waterways Headquarter is located in Lokoja and has Divisions comprising: Engineering (for dredging and ports construction), survey (for hydrographic survey and River Maps production, Installation and Maintenance of river gauges) and the Ferry Service Department that operates ferry services. Figure 4.3.1 below shows the organogram of the Inland Waterways Department.

Fig. 4. 3. 1

ORGANIZATION CHART OF THE INLAND WATERWAYS DEPARTMENT



For training and manpower development purposes, the Inland Waterways Department has been benefiting from organized institutions established and equipped in Nigeria for training and retraining of manpower in this field. These are

* Maritime Academy of Nigeria at Oron in Akwa-Ibom State.
* Nigeria Institute of Oceanography and Marine Research - Lagos.
* Nigerian Ports PLC training School.
* The Nigeria Institute of Transport Technology (NITT), Zaria.

4.4 FUNCTIONS OF THE DIVISION:

i) Functions of Navigation and Dockyard Division

* Maintenance and Improvement of all navigable channels outside the ports.
* Responsible for the control of Inland Water navigable lights, voyage, piers, wrecks and dockyards.
* Operation and maintenance of all government crafts and ferries.
* Clearance of all obstructions along channels.

ii) Functions of the Survey Division:

* Collection, Compilation, and study of hydrological data survey and provision of river maps.
* Locate positions of shipwrecks.
* Issue bulletin for easy navigation (monthly).
* Survey of all crafts and conducting of examination under the shipping and navigational ordinance.
* Inspection of ships and equipment like life raft, life boat, life jacket, etc to ensure safety.

iii) Functions of the Engineering Division:

* Carry out construction of bottom panel for easy control of water flow.
* Supervision of dredging work done by contractors.
* Carry out minor repair works in the Inland Ports.

4.5 AN APPRAISAL OF INLAND WATERWAYS DEPARTMENT'S PERFORMANCE:

The Inland Waterways Department (IWD) of the Federal Ministry of Transport operates passenger and vehicular ferry services in seven states of the federation with a fleet of 19 ferries made up of six (6) vehicular ferries and 13 passenger ferries. Other duties of the department are mentioned in 4.2.

Comparing objectives with output best does the appraisal of performance of any system. In the case of Inland Waterways Department, all the 19 vessels been operated (see 5.1.1) would have been lost if the Federal Urban Mass Transit Authority (FUMTA) was not set up in 1988. Even then the Inland Waterways Department was finding it extremely difficult to operate those ferries repaired by FUMTA due to lack of funds. Some of the vessels were very obsolete, as it is common to see most of them with manufacture date indicating the early 1970s. The operations and maintenance of these vessels, then, leaves much to be desired as the main source of funding their operations and maintenance is through budgetary provisions that is inadequate and irregular. The revenue derived from the operations of the vessels were meager, although some routes, despite the shortcoming imposed by low fares charged, appear very lucrative and seem capable of sustaining their operations, (Appendix 2 shows the routes and revenue derived from the operations). Five routes - Marina to Apapa, Calabar to Oron, Calabar to Creek-town, Ibi to Kudu and Lokoja to Shitaku appeared to justify their operations. However, from the table, it appears that even these routes suffered from irregular operations as seen from the cells for some years. This indicates lack of consistency in the provision of inland water services.

Most of these functions have not been carried out for years, e.g. clearance of obstructions along channels, dredging, reclamation work, training, river patrols, installation of navigational aids. Even the operations and maintenance of dry-docks at Lokoja, Warri and Forcados have been done only barely.

Below is the Comparison between the duties of Inland Waterways Department with the actual performance.

Collection and study of Hydrological data, Survey and provision of the river map.	The last time there was any activity in this area was in 1984.
Maintenance and Improvement of all navigable channels outside ports.	The last dredging work on any waterway was in 1985

4.6 PROBLEMS AND CONSTRAINTS OF INLAND WATERWAYS DEPARTMENT:

i) Under Funding:- As a result of poor funding most of the Department's projects have remained on the drawing board for years. This applies not only to capital projects but also over head cost.

ii) Bureaucratic Bottlenecks:- The processes and procedures entailed in attaining desired results under civil service rules and regulations are cumbersome. For instance the Civil Service financial regulation prohibits the Department from using revenue realized from its operations to meet immediate needs without securing authority to incur expenditure (A.I.E), through the appropriate procedures. This is a major constraint, particularly to ferry operations.

iii) Low Tariff and Fares:- While the private operators reviewed their charges in reaction to inflationary trend, that of the Inland Waterways Department remained fixed over a long period and subject to the approval of the Utility Services Commission.

iv) Poor Infrastructural Facilities/Working Conditions:- Among all the Departments of the Federal Ministry of transport, Inland Waterways Department has the highest number of outstations and highest number of staff. In spite of this, most of its offices are old, poorly maintained, and largely reminiscent of the colonial era. Staff are also discouraged from putting in extra effort due to the Civil Service circular curtailing overtime allowance and prohibiting certain categories of staff from such benefits.

v) Absence of an Enduring Marketing Strategy:- The public is unaware of the potentials and capabilities of Inland waterways activities, because Inland Waterways Department has not fashioned a deliberate and well articulated strategy of reaching out to its clients. Not many people are aware of the broad spectrum of services that the Department can render. Apart from ferry services, the Department offers Workshop, dockyard, engineering and consultancy services on river related projects and inland navigational matters.

vi) Inadequacy of Skilled Manpower: The Department had over the years suffered a dearth of highly skilled professionals due to the unattractive pay package of the Civil Service.

vii) Negligence of Land/Property holdings for Revenue Generation:- The Department's lands and property holdings have remained undeveloped for revenue generation. Most of these resources have been left fallow for a long time and are frequently encroached upon by individuals and corporate bodies.

iii) National and Logistical Impediments:- The flow regime and available navigable depth in most of our waterways are seasonal and therefore not regular. The river channels are therefore not navigable by ferries at certain periods of the year. Due to the rough terrain the river channels are most times obstructed by rocks, weeds,

trees, etc. The inadequacies of jetties and landing ramps or the absence of them at ferry berthing points has been a problem.

ix) Lack of Operational Philosophy: The Department lacks a guiding operational philosophy. Most of its services are regarded as social services. As a result the quantum and quality of services it offers it cannot be properly assessed.

x) Unfavorable Government Policy:- This relates to all government policies that have been neglected to highlight strict adherence to the issue of comparative advantage, especially for categories of freight and passenger services to which inland waterways transport is best suited.

4.7 DEVELOPMENT OBJECTIVES OF INLAND WATERWAYS DEPARTMENT *(AS SUBMITTED TO COMMITTEE ON VISION 2010)*

The Department has the following developmental goals and targets:-

a) Achievement of minimum requirement for year round navigation by increasing the waterway carrying capacity and ensuring the safety of bulk cargo transport by barges;

b) Development of infrastructural facilities for Inland Waterways Network connecting the creeks and the rivers with economic centers and having River Ports as nodal points for intermodal exchanges;

c) Development of indigenous technical and managerial capacity to meet the challenges of modern inland waterways transportation;

d) Restructuring the organizational machinery of Federal Inland Waterways Department.

THE SCOPE OF WORK:- In pursuance of the above, goals and targets are articulated as follows:-

a) Major development of the Forcados river up to its junction with the river Niger (Warri to Bifurcation)

b) Major development of the Nun river up to the Bifurcation (Port-Harcourt/Onne to Bifurcation).

c) Development of the Lokoja Confluence to Bifurcation section of the lower Niger.

d) Development of the Calabar to P/Harcourt/Onne. Creek route.

e) Development of the Lokoja confluence to Nigerian/Niger Border on the Upper Niger.

f) Development of the Cross River up to Ikom.

g) Development of the route from Lokoja to Yola on the River Benue.

h) Construction of Inland River Ports at Patani, Yenagoa, Onitsha, Lokoja, Idah, Ajaokuta, Baro, Yelwa, Makurdi, Ibi and yola.

i) Upgrading the Inland Waterways Department to the status of a Parastatal;

j) Articulate a manpower development and recruitment programme for the Department.

4.8 DEVELOPMENT STRATEGIES:

The activities of the Department shall be well integrated with the long term objectives of the national transport policy which is aimed at resource based industrialization. It is anticipated that the economy will experience a positive shift from the present transportation system, which was designed to serve a purely trading economy to a more advanced system that would additionally, be able to sustain a production economy. To achieve this, the following strategies should be adopted.

i) A phased development of infrastructural facilities such as river Ports dockyards, jetties, landing ramps, workshops, ferry terminal offices, etc, in various Riverine and coastal locations according to their strategic commercial importance and in response to actual traffic demands.

ii) National Policies on Transport should be formulated taking cognisance of the fact that the various modes of transportation have specific areas where they have

comparative advantage over the others and accordingly harmonize intermodal exchanges with a view to obtaining optimum benefit from this sector.

iii) Evolve a Master Plan for the efficient supervision and regulation of inland waterways ferry operation and activities nation-wide.

CHAPTER FIVE

DATA PRESENTATION AND ANALYSIS

FACILITIES FOR INLAND WATER TRANSPORTATION:

i) Nodes and Channel Characteristics: Nigeria has many rivers that lead to the sea, but very few have been developed to cater for the ports and Riverine people as regards freight and passenger service. Those that are partially developed are:-

a) Lagos lagoon that leads to Apapa Port, Ijora Fish Jetty and Tin-can Island Port, Snake Island Dock, apapa dry Dock, Oil Jetties and Naval Dockyard.

b) Escravos River which leads to Delta Ports of Koko, Sapele (which is now a Nigerian Naval base), Warri refineries' jetties, old and new Warri ports, Warri Inland Waterways Department slipway, the Delta Steel Plant jetty and Burutu port slipway.

c) the Bonny river which leads to Port-Harcourt jetties, Port-Harcourt Shell jetties, and Onne Port (Onne light terminal).

d) The Cross-River which leads to Oron jetty, the oil jetty and Calabar port.

Other partially developed rivers with access to the sea are: Lekki Lagoon, Mahin river, Benin river, Forcados South-East entrance, river Dido, Penington river, Brass river, Ogibo rivers which joins Imo river and the Kula river which joins Oguta lake (see river maps: Appendix 3 and 4 for more information on the channels).

Also, river transport service has been enhanced by the provision of 29 jetties through the efforts of the Directorate of Food, Roads and Rural infrastructure (DFRRI) who laid emphasis on the development of Inland waterways in some areas that need such services. These areas include:

Rivers State	-	At Opobo, Bonny, Port-Harcourt, Degema, Bugoma, Abonema and Abua.
Kebbi State	-	Zamare, Rofia, Dolekina, Lollo, Tage-Tuga and Gendeme.
Benue/Kogi State	-	Lokoja, Tsitako, Buruku, Egadaba, Ida and Odero.
Adamawa/Taraba States.	-	At Yola and Kebbi.
Imo State	-	Oguta Lake.

Although the Government in the provision of these facilities has made efforts they are yet inadequate because many Riverine communities still need such facilities to enhance inland water transport services in their areas. Also where such facility exists, a record has shown that they are in their deplorable states due to neglect or lack of maintenance work to keep the facilities in good shape.

ii) *CRAFTS:* Mostly shallow draft vessels which can go into creeks are used in inland water transportation, usually, they are of different sizes and between 1.5 metres and 2.5 metres draught, depending on where they are used. Below is the table containing the crafts and stations of Inland Waterways Department (IWD).

Table 5.1.1

Inland Waterways Department Crafts and Stations

Station	Number of Ferries
Lagos - - - - -	6 (Passengers)
Calabar - - - -	4 "
Port-Harcourt - - - -	1 "
Idah - - - - -	1 (Vehicular)
Ibi - - - - -	1 "
Lokoja - - - - -	1 (Passenger; 2 Vehicular)
Donga - - - - -	1 (Vehicular)
Yelwa - - - - -	1 (Passenger)

The Inland Waterways operates passenger and vehicular ferry services in seven states of the Federation with a fleet of 19 ferry (6 vehicular and 13 passenger) crafts. Appendix 1 gives detailed inventory of Inland Waterways Department (IWD) crafts.

Among those that compete with, and compliment the services of Inland Waterways Department are the state government owned companies and those that are privately operated. Those ferry services being operated by the state governments includes those of Lagos, Delta, Cross River and Rivers states (see table below)

Table 5.1.2

State Government Ferry Services

State	Number of Ferries
Lagos - -	9
Delta Boat Yard -	3
Cross-Rivers Line -	1
River Marine Transport Service- - -	5

In most of the Riverine areas of the country only private companies provide the needed water transportation. It is however not easy to say at a glance which companies are engaged in inland water transportation in Nigeria other than those that did the routine registration. Most of the companies however operate un-sea Worthy crafts, while others use dugout canoes, power dugout canoes and powered dinghies (flying boats). The only organized private water transport service today is provided by Julius Berger and U.A.C. These two Companies carry their goods from the ports to designated locations in the country's hinterlands.

A comparison of the number of communities who need water transport services and the number of crafts provided by the governments and complementing private operators has

proved inadequate to cater for the transportation needs of the people in the Riverine areas and urban mass transit demands to ease congestion on the Urban roads.

iii) *JETTIES AND RAMPS:*

For easy embarkation on and disembarkation from the crafts by passengers, it is very important that good jetties with appropriate conveniences, comfort, and shelter in addition to office facilities for the staff and the passengers and their goods respectively be provided at each station. Very important as well is the provision of appropriate mooring facilities at each station as it is very dangerous to use canoes to off-load passengers and freight mid-stream.

Though in Nigeria we have quite a number of these facilities in the urban and some Riverine areas. Many communities are up to date practicing the crude method of embarking and disembarking from crafts mid-stream because they lack jetties. Also in places where jetties are provided, it is common to see that the complementing facilities are either not provided or poorly maintained.

iv) *SLIPWAY AND DRYDOCKS:*

Vessels running on water need slipway or dry-dock for repairs, while from time to time the bottom of the vessel has to be scrapped and painted and the water inlets and out-lets cleared.

These facilities exist in some waterway areas of Nigeria. The table below indicates these facilities and their locations.

Table 5.1.3

Dry-dock Facilities and their Locations

Drydock Facilities		Location
Nigerian Port PLC	-	Lagos State

Naval Dockyard	-	"
P.M.S. Crane Dockyard	-	"
Niger Dock	-	"
Aiyetoro Slipway	-	Ondo State
Ogbola Slipway	-	"
IWD Slipway, Warri	-	Delta State
Nign. Ports PLC Slipway Burutu-		"
Nign. Port PLC Slipway, Warri	-	"
IWD Slipway, Lokoja	-	Kogi State
River Marine Transport Co.		
Slipway, Port-Harcourt	-	Rivers State
Shell Petroleum Slipway P/Harcourt	-	"
Cross River Slipway, Calabar -	-	C/River State

The provision of slipway and dry-dock facilities in order to provide the repair needs of the few crafts operating in this Country had been fairly done. However, due to lack of specialized skilled people in this field and difficulties in getting the equipment required for carrying out repairs and routine services on the vessels, coupled with the poor financial situation of the country, the use of these facilities has over the years been under utilized and that gives the reason why we have less than expected number of functional crafts today.

THE DEMAND AND SUPPLY OF INLAND WATER TRANSPORTATION:

SUPPLY:

when considering transport supply function generally, the thought of political, social and economic demands of the society comes to mind. In consequence, the consideration of transport demand functions of Inland waterways network in Nigeria should be seen from the political, social and economic activities that live at, along and behind the nodes of the

network. For all these activities to be carried out, the demand for "utility" place is relevant.

However, the question of how much demand for water transport is made by the concerned community can be answered by the fact that geographical locations of some communities are in the captive demand for water transport because they have no other alternative mode of mobility. It therefore means that their demand must be met somehow. Going by the geographical nature of the country, these "captive communities" that need water transport could be found in six zonal locations where navigable natural/man-made watercourse exists. These zones are:-

a) Lagos Water Course

b) Delta Zone

c) Cross River zone, including Imo River

d) Lower Niger Zone

e) Upper Niger Zone

f) Benue Zone

LAGOS ZONE:- This is the most extensive and contiguous of all zones. It has the greatest potentials in terms of freight and passenger service due to the presence of navigable watercourses and population, land use and industrial/commercial activities. Viable routes includes Marina, Lekki, Mile 2, Badagry, Ojo Town, Epe, Ikorodu , Agbara. (See Appendix 6.)

DELTA ZONE: This is a very diverse zone with lots of creeks. It covers Escravos, Port Harcourt, Warri, Burutu, Degema, Yenagoa, Bomadi Potani, and Aladja. The zone contains large Industrial Firms like Iron and Steel, Glass, Petrochemicals, etc, which need cheap transportation. (See Appendix 7.)

LOWER NIGER: This part covers areas of Niger between Ndom and Lokoja. the catchment area includes Ajaokuta, Idah, Agbenobode, Onitsha, Asaba, Nnewi, most of which are industrial, commercial and administrative areas. (See Appendix 8.)

UPPER NIGER: This zone covers Kainji Dam to Lokoja, comprising Maikarfi, Batati, Zungeru, Eggen, Baro, Patagi, Jebba. The main advantage of this course is that no road transport exists in east-west direction, making the river course the only alternative. (See Appendix 9.)

BENUE/TARABA/ADAMAWA ZONE:- This zone has river Benue and Gongola washing it. The catchment areas include: Loko, Ibi, Lau, Mutum-biyu, Gboko, Yola, Numan and Makurdi. An inter-state highway running south of the river links Yola and Makurdi, but those on the far bank have no access to this highway except by use of ferry service. (See Appendix 10.)

CROSS-RIVER ZONE: This zone is watered by Cross River and its tributaries, and is navigable up to 40km into Cameroun, and could service Akwa-Ibom, Imo and Cross River States. (See Appendix 11.) Existing facilities are at Calabar, Oron, Opobo and Eket. Industrial establishments exists along river courses in Afikpo, Umuahia, Ikom, Itu, Nwamba, Obubra, e.g News print factory at Itu need water Transport for its products and raw Materials, so also ceramic and limestone/cement industries, The facilities for water transportation discussed in 5.1 (Infrastructure, equipment, craft and channels) are the main determinant of the supply of water transport service in Nigeria.

DEMAND LEVEL

In Nigeria today no mode of transport has been able to cope with demand. In ferry service, the situation is worse because of the continuous neglect of the mode. In all areas where ferry services are in place they are being over loaded. The safety implication of this

practice is glaring when one considers that the number of life saving appliances on board are supplied based on design.

The demand level could be desegregated into urban and intercity service, this could best be indicated by the differences between passenger capacity and actual load factor on some routes.

Table 5.2.1

ROUTE	NO OF FERRIES	FREQUENCY CAPACITY	SIZE (DESIGN)	ACTUAL LOAD SIZE
P/Harcourt-Degema – Buguma	1	Daily	400	600
Calabar – Oron	2	Twice Daily	400 , 800	800, 1200
Calabar – Creek Town	2	Daily	125, 125	250, 250
Lokoja – Shintaku	1	Twice Daily	125	350
Yelwa – Zamare Yelwa – Lollo Yelwa – Dolekemma	1		125	350

The table above indicates the level of demand for Inland water transport service, comprising the capacity size with the actual load size. It is clear that demand outstrips supply by ratio of 5:2. Thus in one location, only one ferry of 125 capacity is serving three (3) routes.

URBAN SERVICE:

The only urban service now is the Lagos ferry service jointly provided by Inland Waterway Department, Lagos State Ferry Service Corporation (LSFSC), and Federal Urban Mass Transit Authority (FUMTA). A measure of the demand level is the comparison of the number of passengers carried for a certain period with the total available capacity. The table below gives the total number of passengers carried per day on each route.

Table 5.2.2 **URBAN SERVICE DEMAND LEVEL FOR INLAND WATER TRANSPORT:**

ROUTE	NO. OF PASSENGERS CARRIED / DAY (AVERGAE)	AVERAGE CAPACITY
Marina – Apapa	129, 716	More than 144, 000 per day
Marina – Mile 2	700	1,120
Ebute Ero-Ojigbo	1,000	600
Marina – Ijora	1,000	1,680
Marina – Tarkwa bay	300	1,680

Other areas that need urban service are:-

i) River State

* Port-Harcourt

ii) Cross-Rivers State

* Koro - Ikot Abasi
* Itigidi - Afrekpe

iii) Delta State

* Warri - Burutu
* Warri - Domadi
* Sapele - Tsekelewo
* Warri - Ojobo
* Warri - Sayana - Ekogbene
* Sapele - Ogbene
* Central Warri - Aladja

iv) Anambra State

* Onitsha - Odekpe - Ossamari - Oginkpele
* Onitsha - Nsogbe - umueze Anan - Otuoche - Enugu Otu- Umueze.

* Onitsha - Onomo - Orama - Nzam - Odekpe - Otumbanassa.

v) Akwa-Ibom State

* Many routes.

5.3 COST BENEFIT ANALYSIS OF INLAND WATERWAYS DEPARTMENT SERVICES:

The primary basis for technological and organizational innovation in transport is to lower costs by finding more efficient ways of performing the task of transportation. An analysis of transport cost is very important in planning and technological research. When done in comparison with cost associated with other modes, it is then those investment decisions could be made for the least cost medium under given service conditions.

It has been observed from studies that river transport is the cheapest mode of transport as well as the most energy-efficient. Table 5.3.1 shows comparison of costs between various modes.

Table 5.3.1 Cost Comparison Between Modes of Transport

MODES	Kobo per kilometer
Air	200
Buses	60 – 50
Rail	5 –15
Tug and Barge	2 –3
Liner Vessels	1 – 4
Bulk Carrier	.03 - 1

Source: David Bess- Marine Transportation (1976) (Translated into Naira and Kobo)

The table above shows that the water mode of transport is comparatively cheaper (i.e. having least cost) compared with the other modes.

The idea of running the ferry service of Inland Waterways Department is to provide social service that should at lease break-even, a service that after being established by the government should become self-sustaining.

A ferry service requires much more initial capital outlay than bus service. The running costs could be more than that of bus service. This is because unlike the bus service where all that is required is the capital to purchase the buses, in the ferry service, the ferry will require landing facilities at both ends.

Fare And Revenue:

The fare on all Inland Waterways Department routes is too low as shown on the sample on table 5.3.2.

Table 5.3.2 Comparison of Rate between Inland Waterways Department and Private Operators in Lagos area:

ROUTE	I. W. D. RATE	PRIVATE OPERATORS
Marina – Apapa	N5	N10
Marina – Mile 2	N10	N20
Lokoja – Shintaku	N20	N35
Ibi – Kudu	N60	N140

Table 5.3.2 compares rates for ferry services charged by Inland Waterways Department and private operators on different routes. For other parts of the country, Appendix 12 and 13 show the differences in fare charges between private and public ferry service operators, and it shows clearly that infact some private operators in some routes (e.g. in Kebbi State)

are similar to those in Lagos, while in others the difference is significant as in Kogi, Delta and Anambra States. The table also shows that private operators predominate in service frequency due to higher number of boats. It should be noted that revenues collected by the Inland Waterways Department (see Appendix 2 for revenue returns) are paid into the government treasury, while the money for sustaining the system is obtained from budgetary allocations.

BENEFITS:

Benefits easily derivable from inland water transport system include:-

1. Ability to carry a large number of people at a time;
2. Availability of passengers;
3. Comfort of passengers;
4. Ability to get people from one place to another safely and quickly.

Thus, only the rail system can match the Inland Waterways Department's capability of carrying a larger number of people from one place to another, as in this mode only the depth of water determines the size of vessel. Even the shallow draught ferries capable of carrying 300 people at a time are found in the Inland Waterways Department fleet. The smallest ferry can carry 125 passengers at a time, while the largest can carry 1,000 people at a time.

If properly managed, ferry service can be made available at the desired time always. Thus barring any unforeseeable circumstance, the reliability of ferry service should be ensured by competent crew (both operational and maintenance) and adherence to time table for both operations and maintenance.

The desire of a commuter for comfort is most assured with ferry transport service as the ferries are fitted with facilities necessary for comfort, e.g. air conditioners, musical sets, water closet, etc.

Safety is another benefit of inland water transport. As a rule, every watercraft is provided with life saving devices for the total number of people on board.

On the above basis, a lot of communities have been benefiting from the Inland Waterways Department's ferry services and have come to rely on it for a great proportion of their trips.

Nigeria however has not been able to fully benefit from the relatively cheap cost of inland water transportation. At present, seasonally and physical hazards not only limit the capacity of river transport but make it expensive. Whereas in Western Europe water transport freight rates could be as low as half or one third of rail freights, in Nigeria average rates per kilometer are about equal for river and rail. Thus river transport could be deemed to be more expensive than if one takes into consideration the longer transit times on rivers. This high cost of river transport can be ascribed largely to low fleet utilization as a result of seasonally in operations, imbalance between upward and downward traffic, or due to loss of time when vessels sound for channel, run-aground or due to lack of night navigation.

5.4 APPRAISAL OF OPERATIONAL ROUTES AND TRAFFIC

The transport route is its avenue, and its characteristics influence other elements of transport system. The routes of inland water transport are provided basically by nature, several of these features may not be conducive to easy transportation. It is necessary therefore: to study, maintain and control these route ways in order to improve on their natural quality and ensure a low-cost transport. This is because conservancy does not include only routine observations and maintenance of the waterway, it must include purposeful artificial development of the waterways.

Lack of artificial improvement in Nigerian waterways explains the perpetuation of unsatisfactory natural conditions, the rivers are only navigable seasonally. Physical defects like shrods and backs also impede navigation. As early as 1912, a survey (Waghorn, 1912) revealed 14 shallow crossings on the Niger between Baro and Batati, more than ten of which had a depth of 0.91m or less at low water. The Kainji dam should permit largely all-year navigation and help eliminate bars. There are yet several other defects on the river, which can only be removed through artificial development.

As there are yet no immediate plans to relieve the pronounced seasonally of the Benue, if the waterway is not improved, traffic presently going by water can be diverted to either rail or road. Therefore more navigational aids to facilitate navigation both day and night on the rivers are needed. At the river ports themselves, inadequate mechanical handling equipment and storage space lead to considerable deterioration of produce. The hydrographic division of Inland Waterways Department has not been carrying out regular survey and patrol of rivers so that river charts could be updated.

i) TRAFFIC:

The status of a means of transport depends on traffic, i.e. passenger and cargo demand. Whatever may be the quality of the transport supply elements, (the route and the vehicle) the medium remains relatively unimportant if there is little traffic. The three main attributes of traffic are its volume, composition by type, its direction, and distance of movement. Increasing volume of traffic usually stimulates the development of improved transport routes, specialized vehicles and better control of transport. Thus in analysis of the traffic demand for a particular means of transport, it is important to develop an alternative means of transport which will serve the same demand since various means of transport usually complement and compete with each other.

The theoretical service advantage of river transport is its ability to move large volumes of freight cheaply. In Nigeria the traffic using inland waterways are of three types:-

1. Transit traffic from either Chad or Camerouns through Benue and from Niger Republic through the Niger;
2. Import and Export traffic to/from Nigeria;
3. Domestic traffic within Nigeria.

The first and second categories are similar in composition, but only differ in transport distance. The downward traffic consists of export commodities like ground-nuts, cotton, beniseed, etc, while the upward traffic is made up chiefly of petroleum products, cement and salt.

In the case of Benue river, traffic has always been derived from the Riverine areas. It is the Niger that attracts traffic from far north. Domestic River traffic is made up of locally produced goods for internal trade. Considerable quantities of fish, beans, rice, yam etc move between markets around the rivers. Technology advancement in the storage of these raw products may permit their movement by river for longer distances.

One major drawback of Nigeria's major river systems is that they have an unfortunate and almost irrelevant location in relation to the major centers of population and generation of traffic. The rivers pass through the sparsely populated middle belt.

ii) ROUTE:

The Inland Waterways Department offers two types of services, i.e. Urban, and intercity services.

The Intercity routes are as follows:-

PASSENGER ROUTE	VESSEL SIZE	NO
P/Harcourt – Degema – Buguma	400 Passengers	1
Calabar – Oron	400, 800	2
Calabar – Creek Town	125, 125	2
Lokoja – Shintaku		
Yelwa – Zamare		1
Yelwa – Lollo		1
Yelwa – Dolekenma		1
Vehicular		
Idah – Lokoja – Shinyaku		1
Ibi – Kudu		1
Donga – Nassarawa		1

Of the urban service, Inland Waterways Department plies only Marina to Apapa with one vessel of 125-passenger capacity. This is grossly inadequate, although other operators provide similar services in Lagos. However, more ferries could provide urban transport service in Lagos so as to ease the traffic congestion on the road mode. The following routes on Inland waterways were found to be viable if plied:

Lagos - Apapa Wharf

Lagos - Creek Road - Ajegunle

Lagos - Creek Road - Mile 2 - Festac town

Lagos - Creek Road - Satelite town

Lagos - Ikoyi - Maroko- Federal Secretariat

Lagos - Ijora

Lagos - Ijora - Oworonsoki.

Though it has earlier been observed that the river system of this country has irrelevant location to the major centres of population, it has clearly been noticed that even the available routes plied by the operators of this mode are not fully utilized due to their seasonal nature of navigability and the presence of other physical defects like shrods and backs on the routes.

5 AN EVALUATION OF INTEGRATIVE SYSTEM OF INLAND WATER TRANSPORT

The only place in Nigeria an urban ferry mass transit service is in place is Lagos metropolitan. The routes being served and other possible routes have been mentioned in 5.4. However, apart from inland water transport two other systems of mass transit are in existence, viz.: The rail and bus systems. The ways inland water transport system could be used to augment and integrate with those systems are discussed below.

i) THE RAIL SYSTEM:

The economic nerve-centres of the Lagos metropolis are Lagos Island, Apapa and Victoria Island. Movement of people is therefore towards Lagos and Apapa in the morning and away from them at the end of the day. The biggest interchange is the area along Marina popularly called C.M.S., it is convenient for both those who have business to do at Marina and Tinubu areas and those for connections to other parts of the Island, e.g. Ikoyi and Victoria Island.

This rail line from the mainland terminates at Ijora and Apapa. The ultimate destinations of most of the rail commuters are Lagos Island, Ikoyi and V/Island. The two trains bring hundreds of people who must be transported to Lagos Island. To be able to cope, a vehicle with the same capacity as the train is required. Traffic in these areas will be brought to a stand still if the numbers of buses required are to be employed for this purpose. Therefore the most appropriate way of getting these people to lagos is by ferry.

For this purpose, adequate facilities have already been provided at both Ijora and Apapa to make this service available. A similar arrangement could be made at Port Harcourt except that there, the ferry service will be mainly intercity.

ii) THE BUS SYSTEM:

No mass transit, except probably the taxi, can satisfy the travel requirement of an individual completely, from exact origin to exact destination i.e. door to door. The ferry service has the handicap of not being able to go beyond the water boundary. This limitation makes it impossible for most users of this system to rely on only this system to reach their ultimate destinations. The bus system is relied upon mainly to supplement the service provided by the ferry system. An example of this is the water/bus interchange at C.M.S, Apapa and Festac Town, Oworonsoki and Ajegunle. (See Appendix 14.)

In Lagos, the movement of people from Mile 2 to Lagos, Apapa to Lagos and Ebute Ero to Ijora is mainly by the ferry system. Very soon the ferry will be responsible for the carriage of substantial proportion of travelers from Festac Town, Ajegunle and Oworonsoki to Lagos.

The characteristic traffic jams in Lagos are caused by mainly indiscipline, lawlessness and complete lack of consideration for other road users by the commercial vehicle operators. The traffic warders who are supposed to check the excesses of these operators are powerless in face of glaring traffic offenses committed by operators. Some operators use rickety vehicles that frequently breakdown on the road, thus blocking free passage of vehicles and therefore causing traffic jams. If these rickety vehicles are restricted to the mainland for door service, while the rail and ferry systems are developed to cover longer urban travelling, backed by appropriate legislation, then the traffic jam of Lagos and other urban areas will ease up.

5.6 ADVANTAGES OF AN IMPROVED INLAND WATERWAYS SERVICE

The advantages of an improved inland waterways system include:

i) The national economy will have the most energy efficient and economical mode for the transportation of specialized bulky and heavy goods such as oil, chemicals, and construction materials;

ii) A reduction of the production and distribution costs of certain category of goods;

iii) Encourage the development of rural areas thereby arresting rural-urban migration;

iv) Stabilize prices of goods and reduce inflationary rate;

v) Encourage the setting up of cottage and medium industries along inland waterways and Riverine areas;

vi) Facilitate the deployment of troops and the safeguarding and monitoring of territorial waterways;

vii) Promote the tourism industry;

viii) Create employment opportunities and generally improve the standard of living of Nigerians;

ix) Facilitate the movement and transshipment of cargoes from Coastal Ports to the hinterlands; and

x) Improve avenue for communication and interaction through inland waterways to bring about social harmony, economic, prosperity and political stability in the country.

5.7 RESEARCH FINDINGS AND PROSPECTS OF INLAND WATER TRANSPORTATION IN NIGERIA

A. RESEARCH FINDINGS:

It has been found that Nigeria has about 30,000 knots of navigable inland waterways. However, most of these are mainly navigable during the raining seasons, which usually starts in June and ends in October every year. Although data on passengers handled has been summarized, most of the freight transported could at best be estimated. For example, in the Riverine areas of Ondo and River

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States where the major means of transportation is through the inland waterways, much of the cargo/freight are inter-riverine communities, and are not accounted for. Also most of these cargoes are transported by canoes, which are so numerous and hidden in between communities in the creeks that they can not be enumerated. The Inland Waterways Department estimated that 2 million tones of freight is being transported annually by inland waterways.

It must be noted that the figure given is only a conservative estimate as it is based on data obtained at specific stations, while passenger and foods movement between communities down and up streams of the data collection points have not been taken.

A comparison of the fare charged by private and public-owned operators' shows a marked disparity. The reason is that while government ferries operate as public service and are therefore subsidized, the private operated ones are run on profit-oriented basis. However, the factors that control the fare determination include:

1. **Fuel Availability:** The ease/difficulty of obtaining fuel for the boats and ferries will determine to certain extent the fare charged. This is because fuel is an operational variable that adds to the cost of running the ferry service.
2. **Alternative Means of Transportation:** The availability of alternative means of transportation also influences their charges.
3. **Distance:** Distance between two points of a journey influence the rate of their charges that is common with every mode of transportation.

It has also been seen that the investment in water transport dwindled from 25% of the total transport sector allocation in the first National Development Plan to only 9% in the 4th National Development Plan. On the whole, however, the sectorial share of the budget is higher than what obtains in other parts of the world. It is

therefore logical to infer on cursory look, that the transport sector by now would have been fully developed. This is being far from, so it is probable that wrong investment decisions may have been taken, rendering the impact of this investment inadequate. Reasons have already been advanced for the lack of investment in the development of fully equipped river ports.

The problem of river transportation is therefore lack of funds. The Government agency responsible for the promotion of river transport in this country requires adequate funds to be able to carry out its statutory functions effectively.

The country (Nigeria) is blessed with many rivers and lakes (See Appendix 3) which should facilitate water passenger and freight transportation particularly in the Riverine areas and for tourism. The decision to build steel-making companies at Ajaokuta and Aladja initiated the desire for a cheap means to be utilized for transporting raw materials (i.e. bulky iron, coal, etc) to the sites. The use of waterways hence become necessary since heavy loads will destroy our already over-used roads.

In addition to the use of rivers for the transportation of bulk cargo, there is also the use of river for urban transport services in Riverine areas. The chaotic transport situation in Lagos on the road could therefore be solved if those making long intra-urban trips undertake it on ferries.

Other areas of difficulties observed in some areas of Inland Waterways Department operations are the maintenance of water hyacinth on some waterways, e.g. at Makun in Ogun State. This plant has the capability of spontaneous and rapid growth that within a day jetty and adjoining water can be covered so that no single boat can make any trip. Another related issue is that of stray logs on the water. All these disturb navigation.

In respect of the operational characteristics, the following findings were made:

1. The fleets of private operators are mostly speedboats whose sizes range from 12 passenger boats to 16 passenger boats. Functional government owned ferries are very few, others are non-functional, in some cases, no services are provided.
2. Commodities transported are mainly food stuffs, timber and consumable.
3. Freight charges are not standardized or harmonized.
4. There is a wide range of difference between rates of Inland Waterways Department, other government-owned ferries, and the private operators.
5. The quality of service rendered by the private operators is very low. Comfort and safety factors are highly compromised, as most private operators do not have certificate of safety, while government owned ferries are safer and equipped with life saving equipment.
6. Competition among the private operators is virtually non-existence due to the umbrella-nature of the private operators regarding fares. This situation arises due to two reasons:
    a) The code of conduct among private era makes non-conformity in fare determination impossible.
    b) Non -existence of Inland Waterways Department (or other government owned) ferries in many places offers no competition to private operators.

On the Inland Waterways Department itself, the general policy framework within which it operate is such that a lot is left to be desired. The structure of the organization itself has tended to create problems in the execution of its duties. The Inland Waterways Department lacks autonomy, it is just a department within the Federal Ministry of Transport. The policy frame work guiding transportation does

not make adequate provision for inland waterways transportation as emphasis seem to be placed heavily on road and air transport.

B. PROSPECTS:

Water transportation is the cheapest means of transportation as shown in table 5.3.1. Nigeria is blessed with many rivers and lakes, which should facilitate good inland water transportation, particularly in Riverine areas.

Though the inland waterway potentials have not fully been exploited, the mode may hold the key to Nigeria's industrial growth. This is justified when one considers the present spatial pattern of industrial growth in Nigeria (See Appendix 4). The iron and steel complexes at Ajaokuta and Aladja, the petro-chemical factories at Warri and Eleme-Port-Harcourt as well as the Itadpe Iron Ore Mining Company in kogi State and the Aluminium Smelting Plant at Akwa-Ibom State are at locations that sensitive firms require consideration of transport costs, especially in aspects that relate to procurement and distribution. Some of the raw materials of these firms have to be imported, as they are bulky products. This, in order to reduce the cost of the final products of these firms, cost of transportation may have to be taken into consideration, the role of inland water transport thereby emerges as its relative advantage stems from the fact that it can carry bulky materials at lower cost than most modes.

It has been estimated that over 3 million tones of Ores including cooking coal, manganese, bauxite, iron scraps as well as limestone from local quarries need to be transported annually to Ajaokuta, Aladja, Itakpe. Ore require relatively cheap means of transport, therefore proper budgetary funding of the mode should be made to cover both infrastructural and operational provisions such that proper maintenance activity should commence.

The chaotic traffic problems of such cities as Lagos and Port-Harcourt manifesting itself in traffic jams and "go-shows" could also be partly solved if an alternative mode of transport is evolved to compete with the road mode.

Similarly, intercity travels between towns situated along rivers Niger and Benue and other navigable rivers in Nigeria has never been given any serious consideration, and yet the economic activity of many such places depend on this transport mode, therefore, proper development of the mode will boost the economic activity of these areas.

In terms of tourism, the use of ferries in developed countries is well known. In Nigeria the prospects of ferry services in the promotion of tourism is very bright as about 12 navigable rivers exist. All that is required is necessary infrastructure and enough incentives to entice tourism companies to develop this aspect of their business.

Militarily too, dredging of waterways and canals would provide the amphibious arms of the military easy maneuvers in many areas.

Irrigation wise, the agricultural development of the country could receive a major boost if dredging of canals for water transportation could be extended to different parts of the country, thus creating further demand for transport and other services (multiplier effect).

CHAPTER SIX

SUMMARY, CONCLUSION AND RECOMMENDATIONS

SUMMARY:

The Nigerian 30,000km of navigable waterways as found out during this study is made up of the rivers Niger, Benue and their tributaries. The Niger Delta creeks and inter-coastal waterways and lagoons running from west to east frontiers.

Foreign companies have used these waterways in the past for the transportation of goods from the coastal ports to the hinterland. Despite the commercial use of Nigerian waterways since the beginning of this century, the tremendous potentials of these waterways are yet to be fully exploited. Consequently, inland waterway transportation in Nigeria compared with developed countries is still at its embryonic stage. This is because past development plans had assumed the potentials and capacities of the Niger-Benue rivers could be readily utilized without any significant additional investments.

The factors responsible for the stunted growth of this mode of transportation have been highlighted in previous chapters. This study also treated the problems and prospects of inland water mode of transport with special attention on Organization, Investments, Competition, Fare, Coordination with other modes with reference to Industrialization, intermodalism, Urban Traffic decongestion, Costs, Military and Agricultural developments.

The project therefore suggests the development and maintenance of an efficient and reliable water transportation system in Nigeria with emphasis on more investments in the mode, autonomy for Inland Waterways Department, and better policy framework for the mode in general.

6.2 CONCLUSION:

The country (Nigeria) is blessed with many rivers and lakes, which should facilitate water passenger and freight transportation and tourism in the Riverine areas. It has also been conclusively shown that river transport has tremendous potentials, which are yet to be fully tapped. It has also been demonstrated that the mode can serve the successful take-off of the country's industrial development. Another conclusion derived from the findings is that several factors militating against the proper development of inland water transportation include:

a) Lack of adequate funding for the mode since the late seventies, resulting in lack of adequate provision of infrastructure and equipment;

b) Inadequate staff incentive;

c) Poor policy framework within the general transport policy;

d) The position of the Inland Waterways Department has been weakened due to civil service operational guidelines, which applies to the Department, as it is just a unit of the Federal Ministry of Transport.

As a result, despite the very elaborate mandate defined by its objectives, the Inland Waterway Department has not been able to effectively render its services. Evidence include:

a) Lack of improvement of waterways;

b) Inability to install and maintain buoys, lights and signals on the waterways;

c) Inability to provide adequate ferry services in parts of the Federation so as to have impact on traffic model split in urban and inter-urban travels;

The fare structure of the mode is determined by private operators who operate under an umbrella than by Inland Waterways Department whose fare is ridiculously low and can not cover expenditure, thereby resulting in inability to maintain vessels. Also no river port has been developed since the early 1980s. As a result, the mode has not been able to effectively acquire a significant share of industrial freight in the country.

The effect of lopsided investment, and development of the road mode evident in the infrastructure of the country despite the obvious advantage of inland waterways in terms of cost, accounts for the low performance of this mode. Conclusively, it can be seen that the underdevelopment of inland waterways mode of transport and the stunted growth of Inland Waterways Department is lack of funding.

6.3 RECOMMENDATIONS:

- Since rivers could be used to transport bulk cargo and be used for urban intercity ferry services, it is therefore recommended that the following investments need to be made.

1. Improve the navigability of the rivers Niger, Forcados and Nun between Ajaokuta, Port-Harcourt and Warri and River Benue.
2. Increment of the available floating equipment and carrying capacity of river operators.
3. Installation and improvement of mechanical cargo handling facilities at ports.
4. Development of river ports at Onitsha, Idah, Baro, Ibi, Lau and Yelwa.

- Also, adequate funds be made available to Inland Waterways Department for the promotion of Inland water transport which should be judiciously expended.
- Private river port operators need to be encouraged to make the needed significant investments in floating equipment, maintenance workshops and personnel training. Immediate improvement of some of the mentioned rivers in (1) above can be achieved by a programme of annual dredging and improve navigational aids together with capital dredging to widen and strengthen some identified narrow and tortious channel sections. This dredging must be sustained as a long range river development programme, which would include other capital works aimed at flow and water level regulation, channel stabilization, rock clearing, closure of secondary channels, etc.

- Various private operator unions should be encouraged to register with the Inland Waterways Department, which in turn should be responsible for the standardization of facilities, i.e. boats used, the jetty, safety at sea, provision for regular inspection of boats, power to disallow sub-standard vessels, licensing of boats, and even make provisions for training of operators.
- Loan facilities upon completion of registration of ferry and boat operators by Inland Waterway Department should be extended to private operators for boat acquisition.
- The maintenance facilities of Nigerdock and that of Inland Waterways Department should be extended to the private operators.
- Inland Waterways Department should undertake regular clearance of waterweeds (hyacinth) and logs more frequently.
- Finally, the Inland Waterways Department should become autonomous and self-accounting - leading to the offering of better condition of service to its employees, charge more economic rates for its service, compete more vigorously with other market participants; and should retain its revenue.

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INLAND WATERWAYS DEPARTMENT FERRIES AS AT 1989

NO	NAME OF FERRY	STATION	YEAR BUILT	MAIN ENGINE TYPE	GENERATOR TYPE
1.	M/F Asaba	Lagos	1981	2 x Kelvin TBSC8	2 x Lister HRW4
2.	M/F Idah	Lagos	1981	2 x Kelvin TBSC8	2 x Lister HRW3
3.	M/F New-Bussa	"	1975	2 x Kelvin TS8	2 x Lister HRW4
4.	M/F Warri	"	1973	2 x Kelvin TS8	2 x Lister HRW3
5.	M/F Yola	"	1973	2 x Kelvin TS8	2 x Lister HRW3
6.	MV Badagri	"	1990	N A	2 x Lister HRW3
7.	M/F Effiat-Mbo	Calabar	1983	2 x CAT 3305	Lister
8.	M/F Jamata	Calabar	1980	2 x 3306	None
9.	M/F Lokoja	Calabar	1973	2 x Kelvin	2 x Lister HRW3
10.	W/B Maroko	"	1979	2 x BAT 3306	None
11.	M/F Onitsha	"	1985	2 x Kelvin TS8	2 x Lister HRW4
12.	M/F Oron C	"	1981	2 x Kelvin TBSC8	2 x Lister HRW3
13.	M/F Ibi R/H	P/H	1981	2 x Kelvin TBSC8	2 x Lister HRW3
14.	M/F Calabar	Idah	1973	4 x Kelvin SR6 Schottel Drive	2 x Lister HRW3
15.	W/B Jebba	Lokoja	1982	2 x Kelvin SR6/15	None
16.	Apapa	Lokoja	1985	4 x Kelvin SRW6 Schottel Drive	2 Lister HRW3

FEDERAL FERRY SEVICE

SUMMARY OF PASSENGERS/REVENUE RETURNS FOR 1986 - 1989

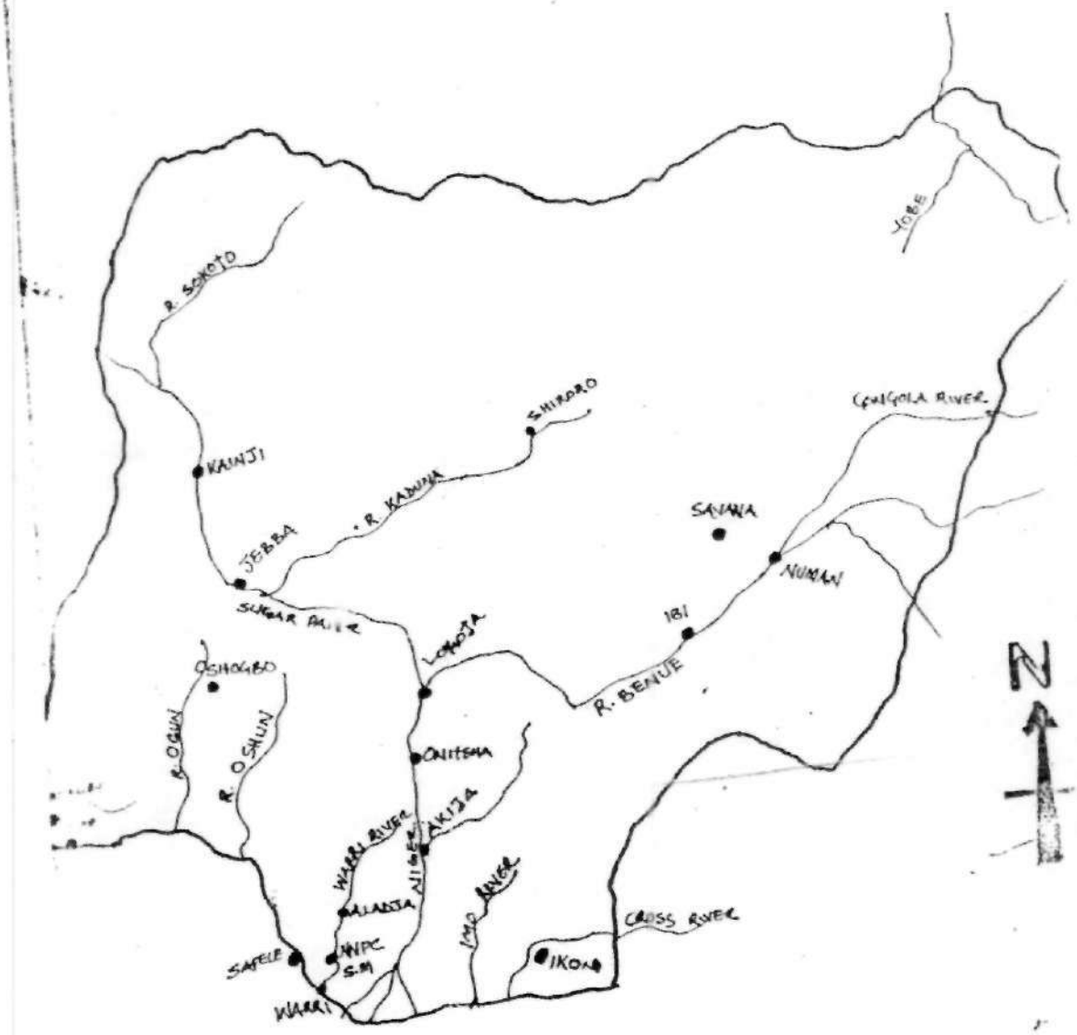
FERRY-ROUTES	1986 Passengers	Revenue N	1987 Passengers	Revenue N	1988 Passengers	Revenue N	1989 Passengers	Revenue N
Marina-Apapa	136,012	13,601.20	129678	12,967.60	—	—	1,00,278	100,027.80
Marina-Mile 2	—	—	—	—	—	—	—2,595	778.50
PH-Abonema	34,452	34,452.00	308.4	308.40	—	—	—	—
Calabar-Oron	533,562	266,781.00	375,690	187,845.00	—	—	—	—
Calabar-Creek Town	146,868	44,060,40	105,418	31,625.40	—	—	—	—
Enwang-Ebugbu	5,534	553.40	20,665	2,066.50	348	34.80	—	—
Lokoja-Shintaku	60,031	6,003,10	58,394	5,839.40	29884	2,988.40	—	—
Ganaja-Shintaku	7,267	726.70	3,999	399.90	1,902	190.20	—	—
Idah-Agenebode	6,893	689.30	4,992	499.20	3,911	391.10	—	—
Ibi-Kudu	87,067	8,706.70	61,871	6,817.10	14.843	1,484.30	—	—
Donga-Nassarawa	—	—	—	—	—	—	—	—
Yanri-Dolekaine	13,113	12,162.60	4,383	2,285.50	7568	7,034.00	—	—
Warri-Dockyar	—	—	—	—	—	—	—	—
Total	1,030,799	387,736.40	765,088	250,024.00	58,456	12,122.80	1,002,873	100,806.30

Source: Inland Water Ways Department of Fed. Min. of Transport

APPENDIX 3

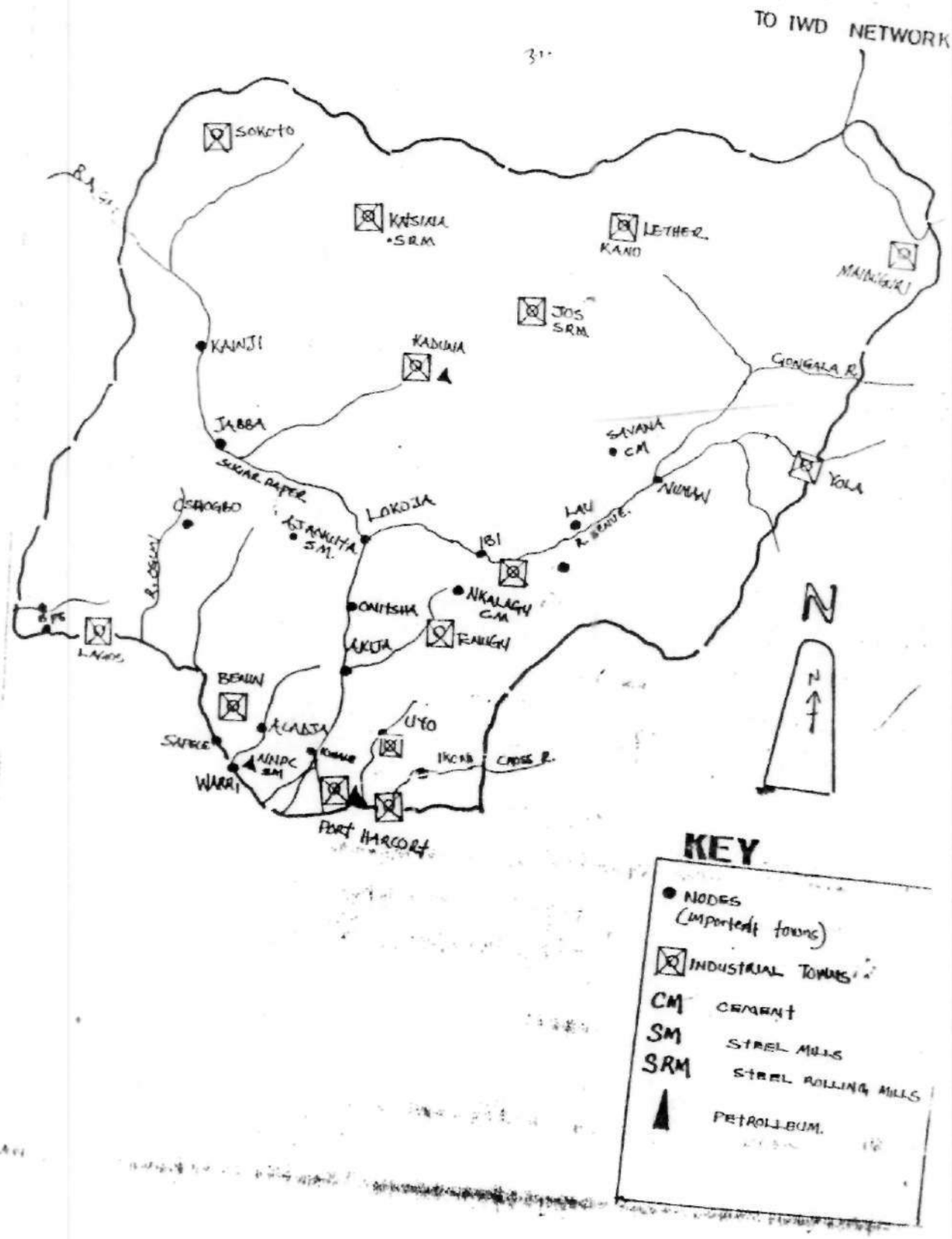
MAP OF NIGERIA SHOWING MAIN RIVERS

TO NETWORK OF INLAND WATERWAYS.



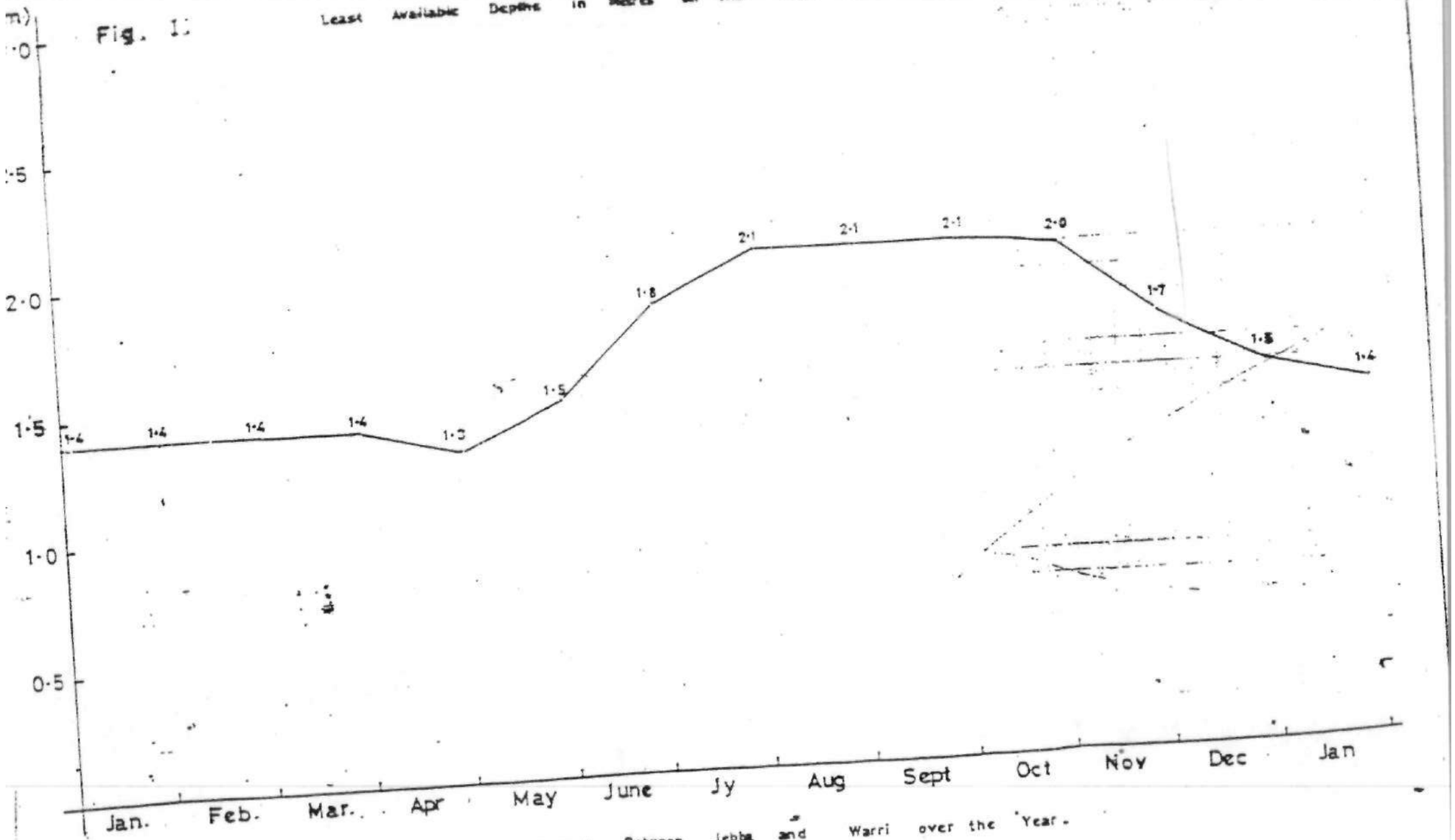
APPENDIX 4

MAP OF NIGERIA SHOWING RIVERINE INDUSTRIAL NODES.



APPENDIX 5a

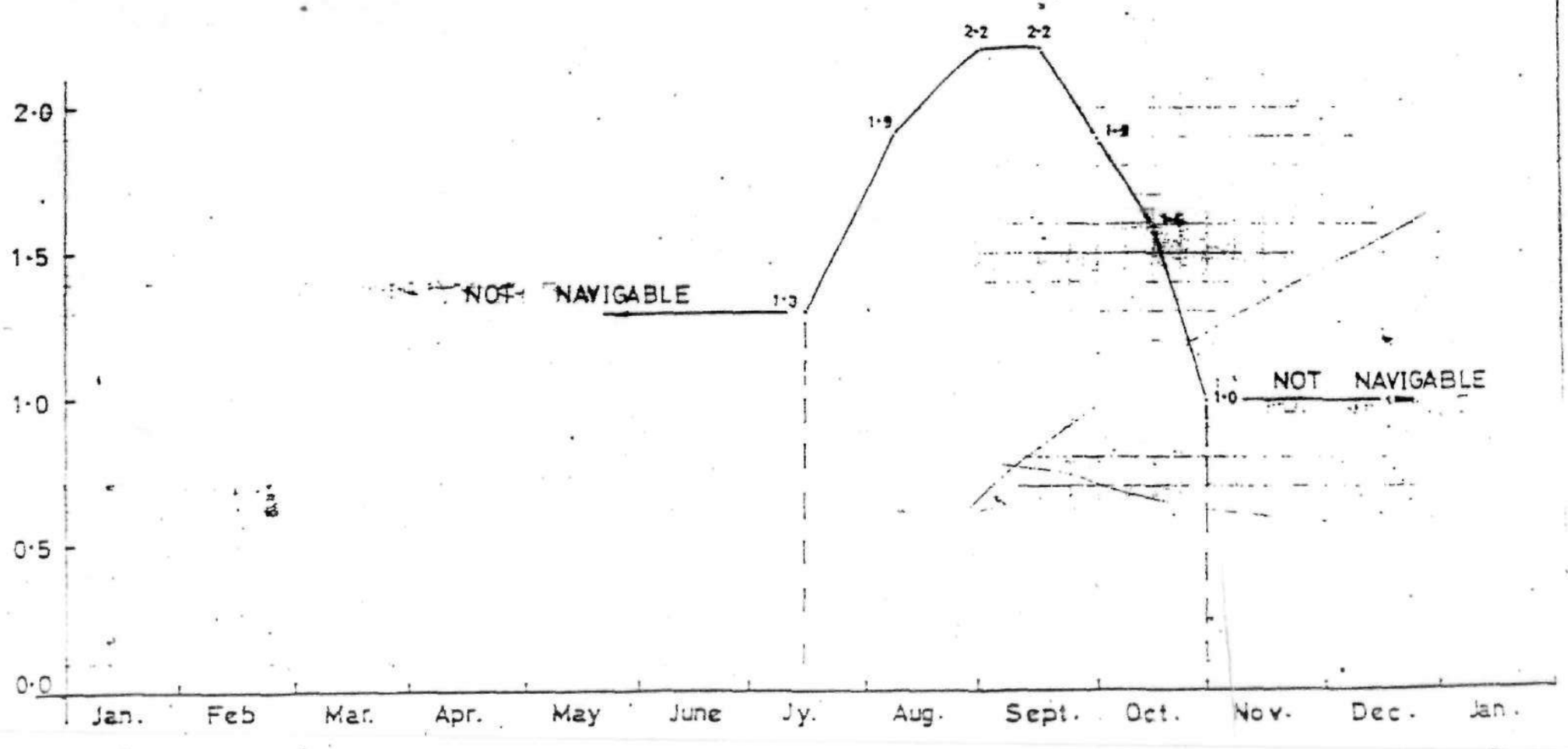
Fig. I: Least Available Depths in Metres on the Niger River Between [illegible]



Least Available Depths in Navigation Channel Between Jebba and Warri over the Year.

Fig 11 Least Available Depths in Metres on the Benue River ~~River~~ Appendix 5b

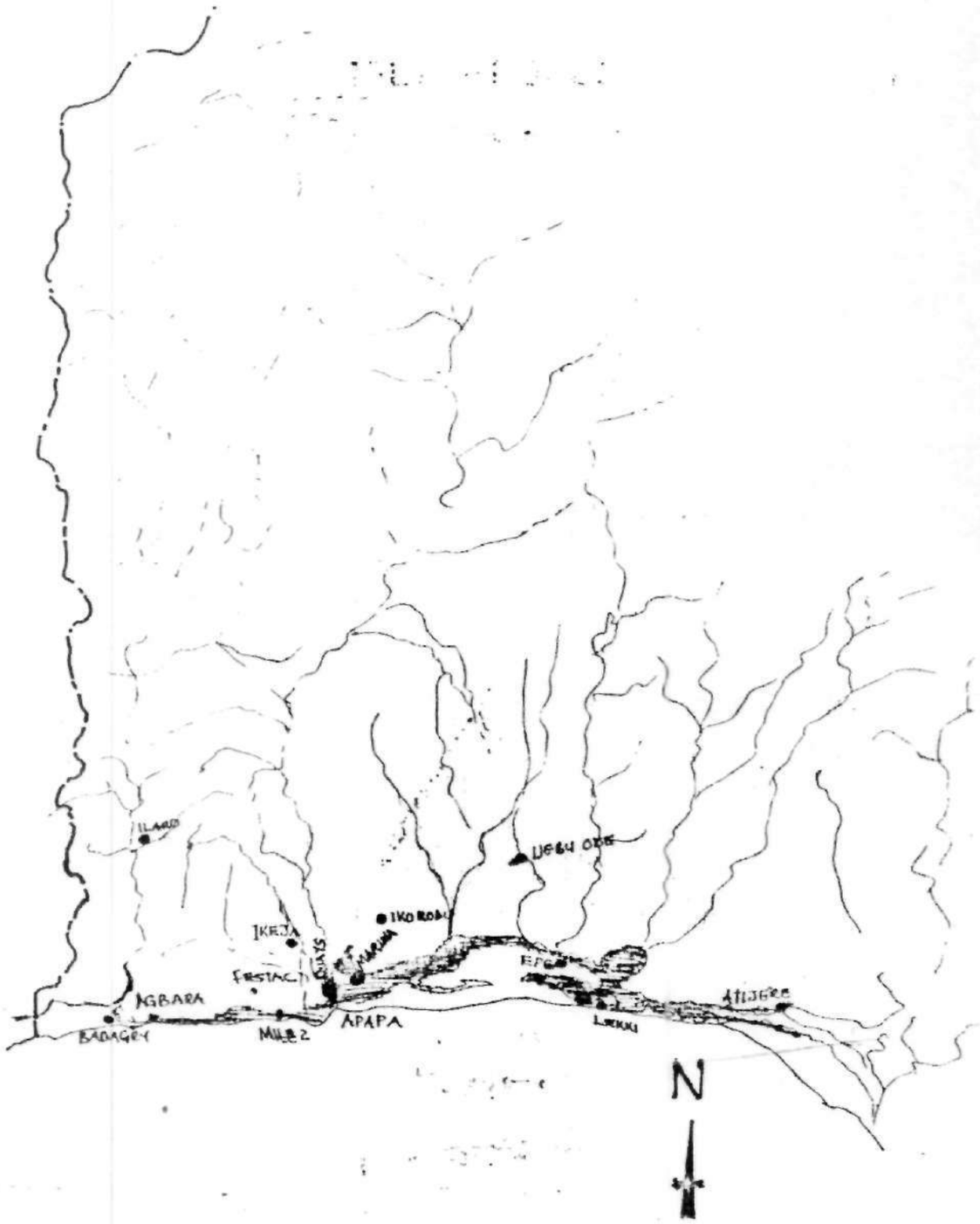
Between Yola and Lokoja over the Year.



APPENDIX 6

LAGOS ZONE

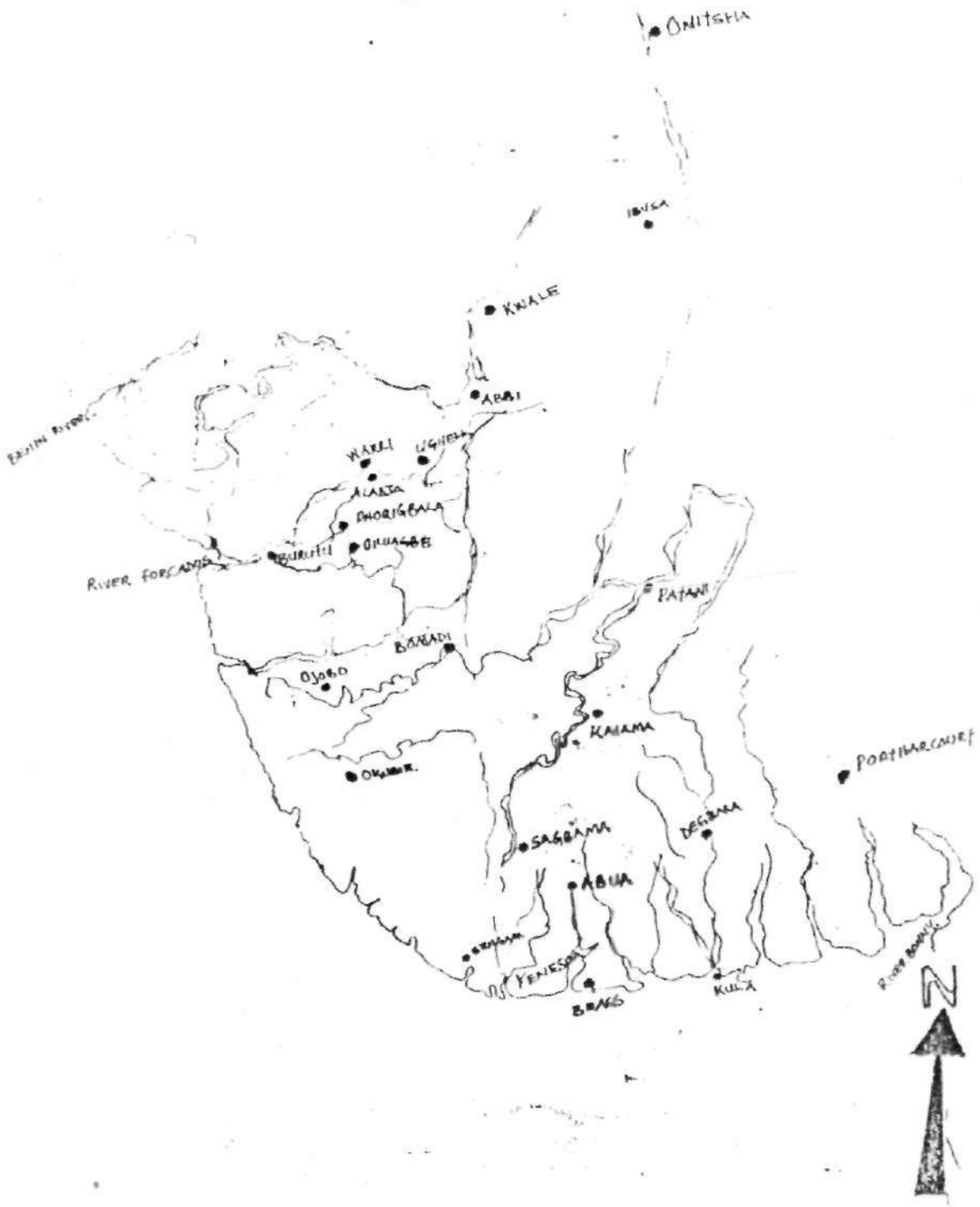
INLAND WATER WAYS



APPENDIX 7

DELTA ZONE

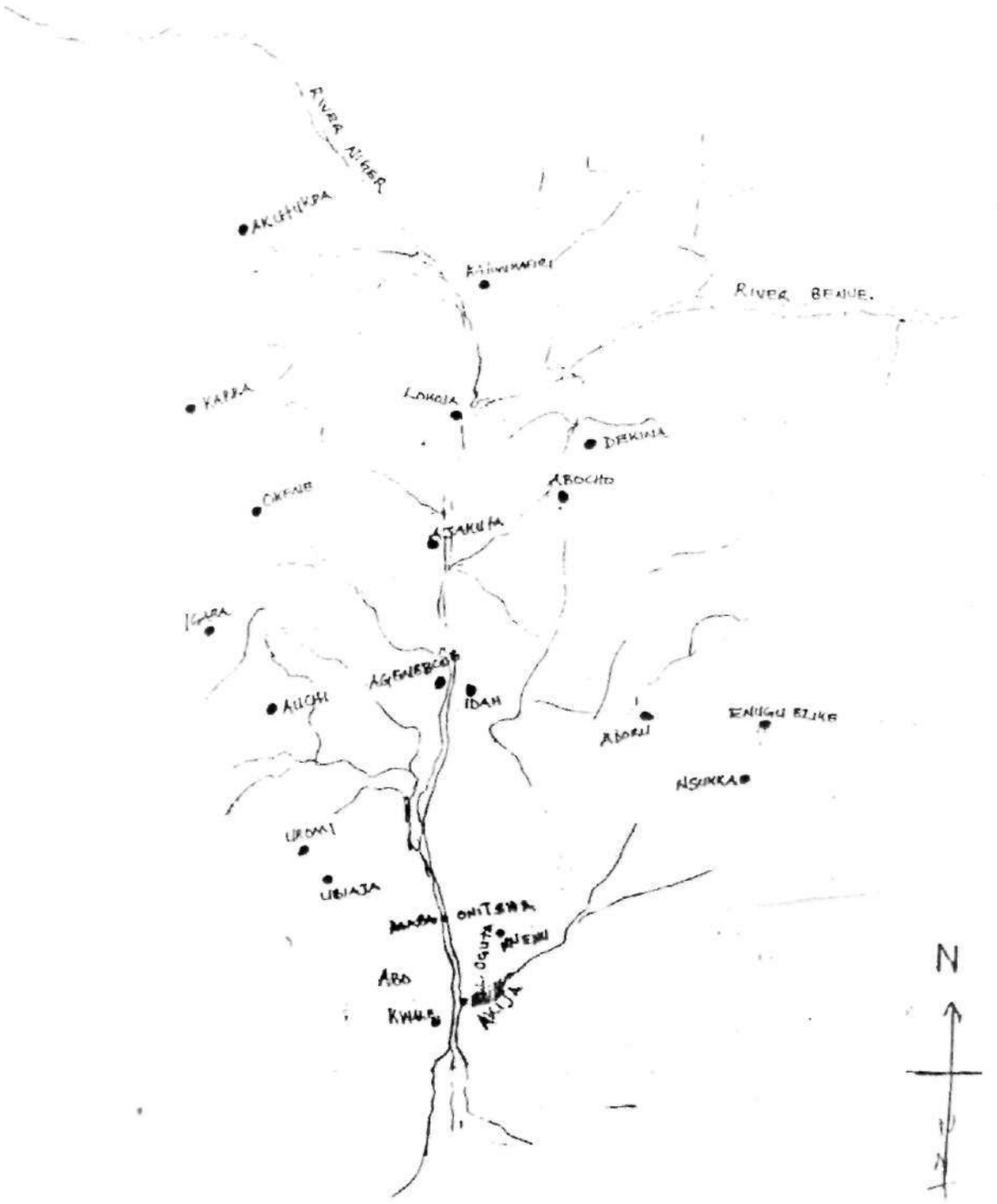
INLAND WATER WAYS.



APPENDIX 8

NIGER PROPER

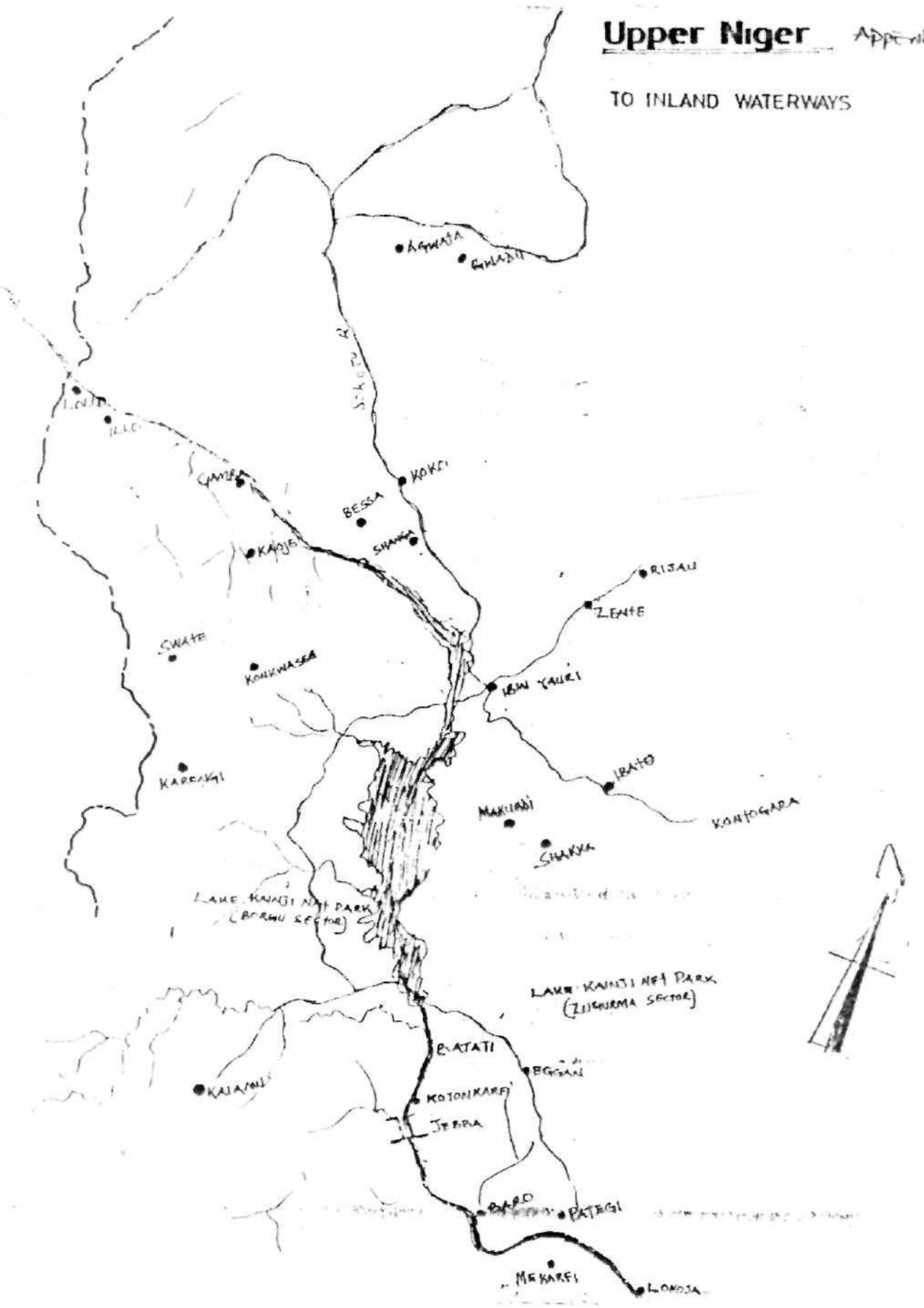
TO INLAND WATER WAYS



Upper Niger

Appendix 9

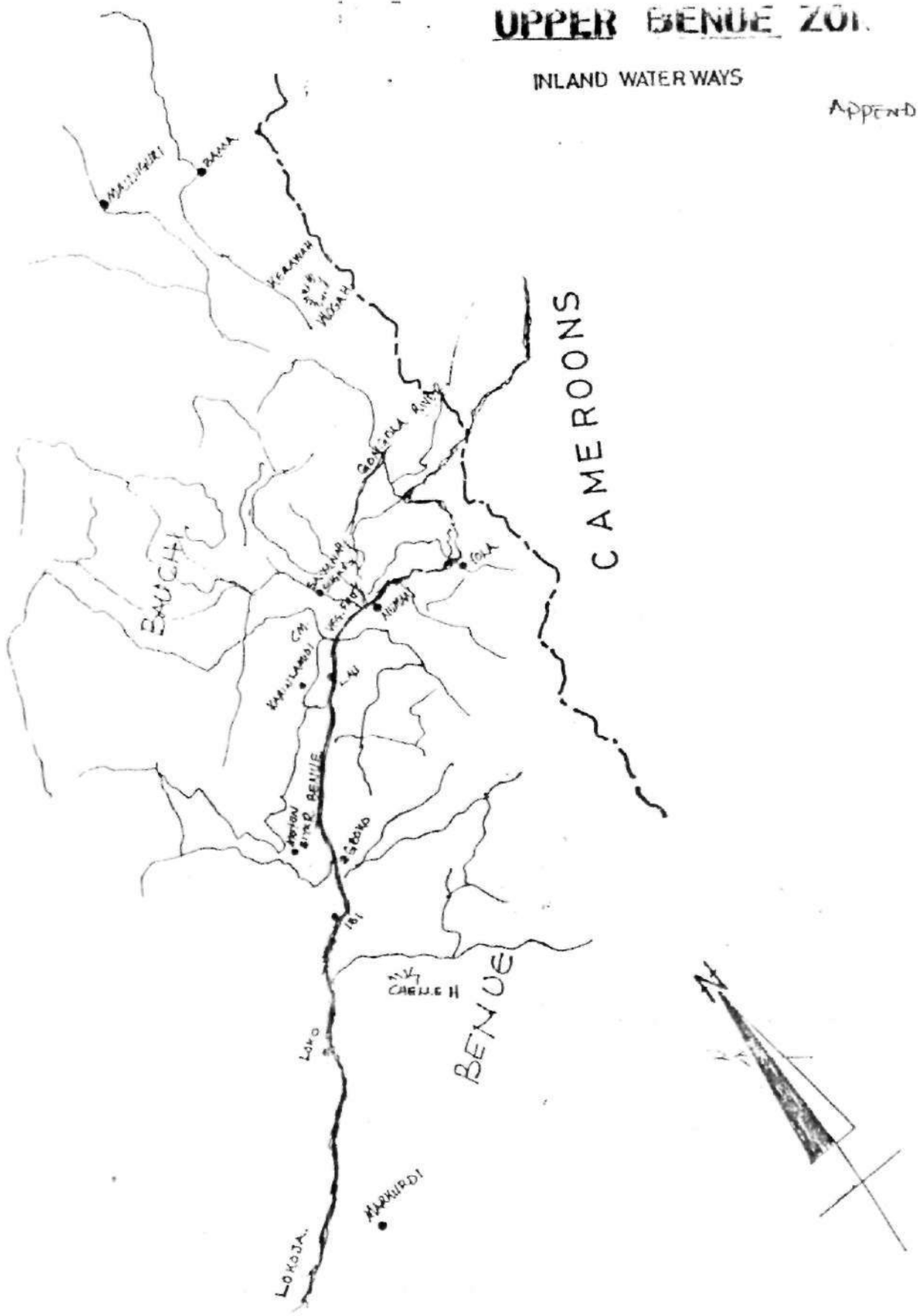
TO INLAND WATERWAYS



UPPER BENUE ZONE

INLAND WATER WAYS

APPENDIX 10



APPENDIX II

CROSS RIVER ZONE

INLAND WATERWAYS



KEY

GF:	GLASS FACTORY
CEM:	CERAMICS
BTY:	BATTERY
CEM:	CEMENT
NPM:	NEWS PRINT MILL

APPENDIX 12

TABLE 1:- DATA/INFORMATION COLLECTED.

STATE		ANNUAL THROUGHPUT CARGO	ANNUAL THROUGHPUT PASSENGERS	TOTAL NUMBER OF BOATS	NUMBER AND NAME OF OPERATORS NUMBER	NUMBER AND NAME OF OPERATORS NAME	FARES CHARGED
Kebbi	a	-	96,000	20 boats	14	See Annexe 1	₦15 - ₦200
	b	-	50,000	1 Ferry	1	IWD	₦ 3 - ₦ 5.
Benue	a	15,950 bags of foodstuff	45,000	15 Boats	11	See annexe 2	₦20 - ₦100
	b						
ADAMAWA	a	-	-	-	-	-	-
	b	60 barges	-	5 tug boats	2	See annexe 3	Not known.
Taraba	a	-	54,000	10 boats	9	See annexe 4	₦50 - ₦450
	b	7,200 Cars	150,000	4 Ferries	2	-	₦50 - ₦150
Anambra	a	220,000 tons	400,000	82 Boats	Numerous	See annexe 5	₦20 - ₦150
	b	90,000 tons	230,000	-	-	-	₦ 2 - ₦ 60
Delta	a	100,000 tons	-	7 Boats	Numerous	-	₦50 - ₦200
	b	10,000 tons	136,000	22 Boats	4	See annexe 6	₦20 - ₦100
Imo	a	50,000 vehicles and 135,000 tons of goods	640,000	36 Boats	Numerous	-	₦ 2 - ₦100
	b	240,000 vehicles and 160,000 tons of goods	550,000	4 pontoons	1	See annexe 7	₦ 2 - ₦ 10
Abia	a	70,000 tons	150,000	11 Boats	-	-	₦ 5 - ₦100
	b	-	-	-	-	-	-

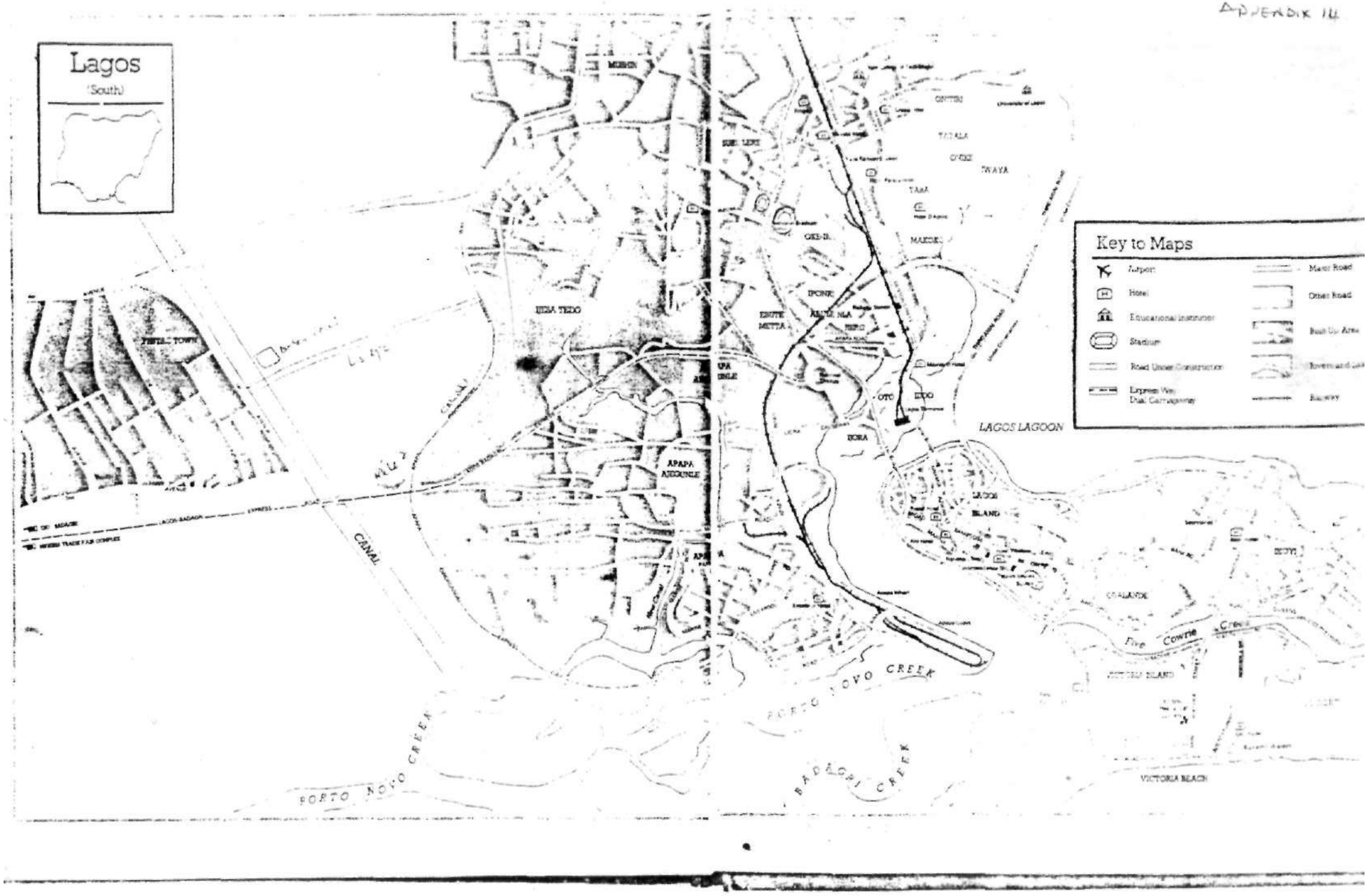
(a) = Private
(b) = Public/Govt.

STATE		ANNUAL THROUGHPUT		TOTAL NUMBER OF BOATS	NUMBER AND NAME OF OPERATORS		FARES CHARGED
		CARGO	PASSENGERS		NUMBER	NAME	
Ogun	a	16,400 tons	35,950	-	10	See Annexe 8	₦10 - ₦ 50
	b	-	-	-	-	-	-
Ondo	a	154,250 tons	160,408	172 Boats	25	See Annexe 9	₦ 5 - ₦150
	b	17,500 tons	10,408	2	1	-	₦.0
Kwara	a	[illegible] bags of	30,000	11	6	See Annexe 10	₦10 - ₦[illegible]
	b	-	-	-	-	-	-
Kogi	a	-	40,000	4	2	See Annexe 11	₦20 - ₦ 30
	b	2,000 lorries of foodstuff	50,000	2	1		₦ 5 - ₦ 10

NOTE: a = Private operators

b = Government/Company operated.

APPENDIX III



KOGI STATE

LOCATION LOKOJA

INFORMATION ON INLAND WATERWAYS TRANSPORT SERVICE

AME OF OPERATOR	NUMBER AND TYPE FERRIES, BOATS AND VESSELS	TYPE OF CARGO	ROUTES COVERED	FREIGHT/FARE CHARGED	CARGO THROUGH PUT	REMARKS
Fed. Inland Water Department.	1No.Water Bus with a carrying capacity or 8 crew and 150 passengers.	(i)Passengers and their luggages	Ganaja-Shin-(Lokoja)taku.	₦5/person	Over 50,000 passengers because the Water Bus get full capacity passenger daily, i.e. 150 Passengers daily.	Because of the low freight, passengers wait for the IWD Bus.
				₦5/person		
	1No Ferry with a carrying capacity of 12 crew and 6 lorries or 18 cars.	(ii)Vehicles Cars and Lorries.	Ganaja-Shin-taku	₦3/car		Vehicle Ferry are not in operation presently.
				₦10/Lorry	Over 2000 Lorries or 6,000 cars per year.	
. Alh. Haske	2Nos.Outboard Engine boat.	i)Passengers and their luggages.	Ganaja-Shinta-ku	₦20/person	Each boat carries at least 30 passengers daily hence over 10,000 passengers a year, i.e., 40,000 passengers per year for the fleet of 4 boats.	Sometimes more revenue is accrued to the private operators when the IWD Bus does not work; they make more trips carrying the normal IWD bus Passengers.
Alh. Yinusa Sin-taku	2Nos. Outboard engine Boat	ii)Foodstuff in commercial quantities- Cassava, Maize Millet, Groundnut, etc.	" - Chewu	₦25/person		
Total =	4 Nos.		" - Gerewu	₦30/person		

NOTE:- 1. X The Water Bus operated daily and was getting full capacity passengers.

2. + The total number of passengers are conservative because there is no column for the upsurge of traffic during market days when canoes come from various destinations to the market.

ANNEX 2

KWARA STATE

LOCATION - GBARADOJI (IPATA)

INFORMATION ON INLAND WATERWAYS TRANSPORT SERVICE

NAME OF OPERATOR	NUMBER AND TYPE FERRIES, BOATS AND VESSELS	TYPE OF CARGO	ROUTES COVERED	FREIGHT/FARE CHARGED	CARGO THROUGH PUT	REMARKS
Mal. Abdullahi Jubril	2 No outboard engine boat	(i) Passengers and their luggages	(i) Gbaradoji - Mureji(No St)	₦10/person	(i) The average capacity of each boat is 30 persons or less number plus bags of foodstuff	(i) This jetty happens t be the only place where the inland waterways is utilized in Kwara State.
Alhaji Tsawko	3 No. "		(ii) Gba.-Chakugi	₦40/person		
Alhaji Baba	2 No. "	(ii) Foodstuff in Commercial quantities such as rice, maize, beans sorghum	(iii) Gba.-Sunlati	₦50/person	(ii) An average of about 90 passengers use this jetty per day giving a total of over 30,000 persons per year	(ii) The cargo volume i a conservative one because on market days which comes up once every 9 days. There is an upsurge in both passenger and cargo traffic.
Mal. Samba Jubril	2 No "		(iv) Gba.-Nupako	₦60/person		
Mal. Usman Saibu	1 No. "		(v) Gba-Dakani	₦60/person		
Hajia Ramotu	1 No. "		(vi) Gba.-Nipata	₦100/person		
			(vii) Gba.-Kacha	₦150/person	(iii) About 1/5 of traffic volume is foodstuff. Hence about 6,000 bags of foodstuff are carried every year.	
TOTAL	11 No. "		(viii) Gba.-Baro	₦200/person		

ANNEX B

ONDO STATE

F.

NAME OF OPERATOR	NUMBER AND TYPE FERRIES, BOATS AND VESSELS	TYPE OF CARGO	ROUTES COVERED	FREIGHT/FARE CHARGED	CARGO THROUGH PUT (ESTIMATES PER ANNUM.	REMARKS
Cargo boat/ Community owned Ferries	80 - 100	-Passenger/ Luggage. -Food items -Dry con -Timber -Dry leaves -Dry fish.	i.As above in 'B' ii.Igbokoda - Lagos Igbokoda - Warri Igbokoda - Sapele	N150/Person and goods.	154,250 tons	Travels for many days to very far locations.

NOTE: (i) * does not take cognisance of the number of passengers who board in between the routes.

(ii) Also does not account for passengers who board or have their origin at the seven other organisatic private operators.

(iii) A conservative estimate. More than 500,000 passengers use the Igbokoda jetty per year.

ANNEX 4

	NAME OF OPERATOR	NUMBER AND TYPE FERRIES, BOATS AND VESSELS	TYPE OF CARGO	ROUTES COVERED	FREIGHT/FARE CHARGED	CARGO TRAFFIC ... (ESTIMATE PER ANNUM)	
A.	Irele local Govt.	2 No outboard engine boat	Passengers and their luggages	Okitipupa - Irele	N10/Person	10,408 passengers per year from this Jetty.	i. The Local Govt. charges the same fare as the private operators.
B.	Mr. T. Olanegan	1 No. "		i. Okitipupa-Iluagbo	N5/Person		i. Same fare are charged by private operators.
	Mr. H. Ishola	1 No. "		ii. Okitipupa-Agbeye	N10/Person		
	Mr. Omowole	1 No. "		iii. Okitipupa-Irele	N10/Person	Ditto	
	Mr. Ajele	1 No. "		iv. Okitipupa-Igbotun	N40/Person		ii. Fuel Scarcity has the effect of an hike in fares.
	Mr. A. Jonathan	1 No. "	"				
	Mr. Omoge	1 No. "					iii. There are two types of boats in use; (a) Fibre type (b) Canoe with outboard engine afixed.
	Mr. Okotete	2 No. "					
	Mr. Deji	1 No. "					
	Mr. Olu Ikuosu	1 No. "					
	Total: =	10 No.					
	Individuals	Many paddle operated self owned canoes.					
C.	Big locally built water bus/cargo boat.	20 - 30	Passenger, food items- Gari pupuru. -Dry leaves.	i. As in 'B' above ii. Okitipupa-Lagos Warri/Sapele	As per distance	17,300 tons	i. Travels long journeys and for many days.
D.	Local Govt Assisted	1 No outboard engine boat	Passenger/ Luggage	Igbokoda-Aiyetoro (36 km)	N40/Person		i. The Local Govt. charges the same fare as the private operators.
E.	Chief A.O. Omomowo	2 No outboard engine boat	Passenger/ Luggage	i. Igbokoda- Ugho	N50/Person	*350,000 passengers from Igbokoda.	i. Igbokoda is said to be the National Hors because the volume and utility of inland waterways, here.
	Mr. S. Danilohun	1 No "		ii. Igbokoda-Izbelebo	" "		
	Mr. Duro Jeje	2 No "		iii. Igbokoda-Mahin	" "		ii. Apart from vessels owned at Igbokoda, there are 3 other union even as large but subject to Igbokoda (Altogether there are more than 300 fast boats).
	Mr. Omebuwo Neri	2 No "		iv. Igbokoda-Igbonla	" "		
	Mr. Loto	1 No "		v. Igbokoda-Aiyetoro	" "		
	Mr. Alafia Oyinbo	1 No. "		vi. Igbokoda-Orioke	N80/Person		
	Mr. Segun Eruku	1 No. "		vii. Igbokoda-Avaremi	" "		
	Mr. Buye Eruku	1 No. "		viii. Igbokoda-Ogboye	N100/Person		iii. Igbokoda links, Ogun, Delta and Lagos States.
	Mr. M. Ojajuni	2 No. "	"				
	Mr. K. Ogbolo	2 No. "					
	Mr. A. Ojajuni	1 No. "	"				
	Mr. B. Maculay	1 No. "					
	Mr. W. Alfred	1 No. "					
	Mr. O. Oladidapo	1 No. "					
	Total: =	31 No.					
	Individuals	Many paddle operat-					

ANNEX 5

71

INLAND WATERWAYS TRANSPORT SERVICE IN OGUN STATE

	NAME OF OPERATOR	NUMBER AND TYPE FERRIES, BOATS AND VESSELS.	TYPE OF CARGO	ROUTES COVERED	FREIGHT/FARE CHARGED	CARGO THROUGH PUT (ESTIMATES PER AN.)	REMARKS
A.	1.Alhaji Agbaje	1 no. outboard engine big boat.	Passengers & their luggages	i.Iwopin - Epe (200km) 2hrs on water.	₦30 person(but may increase if there is fuel scarcity)	10,950 passengers per year.	i.There are other smaller towns in between these two destinations where passengers can come in or out.
	2.Mr. Amisu Adeola	1 No. "		ii.Iwopin-Ilagbo (80km) 1hr on water.	"		
	3.Mr. Olowu	1 No. "					
	Total	3 Nos					
	4.Individuals	Many paddle operated self owned canoes					
B.	1.Mr. Adetayo	1 No. Canoe	Passengers and their Luggages	i.Makun-Abusoro	₦10/person	25,000 passengers per year.	i.Makun links with other towns in Ondo State and Lagos State.
	2.Mr. Shehu Mustapha	1 No. "		ii.Makun-Idalek-eta	₦15/Person		
	3.Mr. Richard Job	1 No. "		iii.Makun-Keredelu	₦15/Person		
	4.Mr. Mofe Adebanjo	1 No. "		iv.Makun - Ode-Omi	₦20/Person		
	5.Chief S. Ogunbanjo	1 No outboard engine canoe		v.Makun-Agbara	₦30/Person		
	6.Ogun Waterside Local Govt.	2 No outboard engines boat.		vi.Makun-Igboedu	₦40/Person		
	Total	7 Nos		vii.Makun-Irokun	₦50/Person		
	7.Individuals	Many paddle operated self owned canoes		(Fares may increase if there is fuel scarcity)			
C.	1.Cargo boat	23	Passenger -Coconuts -Leaves	As in 'B' above	As per distance	16,400 tons	

ANNEX

INFORMATION ON INLAND WATERWAYS TRANSPORT SERVICE IN ABIA STATE

S/NO	NAME OF OPERATOR	NUMBER AND TYPES OF FERRIES, BOATS & VESSELS	TYPE OF CARGO	ROUTES COVERED	FREIGHT/FARES CHARGED	CARGO THROUGHPUT PER ANNUM	REMARKS
1.	NDIBE BEACH Afikpo Charles Ogbonna (Private)	1 Pontoon	Passengers, Vehicles, Food Stuff Articles, Sand & Graves	Ndibe Afikpo - Ebom in Cross River State	Passengers ₦5.00 Lorries - ₦50.00 Cars - ₦30.00	50,000 passengers 20,000 of cargo	This service is provided to help the community and it does not cover cost.
2.	Other Private Operators	Speed Boats(10) Canoes (50)	Passengers, Foodstuff, Sand & Graves	Ndibe - Ebom Ozizza - Igoni-goni and other settlements along Cross River	Passenger (₦5.00) " (₦20.00) Cargo (₦5 - ₦100) depending on distance and quantity	100,000 passengers 50.000 tons cargo	These services are constant especially on market days
3.	OZIZZA BEACH Min.of Works, Housing and Transport	1 Pontoon		Ozizza - Igoni goni.			This service has not taken off yet as work is at finishing touches.

INFORMATION ON INLAND WATERWAYS TRANSPORT SERVICES IN IMO STATE

1.	Gogo Nwakuche Services (Private)	1 Pontoon	Passengers, Vehicles, Farm Produce, Commercial Articles	Oguta Town to Oguta Motel, and some settlements across the Oguta Lake	Lorries (₦40.00) Cars (₦20.00) MotorCycle (₦5.00) Passengers (₦2.00)	300,000 Passengers 50,000 vehicles 20,000 tons of cargo.	This service operate 12 hours a day and does not break-even. It is a help to the entire community.
2.	Imo State Min. of Works, Housing and Transport	2 Pontoons	Passengers, vehicles, Farm Produce, Commercial Articles.	Oguta Town to Oguta Motel, and Settlements across the lake.	Passengers (Free) Lorries (₦40.00) Cars (₦15.00) MotorCycles (₦2.00)	300,000 Passen. 50,000 vehicles 30,000 tons of cargo	This service was provided by Imo State Govt. but it is not well maintained. It broke down 9 months ago and has not been repaired.

..../2

Annex 7

INFORMATION ON INLAND WATERWAYS TRANSPORT SERVICE IN DELTA STATE

	NAME OF OPERATOR	NUMBER AND TYPE FERRIES, BOATS AND VESSELS	TYPE OF CARGO	R O U T E S COVERED	FREIGHT/FARE CHARGED	CARGO THROUGHPUT (ESTIMATES PER ANNUM)	R E M A R K S
1.	BURUTU LOCAL GOVERNMENT	3 Speed Boats	Passengers Only	Warri-Burutu	N50.00 each	18,500 passengers	
2.	DELTA BOAT YARD	1 Ferry Boat (Riverine I) 4 speed boats 1 speed boat 2 speed boats 2 speed boats 3 speed boats	Passenger passenger passenger passenger Passenger Passenger	Warri-Burutu Warri-Burutu Warri-Escraves Ojobo-Bomadi Asabase-Ikpidiama on charter to any route	N25.00 each N-0.00 each N100.00 each N40.00 each N20.00 each	100,000 passengers	There services are commercial oriented as there is no subvention fro the State Govt (See attached map for routes
3.	SCHLUMBERGER PRACKLER	5 Engine boats	Own Staff only	Warri-Escraves Warri-Oil locations	Free	37,500 passengers	These are staf welfare service
4.	NIGERIA AGIP OIL COMPANY	PONTOON	Passengers Vehicles Farm produce	Utagba Ogbe-Aboh Utagba OgbeOOkpai	Free	10,950 tons	This service i a help to the oil producing areas and it i also used by Agip oil compa to ferry their truck & vehici
5.	Private Operators	5 Engine boats 2 Ferry boats	Farm Produce Forest Products (Timber, wood cane) Passengers vehicles Dry Gin	Asaba Ase-Ijaw Asaba Ase-Iscregwu Asaba Ase-Obiarukwazi	N50-N200 depending on destination and load	100,000 tons	This service is along River

ANNEX 8

NAME OF OPERATORS	NUMBER AND TYPE OF FERRIES, BOATS AND VESSELS	TYPE OF CARGOES	ROUTES COVERED	FREIGHT/ FARES CHARGED	CARGO THROUGHPUT (ESTIMATE)	REMARKS
PRIVATE OPERATORS	Canoes (40) Engine boats (5)	Food stuff Passengers Dry Gin Articles	Atani-Okpai Atani-Uchi Atani-Osamara Atani-Agwe Atani-Bomadi Atani-Akiri Atani-Ogwu	₦40.00 ₦20.00 ₦20.00 ₦20.00 ₦100.00 ₦20.00 ₦20.00	100,000 passengers 50,000 tons	
ONITSHA RIVER PORT	NONE YET	NIL	To cover all river ports along the River Niger	NIL	NIL	This service has not commenced operation
ANAMBRA STATE MASS TRANSIT	NONE YET	NIL	Not specified yet	NIL	NIL	Still under construction

NAME OF OPERATORS	NUMBER AND TYPES OF FERRIES BOATS AND VESSELS	TYPES OF CARGOES	ROUTES COVERED	FREIGHT/ FARES CHARGED	CARGO THROUGHPUT (ESTIMATE)	R E M A R K S
ANAMBRA LOCAL GOVT.	Pontoon	Vehicles Passengers Farm produce Building Materials	Otuocha-Anam.	Cars-₦30.00 Lorries-₦60.00 Passengers free	90,000 tons P.A 250,000 passenger	The lorries are usually laden. The building materials include sand and gravels.
PRIVATE OPERATORS	Canoes (50) Engine boats(20) Speed (5)	Food stuff, Passengers, Articles, Hot drinks	Otuocha-Anam " -Nmiata " -Aguleri " -Onono " -Bomadi] " -Ijaw] " -Warri]	₦2-₦5.00 ₦20.00 ₦20.00 ₦50.00 ₦100-₦150.00	100,000 passenger 50,000 tons	The private operators refused to disclose their identities
PRIVATE OPERATORS	Canoes (80) Engine boats(50) Speed boats (2)	Farm produce Forest Products Articles	Otu-Onitsha-Ijaw " " -Asaba " " -Uchi " " -Onono " " -Otuocha	₦100.00 ₦20.00 ₦40.00 ₦150.00 ₦100.00	200,000 passenger 120,000 tons	

ANNEX 10

N	NAME OF OPERATOR	NO. & TYPE OF BOATS/VESSELS/ CRAFTS	TYPE OF CARGO	ROUTES/TOWNS	FR./FARE CHARGED	ANNUAL CARGO VOLUME	REMARKS
11.	Mr. Alayim Azashi	2No. out boat engine canoe	Passengers and their luggages	Ibi-Zimp Ibi-Manido Ibi-Mayo Rene Ibi-Yashin Tina Ibi-Naboli	₦320.00/person ₦350.00/person ₦370.00/person ₦400.00/person ₦450.00/person		
ONGA							
1.	1NO.	1No. ferry with a carrying capacity of 6 cars or 4 lorries and about 100 passengers	Passengers and their vehicles, luggages	Just to cross River Donga	₦50/car. ₦100/lorry	About 30 cars and 200 passengers a day from July – December i.e 5,400 cars and 6,000 passengers in a year	The ferry operates only from July-Dec. when the water level in the river is high.
2.	Taraba State Govt.	1No. ferry with a carrying capacity of 4 cars or 2 lorries and about 60 passengers	Passengers and their vehicles/ luggages	Just to cross River Donga	₦50/car ₦100/lorry		

INLAND WATER SERVICES IN TARABA STATE

S/NO.	NAME OF OPERATOR	NO. & TYPE OF BOATS/ VESSELS/CRAFTS	TYPE OF CARGO	ROUTES/TOWNS	FR./FARE CHARGED	ANNUAL CARGO VOLUME	REMARKS
A. IBI	Fed..Inland Water Dept.	1 No. ferry with a carrying capacity of 6 cars or 4 lorries and about 100 passengers	Passengers and their luggages/ vehicles	Just to cross River Ibi	₦100 lorry ₦50/car	About 100 cars ₦1000 passengers a day (July-December)i.e 150,000 pass./ year.	The ferry operates only from July.-Dec when the water level in the river is high
2.	Motor Car Barge	1No. barge with a carrying capacity of 3 cars and about 10 passengers	vehicles and passengers		₦150/car	40 cars/day from Dec.-June i.e 7,200 cars in a year.	The barge is very old and can't be used from July-Dec when the water level is high and the river very rough
3.	Mr. Elkanah	2No. out boat engine canoe	Passengers and their luggages	Ibi-Jibu	₦50/person	Each boat carries about 15 passengers per trip in a day i.e. 5,400 per year.	
4.	Anagu						
5.	Mr. Adamu			Ibi-Sindin Kogi	₦70/person		
6.	Alani	3No.out boat engine canoe		Ibi-Dampar	₦200/person		
7.	Mr. Amarki	1No. " " "		Ibi-Sungum Bodel	₦250/person		
8.	Mr. Awulu			Ibi-Amar	₦270/person	This means about 54,000 passengers a year for the 10 No. boats	The ferry operates only from July.-Dec. when the water level in the river is high.
9.	Azasni	3No " " "		Ibi-Mala	₦250/person		
10.	Mr. Jafaru	1No " " "		Ibi-Kambari	₦300/person		

ANNEX 12

INLAND WATER SERVICES IN ADAMAWA

S/N	NAME OF OPERATOR	NO. & TYPE OF BOATS/ VESSELS/CRAFTS	TYPE OF CARGO	ROUTES COVERED	FL./FARE CHARGED	ANNUAL CARGO VOLUME	REMARKS
	Unknown	About 5 tug-boats carrying about 6 barges each	General Goods	i, Lokoja-Yola-Garua (cam. Rep) ii, Port Harcourt-Yola-Garua (Cam. Rep)	Not known	Each of the ~~about~~ 5 tugs carry about 6 barges, hence 30 barges i.e 60 barges for return trips	The barges pass through Yola to Garua in Cam. Rep. by July August and return by September ending. They pass and return once in a year. Some of the barge operators are based in Lokoja while some are in Port Harcourt.

INLAND WATER SERVICES IN ADAMAWA

S/N	NAME OF OPERATOR	NO. & TYPE OF BOATS/ VESSELS/CRAFTS	TYPE OF CARGO	ROUTES COVERED	FT./FARE CHARGED	ANNUAL CARGO VOLUME	REMARKS
	Unknown	About 5 tug-boats carrying about 6 barges each	General Goods	i, Lokoja-Yola-Garua (cam. Rep) ii, Port Harcourt-Yola-Garua (Cam. Rep)	Not known	Each of the ~~about~~ 5 tugs carry about 6 barges, hence 30 barges i.e 60 barges for return trips	The barges pass through Yola to Garua in Cam. Rep. by July August and return by September ending. They pass and return once in a year. Some of the barge operators are based in Lokoja while some are in Port Harcourt.

INLAND WATER SERVICES IN KEBBI STATE

Name of Operator	No.& type of boats	type of cargo	Routes / Towns	Ft/fare Charged	Annual Cargo Volume	Remarks
Federal Inland Water Department	1No. Water bus with a carrying capacity of 8 crew and 150 passengers	Passengers and their luggages	i,Yauri-Zamari ii,Yauri-Sanamgii iii,Yauri-DoleKaino	N5/Person N5/person N5/person	Over 50,000 passengers.*	The only water bus which the IWD has in Yauri has been out of formation since 1991. The IWD passenger fares are as at 1991.
Alh. Jangali	1No. out boat engine Canoe.	Passengers and their luggages.	i,Yauri-Ngendemi	N80/person	Each boat carries about 4,000 persons a year within Kebbi State & about 9[illegible] to Malaville & Gaya i.e about 80,000 person within Kebbi & 16,000 to Malaville & Gaya in respect of the 20 boats.	Figures for the cargo volume are conservative because some of the boats sometimes carry upto 30 person. Also some of the boats do more than 5 trips a week
Alh. Garba Kiya	2 No. "		ii,Ngendemi-Lolo	N40/person		
Alh. Danbaba Zamari	1 No. "		iii,Lolo-DoleKaino	N15/ "		
Alh. Haruna Zamari	2 No. "		iv,Yauri-DoleKaino	N120/person		
Alh. Ibrahim Ikiya	1 No. "					
Alh. Ahmadu Zamari	1 No. "		v,Yauri-Samanji	N50/person		
Alh.Sani Gebbe	3 No. "					
Alh. Jirgi Bokonji	2 No. "		vi,Yauri-Malville (B. Rep)	N220/person		
Alh. Garba Bokonji	2 No. "					
Alh. Umoru Toro	1 No. "		vii,Yauri-Gaya (N.Rep)	N200/person		
Mal. Ahmadu Komala	1 No. "					
Alh. Yusufu Zamari	2 No. "					
Alh. Sani Zamari	1 No. "					
Alh. Danladi Zamari	1 No. "					
Total:	20 No.					

- 1. * The water bus operated daily and were getting full capacity passengers.
  2. - Each canoe makes at least 5 trips in a week within Kebbi State and carries at least 5 passengers.
  3. - Each boat makes 1 trip in a week to Malaville (Benin Republic) and Gaya (Niger Republic) and carries at 15 passengers.