BASIC DESIGN STUDY REPORT
ON
SKIPJACK POLE AND LINE FISHING RESEARCH AND TRAINING VESSEL PROJECT
IN
FEDERAL REPUBLIC OF NIGERIA

JUNE 1983

JAPAN INTERNATIONAL COOPERATION AGENCY

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PREFACE

In response to the request of the Government of the Federal Republic of Nigeria, the Government of Japan has decided to conduct a Basic Design Study on the Skipjack Pole and Line Fishing Research and Training Vessel Project and entrusted the survey to the Japan International Cooperation Agency (JICA). JICA sent a survey team to Nigeria headed by Mr. Muneaki Saito, Fishing Boat Inspector, Fishing Boat Division, Oceanic Fisheries Department, Fisheries Agency, from March 13th to April 2nd, 1983.

The team held discussions with the relevant Nigerian officials and conducted a field survey in Lagos and Port Harcourt. After the team returned to Japan, further studies were undertaken, and the present report has been prepared.

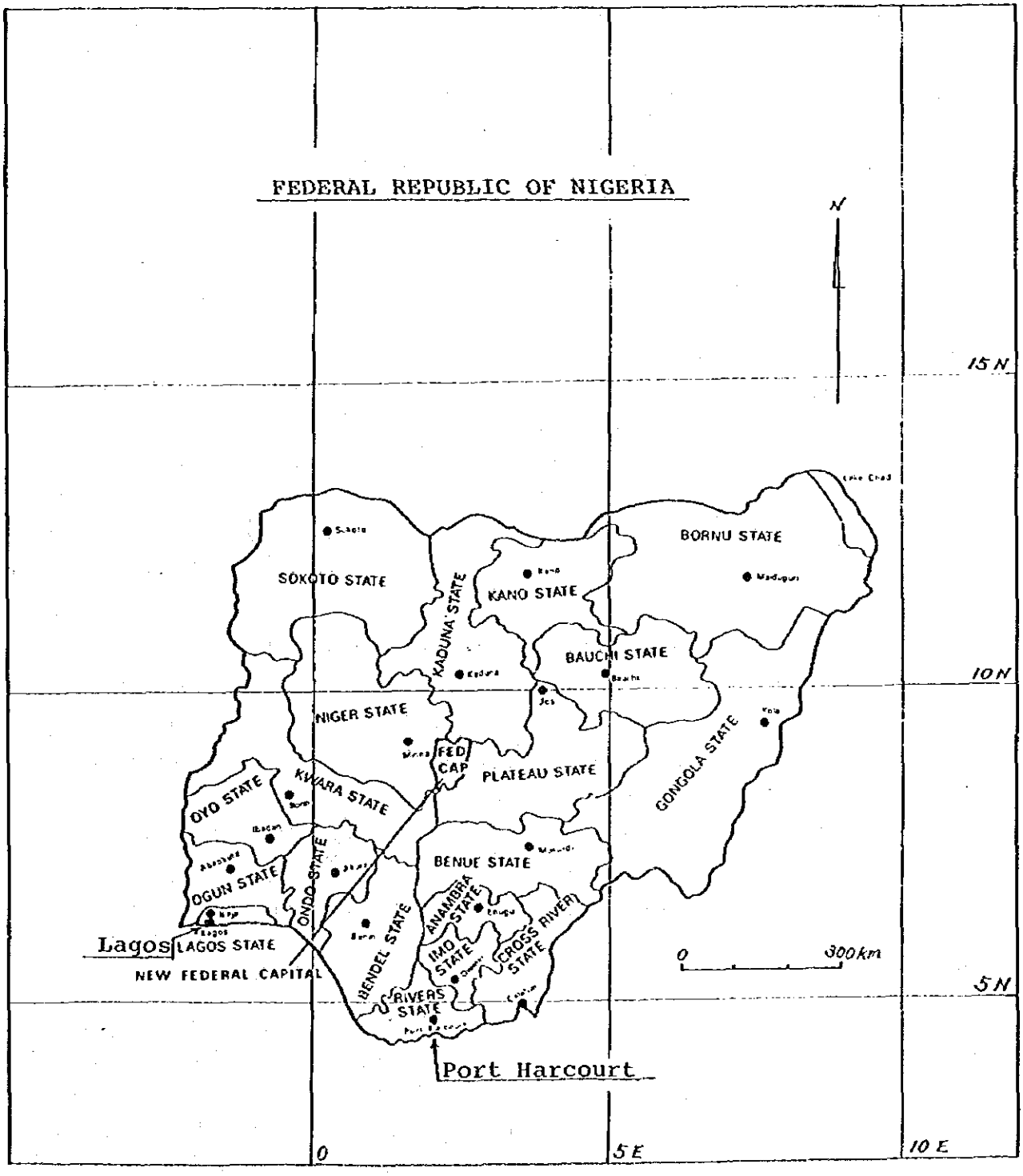
I hope that this report will provide a basis for the successful execution of the Project and enhance the friendly relations between our two countries.

I wish to express my deep appreciation to the officials concerned of the Government of the Federal Republic of Nigeria for the cooperation extended to the team.

June, 1983

Keisuke Arita
President

Japan International Cooperation Agency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SOKOTO STATE
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PLATEAU STATE
GONGOLA STATE
KWARA STATE
OYO STATE
OGUN STATE
ONDO STATE
BENUE STATE
BENDEL STATE
ANAMBRA STATE
IMO STATE
CROSS RIVER
RIVERS STATE
LAGOS STATE
NEW FEDERAL CAPITAL
Lagos
Port Harcourt
0
300km

SUMMARY

The Federal Republic of Nigeria, by basing its economy on the export of its abundant reserves of oil, has achieved rapid economic development to become a significant country of West Africa. However, the recent surplus in the international oil market has caused a sharp decline in Nigeria's oil exports and this has had an adverse effect on the economy. Nigeria is beginning to suffer from foreign exchange shortages, inflation, and unemployment - indications of the fragility of an economy which depends primarily on oil exports.

The Nigerian Government established its Fourth Five Year Plan in 1981. The Plan places emphasis on increasing the availability of and achieving self-sufficiency in food production in order to increase the food availability for its immense population in addition to reducing food imports which use up valuable foreign exchange. In this respect, fisheries development holds primary importance as a means to increase the supply of protein.

Although Nigeria has approximately 1,000 km of coastline, its fisheries development lags behind that of its neighbouring countries. The fishermen engage in artisanal fishing on a very limited scale, and extensive and rapid development of this type of fishing would be difficult. Medium-scale trawling is practiced in the coastal waters, however, there is little hope for its large-scale development because of the narrow continental shelf and the danger of overfishing.

Nigeria established its 200 mile exclusive economic zone in 1978. This zone was already known for its abundant supply of skipjack, and although Ghanaian and other foreign boats are fishing for skipjack in the vicinity of this zone, Nigeria has not yet begun to develop these resources.

Since Nigeria has an immense population of over 80 million, the current national fish production of 500,000 tons along with the additional import of another 500,000 tons does not come near to meeting the ever increasing demand for fish products. The demand for skipjack is thus quite large, and it could be said that there is growing expectation towards the start of skipjack fisheries development in accordance with the National Development Plan.

To this end, the Nigerian Government has already started to undertake what studies it can under its own power and to draw up a specific plan for the exploitation of the abundant skipjack resources. The government's plan for skipjack fisheries development consists of the following three points:

1) training of necessary personnel;
2) undertaking studies and surveys concerning skipjack and live bait stock;
3) propagating skipjack fisheries development in the Nigerian industrial sector.

Given the circumstances stated above, the Nigerian Government requested the Japanese Government for grant assistance in the form of a Skipjack Pole and Line Fishing Research and Training Vessel. Based on this request, the Japan International Cooperation Agency sent a basic design survey team to Nigeria from March 13th to April 2nd, 1983. The team conducted a field survey in Lagos and Port Harcourt. After its discussions with the Nigerian officials concerned, the team exchanged and signed the Minutes of Discussion which covers the basic points discussed with the Nigerian Authorities.

According to the field survey, the Government Executing Agency for this Project, the Nigerian Institute for Oceanography and Marine Research (NIOMR) has sufficient budgetary allocations to undertake this Project. Furthermore,

NIOMR is seriously endeavoring to realize the development of fisheries, and their management capabilities are worthy of notice. With respect to the use of the Research and Training Vessel, NIOMR is placing priority on research, training of necessary manpower, and propagation of skipjack fisheries development in the Nigerian industrial sector.

The team drew up the basic design for the Vessel paying particular attention to the expected area of navigation, the fish storage capacity, and the trainee boarding capacity.

The actual equipment necessary for executing this project are as follows:

One Skipjack Pole and Line Fishing Research and Training Vessel
- approximately 280 tons
- including necessary training and research equipment facilities to search for live bait
- nets and skiff
- equipment necessary for pole and line fishing

Since Nigeria is an oil-producing nation, the cost of fuel is half that of other nearby non-oil producing nations. In addition to the abundant supply of skipjack, this contributes to create a favorable condition for the establishment of skipjack fisheries.

Since Nigerian skipjack fisheries seems to be the only area with the possibility of large-scale fisheries development, Japan's cooperation in this activity would be meaningful. Furthermore, since Nigeria is a focal point in West Africa, the benefits will not rest in the country but should favorably influence the fisheries development of neighboring countries.

TABLE OF CONTENTS

I. Introduction

The Federal Republic of Nigeria, located in the Western Central region of the African continent, borders the Republic of Cameroon to the east, the Republic of Benin to the west, the Republic of Niger to the north, and faces the Atlantic Ocean to the south. The country covers a total area of approximately 9,130,720,000 km^2, an area about 2.5 times that of Japan.

Nigeria achieved its independence in 1960. After a change from military to civil rule in 1979, Nigeria is now a federal republic consisting of 19 states.

Nigeria is among the world's top five oil producing nations, and this industry plays a vital role in the country's economy. Therefore, the recent surplus supply of oil in the world market led to a sharp decrease in Nigeria's oil exports and has had a severe depressing effect on the country's economy.

Furthermore, due to the low productivity of primary industries such as agriculture and fisheries, there is a shortage of food supply, especially of proteins, for the 80 million Nigerians which make up a quarter of the entire African population. Currently Nigeria imports more than 50 % of its total consumption of fish products which amounts to about 1 million metric tons annually. Therefore, in light of these current economic conditions, the Government of Nigeria has placed high priority on agricultural and fisheries development under the country's Fourth Five Year National Development Plan in order to achieve self-sufficiency in food production.

Since, however, the greater part of the nation's fishing activities are of a very small scale, it will be very difficult to improve the present food supply through the fisheries sector.

Although an abundant supply of skipjack has already been identified in Nigeria's 200 mile exclusive economic zone, due to the orientation of the economy towards petroleum production at that time, less priority was given to fisheries development.

However, with the decline of oil exports and the recognition of the necessity for self-sufficiency in food, the development of a skipjack fisheries industry has begun to receive higher priority in the country. Subsequently the Government of Nigeria has made attempts to start a skipjack fisheries development programme and has already conducted a preliminary survey of skipjack supply and possible markets.

Furthermore, for the effective implementation of this development programme, the Japanese Government was requested by the Government of Nigeria to provide bilateral assistance in the form of a grant for a Skipjack Pole and Line Fishing Research and Training Vessel.

In response to this request from the Nigerian Government, the Japanese Government sent a Basic Design Survey Mission from March 13 to April 2, 1983 headed by Mr. Muneaki Saito, of the Japan Fisheries Agency, Fishing Boat Division as the Mission Leader.

The Research and Training Vessel is expected to be used for the following three objectives in order to establish a base for skipjack fisheries development in the country:

- training of local staff necessary for skipjack fisheries development;

- investigation of live bait stock essential for skipjack pole and line fishing; and

- propagation of skipjack fisheries development in the Nigerian industrial sector.

The Mission's objective was to investigate the possibility for the provision of a Skipjack Pole and Line Fishing Research and Training Vessel to the Federal Republic of Nigeria. The Mission visited Lagos and Port Harcourt, Nigeria and conducted a fact-finding survey including data collection on the present status of fisheries development, observation of the related infrastructure facilities and existing organizations for research and training, and the study of skipjack and live bait supply. Furthermore, detailed discussions were held as to the most suitable size and specifications of the Vessel and the necessary arrangements to be undertaken by both countries concerning its provision. The Minutes of the Discussion were duly signed and exchanged. The list of Mission participants, their itinerary, the relevant officials of the Nigerian government, and the Minutes of Discussion are given at the end of this report.

II. Background

Nigeria faces a chronic shortage of food supply for its rapidly growing population (numbering 80 million in 1978, estimated projection 100 million in 1999). Although the government had been relying on imports to satisfy the excess demand for food, the recent decline in oil exports and its adverse effect on Nigeria's balance of payments has forced the government to take measures to achieve self-sufficiency in food.

To this end, the Government of Nigeria has made a special appropriation under the Fourth Five Year National Development Plan specifically to increase the production of agricultural and fisheries products. Fisheries development holds special weight under this Plan as a means to increase the supply of animal protein.

Currently, however, Nigeria's fisheries industry consists primarily of small scale artisanal fishermen although a few trawlers of 50 metric tons are in use. Demand, therefore, far exceeds the supply of fish, and there has been no alternative but to rely on imports to meet the excess demand. In fact, despite the legal restrictions on the imports of fisheries products, the total volume of imports has been increasing.

The future development of coastal fisheries in Nigeria will be difficult, first, due to its narrow continental shelf, and second, because there is the danger that these coastal waters have already been over-exploited. There is already a long history of shrimp trawling in particular, by foreign owned firms, and the ratio of trash fish in the catch from these waters has increased.

The skipjack supply in Nigeria's off-shore waters is estimated at 1 million metric tons. The exploitation of this supply has been the strong wish of the Nigerian fishing industry since the 1960's.

For this reason, the Japanese Government has received a request to grant a Skipjack Pole and Line Fishing Research and Training Vessel which is indispensable for training local staff, investigating and collecting data necessary for skipjack fisheries development, and for propagating skipjack fisheries development in the industrial sector.

III. Scope of the Project

1. Appropriate Fishing Method

Generally speaking, there are two types of fishing methods for skipjack: pole and line fishing and purse seine fishing. In designing this Project, a comparative study of these two kinds of fishing methods were conducted in order to determine the method most suited to the conditions prevailing in Nigeria.

Currently, large-scale American purse seiners are operating outside of Nigeria's exclusive economic zone. However, considering the present status of Nigerian fishery, it was concluded that the introduction of this fishing method will be difficult due to the following reasons;

1) Nigerian fishermen are technically unaccustomed to mechanical fishing such as purse seining since 99 percent of them are still presently engaged in artisanal fishing using small sized canoes and simple fishing gear.

2) Currently, there are restrictions on the importation of fishing nets in Nigeria, and as long as these restrictions prevail, it will be difficult to maintain the large fishing nets necessary for purse seining.

On the other hand, as for pole and line fishery, although techniques such as the preservation of live bait and timing in bait casting are important in effectively catching the skipjack, aside from these easily taught techniques, the fishing activity itself involves nothing more than simple fishing. Furthermore, since this fishing method has already been developed and is in use in Ghana, there is the possibility of obtaining technical

assistance from this neighboring country.

2. Necessary Conditions for Skipjack Fishery Development

The following conditions must exist as necessary requirements for the development of Nigerian skipjack pole and line fishery to be established effectively:

- abundant availability of skipjack resources
- availability of live bait
- possibility of industrial sector participation in skipjack fishery development
- existence of public sector support facilities

2-1. Availability of Skipjack

It is estimated that about one million metric tons of skipjack exist in Nigeria's exclusive economic zone. This stock has been exploited since the 1960's, however, since the declaration of the 200 mile exclusive economic zone in 1978, the fishing in these waters is controlled solely by Nigeria.

Although ecological surveys of the skipjack population in the Atlantic Ocean have been conducted by the International Committee for the Conservation of Atlantic Tunas (ICCAT), no academic research has been conducted in Nigeria's exclusive economic zone.

About 200 pole and line fishing vessels stationed in Tema, Ghana are presently fishing for skipjack migrating in and out of Nigeria's territorial waters. NIOMR has already conducted their own resource survey for skipjack in this region during 1982 - 1983 and obtained promising results for future development. Therefore, at present no problems exist as to the availability of skipjack in Nigeria,

but biological and ecological investigations and research are necessary for practical development and exploitation of this stock in the future. NIOMR is planning to conduct a fish population survey in Nigeria's exclusive economic zone as a long run project.

2-2. Live Bait Availability

A constant supply of live bait is indispensable to establish a successful skipjack pole and line fishing industry. The resource survey for skipjack population conducted during 1982 - 1983 also investigated the supply for live bait. However, the survey of the live bait stock for pole and line fishing did not yield any definite results due to the limited amount of time available. Thus as far as the availability of live bait is concerned, the findings are still inconclusive.

Therefore, to establish the species to be used as live bait, NIOMR is planning to conduct a survey for sardinella as well as other small sized fish with a body length of less than 6 cm.

Presently, artisanal fishermen catch these sardine, herring, and gray mullet in lagoons. These fish could easily be used as bait during the training period. It is also known that seasonally, Bonga appear in large amounts at the mouth of the Niger River.

A farm for Tilapia melanotheron visited in Port Harcourt had as much as 100 kgs of fingerlings in each pond. After it is confirmed that they can be used as live bait for skipjack, there is the possibility that, in the future, this species could be utilized as an alternative to sardines.

Finally, there is the possibility of using live bait which is already known to exist in Ghana, Cameroon or Gabon, after formal fishing agreements have been reached

with these countries regarding the permission for live bait fishing.

The exploitation of the live bait stock will mainly depend on the efforts of the executing agency. It was confirmed that NIOMR will make efforts to develop and secure a constant source of live bait according to the following steps:

1) Continue to conduct surveys for live bait using a 42 foot vessel until the implementation of this project. This would involve searching for sardinella population within Nigerian territorial waters and examining the possibility of utilizing other species for bait.

2) Study the possibility of utilizing tilapia fingerlings.

3) After delivery, conduct a survey for bait using the skiff and small purse seine on the Research and Training Vessel.

4) Utilize live bait available in Ghana, Cameroon or Gabon after signing a fishing agreement with the said countries.

Given the above, the availability of live bait should not pose any immediate problems in terms of the effective utilization of the proposed Research and Training Vessel.

2-3. Possibility of Industrial Sector Participation in Skipjack Fishery Development

There is a large demand for skipjack due to the recent insufficient supply of fish. Therefore, a relatively high price can be expected especially after appropriate processing such as smoking. The most advantageous point in developing this industry is that the price of fuel oil is almost half that of the other non-oil producing countries.

It is difficult to obtain skilled labour in this field, since no skipjack fisheries currently exists in Nigeria. However, this type of fishing has already been developed in Ghana, a neighboring country. They have 9 fishing vessels which are navigated and operated totally by Ghanaians. Thus, aside from the general crew such as fishermen who can be easily trained, the temporary employment of foreigners, namely the Ghanaians, may be necessary for the innitial training of the crew. This is unavoidable since posts such as that of the skipper require special techniques in skipjack pole and line fishery. On the other hand, the engineers can be obtained readily from the local cargo ships.

Considering the employment situation of skilled labor in the field of fisheries, trained students will easily find employment in Ghana and Nigeria since fishing companies are increasing in terms of number and capacity because of the growing demand for fish. Furthermore, the establishment of skipjack fishing industries will create a large demand for such trained personnel, especially when the profitability of the venture is made clear as a result of the successful and effective operation of this Research and Training Vessel.

2-4. Public Organization Supporting System

Under the Fourth Five Year National Development Plan there are high expectations for skipjack fishery development in connection with the priority for increasing food production. Accordingly, it is anticipated that government cooperation for project execution and the future skipjack fishery development will be readily available with respect to both relevant infrastructure and fishing regulations.

3. Objectives of the Project

This Research and Training Vessel is necessary for starting skipjack fishery in Nigeria and is to be used for the following three objectives: training, research and

demonstration activities to propagate skipjack pole and line fishery to the Nigerian industrial sector.

3-1. Training

This Vessel will be used for practical training in three out of the six courses which are presently conducted at the Federal Marine Fishery School, the training division of NIOMR; the fisherman course, mate course, and motormen grade II course. In particular, students for the mate course (30 students per year) and motormen grade II course (30 students per year) need 60 days of on-board training in the first year and 240 days in the second year in order to obtain an official certificate in each field.

Presently, however, the on-board practice is conducted on a commercial fishing vessel. Upon the implementation of the Project, this on-board practice will be carried out by using both the proposed Vessel and OKION, the vessel provided by the Japanese Government in 1980 as a grant assistance project. The students who are trained on this Research and Training Vessel will play a key role in future skipjack fishery development in Nigeria, as a captain, skipper, officer, chief engineer or engineer. Furthermore, the school is planning to start a new training course for fishermen on pole and line fishing in anticipation of the future development of skipjack pole and line fishery.

3-2. Research

Nigeria has been participating in the International Commission for the Conservation of Atlantic Tunas (ICCAT) as an observer, because up to the present, they have had no means by which to join the surveys for skipjack. When this project is implemented, however, NIOMR plans to start research and survey for skipjack in order to contribute to the overall understanding on Atlantic skipjack and tuna availability through joint research with ICCAT.

Main research topics include skipjack population dynamics, investigation of live bait availability in Nigerian coastal waters, determination of the skipjack population using genetic methods, and oceanographic and meteological investigations.

3-3. Demonstration Activities to Propagate Skipjack Pole and Line Fishing

In addition to research and training, NIOMR plans to conduct model operations from production to marketing on an experimental basis.

This demonstration is aimed to propagate and promote skipjack fishery in the industrial sector. The fish which are caught will be processed by NIOMR and sold to the local market as a demonstration of the profitability of this venture.

4. Basic Design

The suitable size and specifications of the Skipjack Pole and Line Fishing Research and Training Vessel were drawn up in accordance with and taking into consideration the results of the survey and examination on the present status of fisheries, other fisheries development projects, the scope of the request from the Nigerian Government, the research and training plan, and the objectives of the Project.

4-1. Items for Consideration in Design

The following details were taken into consideration in drawing up the design.

1) The Research and Training Vessel will be an ordinary skipjack pole and line fishing vessel. About 200 pole and line fishing vessels operated in Ghana are also of this type so that the training results can be easily

put to use in commercial operation.

2) The fish hold was designed for easy handling. In addition, NIOMR's demonstration activities to propagate skipjack fishing will be one of the main functions of the Vessel. Therefore, sufficient fish hold capacity must be secured in order that enough fish may be stored for marketing purposes. The Vessel will be equipped with 6 fish holds (one to be used as a brine tank) with a 40 ton capacity.

3) Since the expected navigational area is close to the equator with calm oceanographic conditions year round, no special measures for poor navigational conditions are necessary.

4) Since each training course has a capacity of 30 trainees, assuming that there will be two shifts, the Vessel should have a capacity for at least 15 trainees.

5) The Vessel will be designed primarily to navigate in the entire Nigerian exclusive economic zone. "OKION", on the other hand, has mainly operated in the coastal area on the continental shelf. At least the same research and training equipment as "OKION" will be required, and the fuel and freshwater tanks' capacity will need to be greater than that of "OKION".

4-2. Items for Incorporation in Design

The following items will be incorporated into the design of the Vessel:

1) Capacity to board 15 trainees.

2) Dinning room to be also used as a lecture class room.

3) For training, research and navigational purposes, separate private rooms to be set up for the skipper,

chief engineer, and teacher. A laboratory and two twin rooms for officers and engineering staff are also necessary.

4) Six fish holds equipped for a maximum fish catch of about 40 m.t.

5) Engine room with sufficient training space.

6) As the average Nigerian physique is larger than that of a Japanese, it will be necessary to increase the height of the room and the length of the bed in comparison with those of a typical Japanese vessel.

7) The Vessel should have enough stability even under light load conditions. Stability is sometimes a problem for training vessels returning from the fishing ground to the home port since the fuel oil is exhausted and the fish hold is empty due to unskilled fishing techniques

4-3. Operation and Maintenance

The size of the vessel which will satisfy the above conditions is estimated at 280 GT. Larger vessels, however, tend to have more difficulties in maintenance and operation. The following support facilities are available for operation and maintenance.

1) Anchorage

NIOMR has a pier about 50 meters long and 30 meters wide. Presently, this pier is a base for "OKION" and other vessels belonging to NIOMR. However, there is no facility for freshwater and fuel supply. Furthermore, the electricity supply system does not extend to the site at present. There is no depth problem for anchoring vessels of "OKION"'s size.

2) Dockyard

Although "OKION" has been repaired at Burutu Dockyard, it is anticipated that the use of this dockyard will create difficulties for the management of the Project. For example, the dockyard is quite far from NIOMR's pier with no means of communication. On the other hand, the Nigerian Naval Dockyard on Victoria Island next to the NIOMR site will be completed within this year and it is already confirmed that this facility can be utilized by NIOMR.

Under the fishery development project of the Federal Fisheries Department, fishing terminals are under construction at three sites, Ibogoda (Ondo State), Ebugu (Crossriver state) and Port Harcourt (River State). These fishing terminals include dockyard facilities which will commence operations within this year and are of a sufficient capacity to be utilized by the Research and Training Vessel. In addition, four fishing bases including the three terminals mentioned above and Lagos should be connected in order to conduct effective training and research work.

3) Onshore Facilities

The Processing Division of NIOMR presently has two 20 ton cold storages of - 22°C and - 50°C respectively. Furthermore, they possess processing facilities for smoked fish with a 0.5 tons/day capacity, a mincing machine, a vacuum packing machine, a fish meal plant, and a mixer for formula feed production. Therefore, there appears to be no problem in the treatment of fish products after landing.

4-4. Preliminary Specifications

The following plans are for the Skipjack Pole and Line Fishing Research and Training Vessel Project.

1. Vessel Type : Single decker with fo'c'sle and poop with bowsprit
2. Classification : NIPPON KAIJI KYOKAI (N.K.)
3. Regulation :
   a) International Load Line Regulation, 1966
   b) The International Convention on Tonnage Measurement of Ships 1969
   c) ITU Ship's Radio Telephone Convention, 1976
   d) SOLAS Convention, 1976
   e) Suez Canal Tonnage Admeasurement
   f) Japanese Maritime Regulations applicable to this type of ship
4. Principal Dimension:

Length (overall)	approx.	43.00 M
Breadth (MLD)	approx.	7.10 M
Depth (MLD)	approx.	3.30 M

5. Gross Tonnage : approx. 280 tons
6. Capacity :

Fuel oil tank (100 % full)	approx.	110 m^3
Freshwater tank (100 % full)	approx.	35 m^3
Fish hold (Grain)	approx.	80 m^3
(Bale)	approx.	70 m^3

7. Main Engine : approx. 1,000 ps
8. Sea Speed : approx. 10.5 Knots
9. Complement :

Crew	15 p.
Trainees	15 p.
Total	30 p.

10. Deck Machinery :
    ordinary equipment 1 set

11. Fishing Equipment :

Equipment for pole and line fishing		1 set
Skiff	approx. 5 M, approx. 17 ps	2 units
Lamplight boat	approx. 3 M, approx. 5 ps	1 unit
Fishing net		3 sets

12. Navigation Equipment:

NNSS	1 set
X-Y plotter	1 set
Doppler speed log	1 set
Ordinary equipment	1 set

13. Wireless Equipment :

S.S.B.	1 set
Ordinary equipment	1 set

14. Research Equipment :

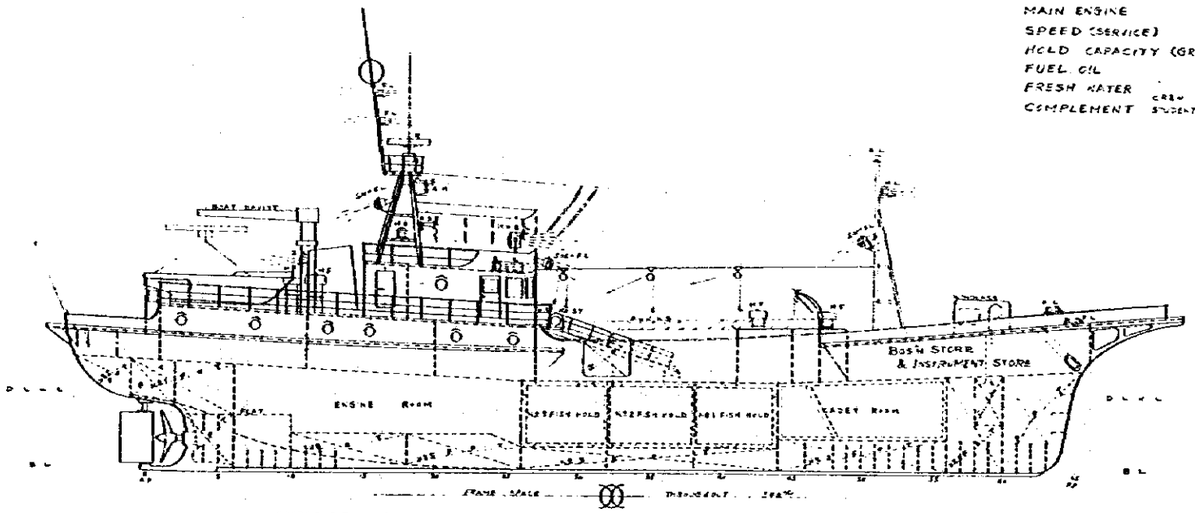
Oceanographic winch	1 set
Nansen bottle	3 set
X-BT	1 set
Ordinary equipment	1 set

GENERAL ARRANGEMENT OF

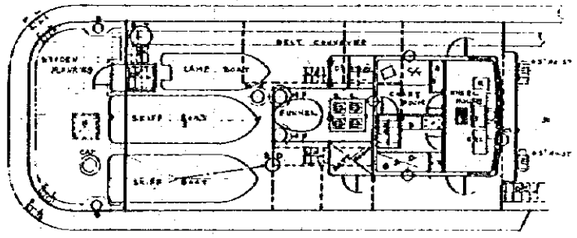
THE SKIPJACK POLE AND LINE FISHING RESEARCH AND TRAINING VESSEL

PRINCIPAL PARTICULARS

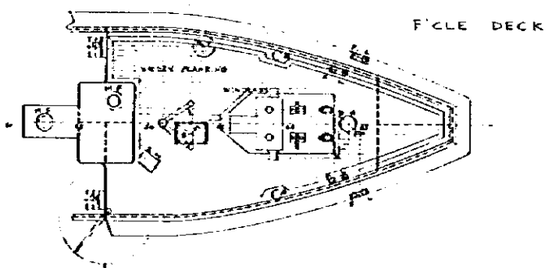
LENGTH (O.A.)	abt	43.00 M
LENGTH (B.P.P.)		35.00 M
BREADTH (MLD.)		7.10 M
DEPTH (MLD.)		3.30 M
DRAFT (DESIGNED)		2.30 M
GROSS TONNAGE (INT. MEASR.)		280 T (abt)
MAIN ENGINE		1000 BHP
SPEED (SERVICE)		(abt) 10.5 KTS
HOLD CAPACITY (GRAIN)		(abt) 21 M³
FUEL OIL		(abt) 110 KL
FRESH WATER		(abt) 35 T
COMPLEMENT	CREW	18P
	SCIENTISTS	3P



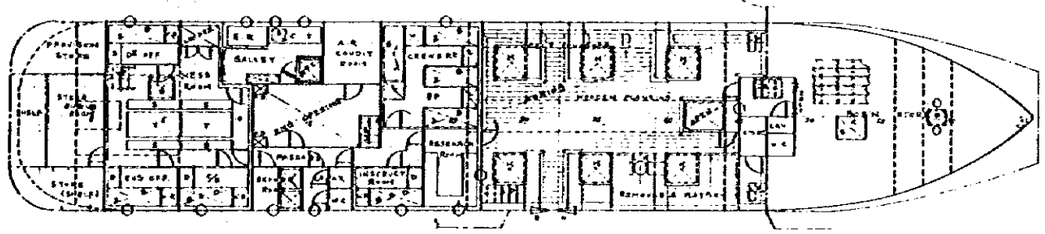
BRIDGE DECK



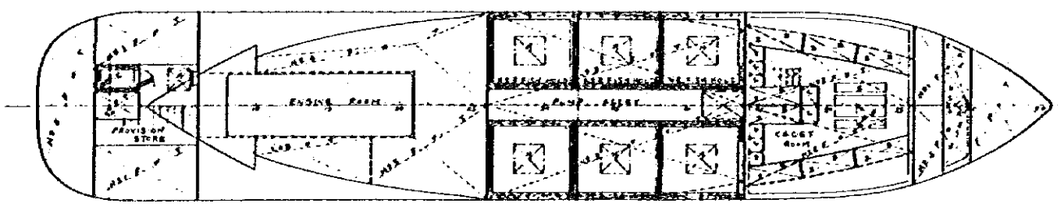
F'CLE DECK



UPPER DECK



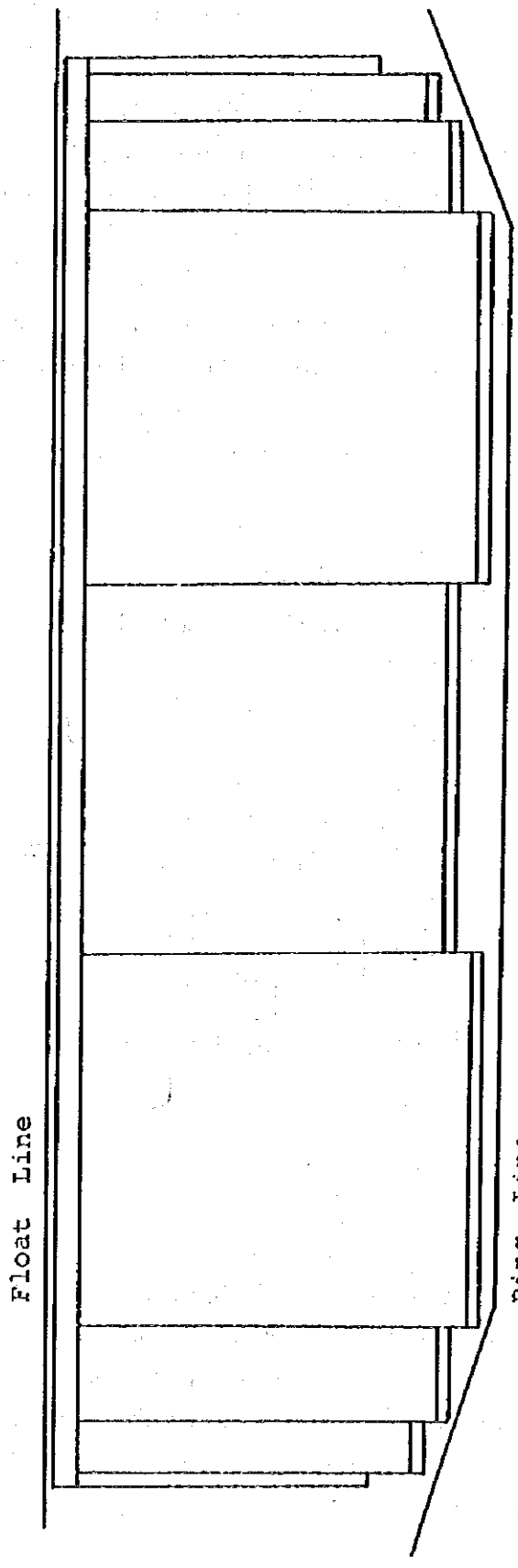
HOLD PLAN



280 GT TYPE POLE & LINE FISHERIES RESEARCH/TRAINING VESSEL

GENERAL ARRANGEMENT

SARDINE PURSE SEINE FOR LIVE BAIT



Length of float line(after hung) :Approx.160m

Depth(stretched) :Approx. 34m

Details of Net
Material :Nylon
Size of thread:210/6~210/4
Size of Mesh :12-10mm
(in stretched measure)

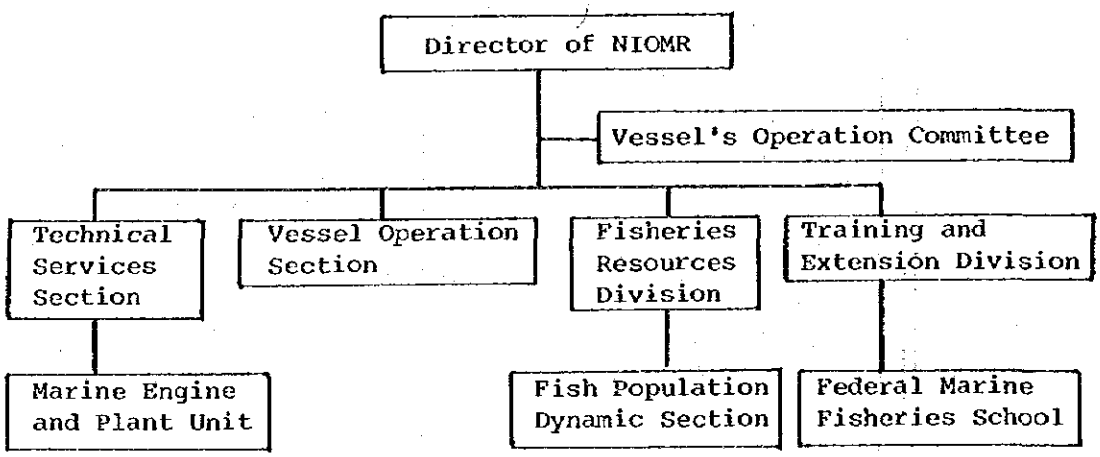
IV. Executing Agency and Operational Plan

1. Executing Agency

The Nigerian Institute for Oceanography and Marine Research (NIOMR), as the executing agency, will be responsible for the administration and operation of the Vessel.

NIOMR is one of the 19 institutes of the Federal Ministry of Science and Technology. Its main functions are to undertake research and studies, to conduct training and education activities, and to promote various fisheries development projects.

Regarding the execution of the Project, the relationship of each relevant division is shown below:



All of NIOMR's vessels are operated by a captain and chief engineers who belong to the Vessel Operation Section. The Vessel's Operation Committee will examine and decide the Vessel's plan of usage and the necessary budget, based on the annual programme for research and training submitted by the Fisheries Resources Division and the Federal Marine Fisheries Division.

1-1. "OKION" and other Vessels' Operation

The investigation of the present conditions of the operation of the trawl fishing training and research vessel "OKION", was scheduled. However, this was not possible because "OKION" was out of Lagos for a periodical mechanical check. According to the report from NIOMR's instructor, "OKION" is being operated without major problems. The records and data concerning the vessel's operation could not be obtained.

At present, NIOMR has three vessels in addition to "OKION".

1) M/S Emodja: 350 tons, Stern trawler type research vessel, built in Germany. This trawler has not been used at all and remains anchored in port due to mechanical problems.

2) Argonaut: American type shrimp trawler. Length 24.15 m. This trawler has been used for fishing practice/exercises by the Federal Marine Fishery School and for research by NIOMR.

3) Clorker VI: 42 feet trawler type training vessel, built in Nigeria. This vessel has been used for research by NIOMR and practice/exercises by the Federal Marine Fishery School. It is scheduled to be used to conduct surveys for live bait for skipjack fishing.

1-2. Budgetary Situation

Recently, Nigeria's financial situation has rapidly worsened due to the decline in oil exports.

The budget for every Ministry and Department has been cut, and in particular, there has been a reduction in allocations for new projects. The status of NIOMOR's budget for the execution of this Project was investigated in detail by checking the actual annual financial statements from 1980 to 1982 and the proposed budget for 1983. It was found that there is the possibility of covering the operating expenses with the allocation for capital investment. Furthermore, given the special budgetary considerations for programmes to increase food production in the Fourth Five Year National Development Plan, it was concluded that NIOMR will be able to meet and cover the additional costs resulting from the Vessel's operation.

The actual financial statement of the years 1980 to 1982 are shown below:

(Unit: Naira)

Fiscal Year	Budget for Vessel Operation	Actual Cost	Total Budget of NIOMR
1980	103,500	104,696	1,941,315
1981	60,000 *1/	85,315	1,939,260
1982	112,000	24,391 *2/	1,964,092

Notes: *1/ There was a change from the April to March fiscal year to the new fiscal year system of January 1 to December 31.

*2/ The operation of "OKION" was started in 1982. However, it appears that the vessel's operation schedule was shortened.

NIOMR's proposed budget in 1983

1) Operating Cost

Total: Naira 4,023,504.-

of which operating costs for vessels:

Naira 160,000.-

2) Equipment Cost

Total: Naira 3,640,000.-

of which cost for research of skipjack resources in the exclusive economic zone: Naira 1,100,000.-

In addition to the above, a special budget of Naira 5,500.000 has been approved for the development of food resources in the Fourth Five Year National Development Plan.

1-3. Required Personnel for the Project

At present, the following staff operate vessels belonging to NIOMR:

Type of Work	Number of People
Master fisherman	3
Assistant chief engineer	6
Navigator	6
Engineer	3
Deck-hand	12

The present staff is not sufficient to operate the three vessels which belong to NIOMR. Therefore, the following scheme regarding the personnel was drawn up for the execution of the Project.

1) The expert who is fielded by FAO as a professor of the Federal Marine Fishery School shall be a key person in the execution of the project.

2) NIOMR shall engage some experts from FISESCO, a fishery consulting firm in Nigeria, for six to nine monthes at their own expense. The exports shall undertake the training of fishermen in skipjack pole and line fishing.

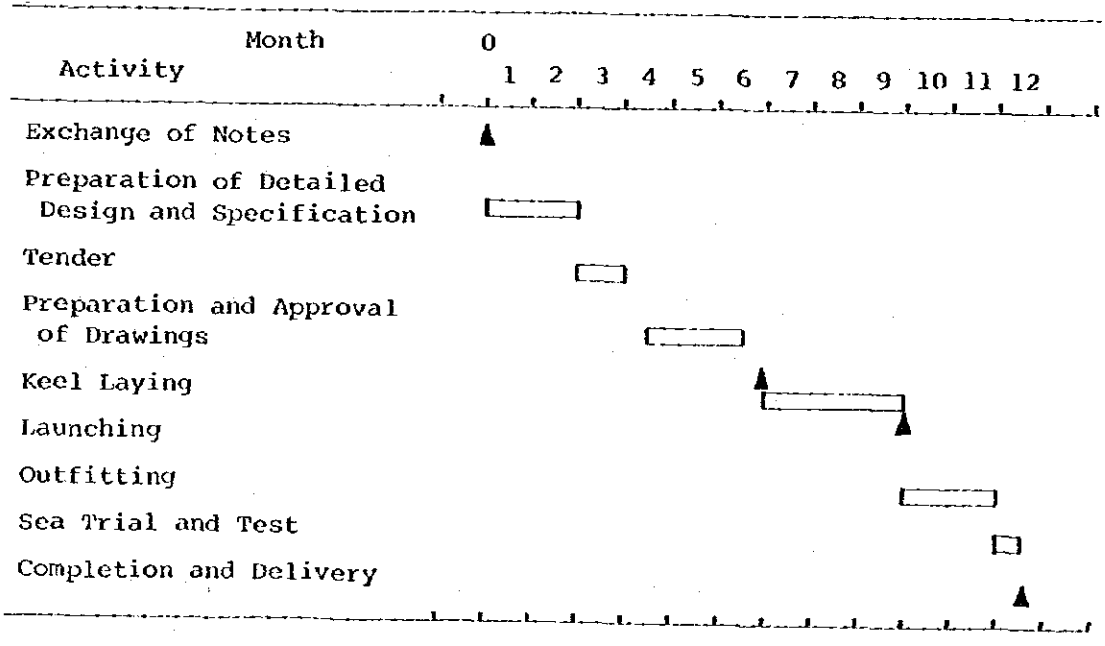
3) NIOMR has two capable students in the Federal Marine Fishery School, who were well trained for one year after boarding a Japanese vessel researching skipjack and live bait resources in 1982.

4) NIOMR shall employ crew who have been trained in Ghana.

NIOMR has already made arrangements for personnel to execute the Project according to the plan indicated above. It was also confirmed that they have drawn up detailed operation programs. Considering the above, it was concluded that they will be able to manage the personnel necessary for the execution of the Project.

2. Implementation Schedule

The schedule for the implementation is as follows:



After the delivery of the Vessel in Japan, the shipbuilder shall transport the Vessel to Nigeria at their own responsibility. The final delivery and handing over shall take place in Nigeria upon the Vessel's arrival.

3. Operating Plan

The Marine Fishery Population Dynamics Section of the Nigerian Institute for Oceanography and Marine Research (NIOMR) and the Federal Marine Fishing School will use the Vessel for the purpose of research and training. The operating plan is indicated in the following table:

	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total Days
1) Training	▬	▬					▬	▬		▬	▬	▬	126
2) Research				▬		▬			▬				48
3) Maintenance					▬								30
										Total			204

NIOMR plans to operate the Vessel for 180 days a year. Navigation for training purposes will take place mainly during the dry season. Since little fishing activity occurs in Nigeria during the rainy season from April to June, research and maintenance will be undertaken during these months. For training, 7 voyages of 18 days are planned, while, for research and investigation, 4 voyages of 12 days are planned to take place in one year. The Vessel's operating cost was calculated based on the above operating plan.

3-1. Cost for Fuel

1) Training

According to the chart of the expected fishing ground, it is estimated that one voyage will cover approximately 1,500 miles.
Assuming that:

Main Engine consumes: 165 g/ps/hr.
Aux. Engine consumes: 195 g/ps/hr.
Specific gravity of A-type diesel oil is 0.84.

The fuel consumption is calculated as follows:

Main engine: 165(g) ÷ 0.84 x 1,000(ps) x 0.8 = 157.1(L/hr.)
Aux. Engine: 195(g) ÷ 0.84 x 185(ps) x 0.8 = 34.4(L/hr.)

where 0.8 represents the engines operating efficiency.
Voyage hours are calculated as follows:

1,500(miles) ÷ 10.5(knots/hr.) = 142.9(hr.)

Assuming further that one voyage will take 18 days, this means that average daily travel time will be 8 hours. On the other hand, two auxiliary engines of about 185 ps, including one stand-by engine, will be installed in this Vessel. One of the auxiliary engines is estimated to run 12 hours a day for refrigeration after arrival at the fishery ground. Therefore, the total fuel consumption for diesel engines during one voyage is calculated as follows:

Main Engine: 157.1(L) x 142.9(hr.) = 22,450(L)
Aux. Engine: 34.4(L) x 216(hr.) = 7,430(L)

Assuming that:

Main Engine consumes: 1 g/ps/hr.
Aux. Engine consumes: 2 g/ps/hr.
Specific gravity of lubricating oil is 0.92.

The lubricating oil consumption is calculated as follows:

Main Engine: 1(g/ps/hr.) ÷ 0.92 x 1,000(ps) x 0.8 x 142.9(hr.) = 124.3(L)
Aux. Engine: 2(g/ps/hr.) ÷ 0.92 x 185(ps) x 0.8 x 216(hr.) = 69.5(L)

The cost for fuel and lubricating oil is calculated as follows given that the price of A-type heavy oil is 11 KOBO/L and that of lubricating oil is one Naira and 80 KOBO/L:

A-type diesel oil: 22,450(L) + 7,430(L) x 11(KOBO/L)
= 3,286 Naira and 80 KOBO

Lubricating oil : 124.3(L) + 69.5(L) x 1 Naira and 80(KOBO/L)
= 348 Naira and 84 KOBO

Based on these calculations, it will cost 3,635 Naira and 64 KOBO per voyage. Seven voyages in a year, therefore, will require a total expenditure of 25,449 Naira and 48 KOBO.

2) Research

Fuel and oil consumption are calculated as follows based on the same assumptions stated above except that one voyage will take about 800 miles:

(a) A-type diesel oil

Main Engine: 157.1(L/hr.) x 76.2(hr.) x 11(KOBO/L)
= 1,316 Naira and 81 KOBO

Aux. Engine: 34.4(L/hr.) x 144(hr.) x 11(KOBO/L)
= 544 Naira and 90 KOBO

Total 1,861 Naira and 71 KOBO

(b) Lubricating oil

Main Engine: 0.9(L/hr.) x 76.2(hr.) x 180(KOBO)
= 123 Naira and 44 KOBO

Aux. Engine: 0.3(L/hr.) x 144(hr.) x 180(KOBO)
= 77 Naira and 76 KOBO

Total 201 Naira and 20 KOBO

One voyage therefore will cost 2,062 Naira and 91 KOBO. Four voyages in a year, therefore, will require a total expenditure of 8,251 Naira and 64 KOBO.

Therefore, the total annual expenditure for oil consumption is estimated at 33,701 Naira and 12 KOBO. This cost is much less than the fuel expense under otherwise similar conditions calculated at Japanese prices, indicating the advantage of undertaking this kind of enterprise in an oil-producing country such as Nigeria.

3-2. Personnel Expenses

The Vessel will have a crew of 15, consisting of one captain, one chief engineer, two officers, two engineers, eight deck-hands and one trainer/investigator. The annual personnel expenses are estimated as follows given that wages will be based on a fixed basic salary with an additional allowance corresponding to the number of voyage days as indicated in the following table.

	Base Wage (Naira/month)	Allowance (Naira/day)
Captain/Chief Engineer	400	20
Officer/Engineer	200	15
Deck-hand	100	10

Captain (one man): 400(Naira) x 12(months) + 20(Naira) x 204(days)
= 8,880(Naira)

Chief Engineer (one man): 400(Naira) x 12(months) + 20(Naira) x 204(days)
= 8,880(Naira)

Officer/Engineer (four men totally): 200(Naira) x 12(months) + 15(Naira) x 204(days) x 4
= 21,840(Naira)

Deck-hand (eight men): 100(Naira) x 12(months) + 10(Naira) x 204(days) x 8
= 25,920(Naira)

Total: 65,520 Naira

In addition, food expenses for the crew during the voyages are given as follows:

10(Naira) x 204(days) x 30 = 61,200(Naira)

3-3. Maintenance/Repair Cost

Although detailed information and data are not available, about 10,000 Naira for maintenance and repair costs should be included in the estimate. This value is based on the repair expense for OKION during one month in the dock. Another 15,000 Naira should be included to cover expendable items for the operation of this vessel.

3-4. Total Cost

NIOMR should appropriate a sufficient amount in the operating budget in order to cover the total operating costs for this Vessel as follows:

Oil	33,701 Naira and 12 KOBO/year
Personnel	65,520
Food	61,200
Expendable Items	15,000
Maintenance and Repair	10,000
Total	185,421 Naira and 12 KOBO/year

3-5. Revenue

This Vessel is to be operated not only for training and research, but also for the purpose of propagating skipjack fishery in the industrial sector. Therefore, the fish caught during training and research will be frozen or smoked by NIOMR and sold at the market. However, a large catch is not expected at the beginning, until the trainee fishermen acquire the necessary skills.

Although some revenue can be expected when the Vessel is effectively utilized, the budget should not be drawn up with the assumption of a profit.

V. Project Evaluation

This Skipjack Fishery Development Project has been given high priority in the Nigerian Government. It holds crucial importance as a means of achieving self-sufficiency in food, a major target in the Fourth Five Year National Development Plan.

After implementation, the Project is expected to achieve the following direct objectives:

- training of 60 trainees per year in the field of fisheries;
- creation of job opportunities in skipjack fishing and other related industries;
- diffusion of training effects to neighboring countries;
- scientific advances in the fisheries sector through research.

In the long-term, through the realization of the direct objectives, this Skipjack Fishery Development Project is expected to generate the following socio-economic benefits.

1) Increase in Protein Supply

Nigeria's problem of insufficient food supply has already been discussed numerous times in this report. Nigeria's annual per capita fish consumption is only 7 kgs, a figure which is much lower than that of neighboring countries. This lack manifests itself in various health and social welfare problems such as high infant mortality, short life expectancy, and a high incidence of various diseases. The exploitation of the abundant skipjack resources in Nigeria's exclusive economic zone is therefore an important means of alleviating this lack of food protein.

2) Foreign Exchange Savings

Since Nigeria bases its economy on its revenues from oil exports, it is currently facing a sharp deterioration in its balance of payments due to the oil surplus in the international market. The government is already restricting the import of fish products as a means of saving valuable foreign exchange. With the development of a domestic skipjack fishing industry in the future, the outflow of foreign exchange for the importation of fish products will decrease. Eventually, with su-ficient expansion of this industry, it is hoped that Nigeria may be able to earn foreign exchange through the export of skipjack.

3) Increase in Job Opportunities

Nigeria is currently experiencing a large-scale rural to urban migration common to many developing countries. This phenomenon is placing tremendous pressure on the economic structure of Lagos, and due to the limited availability of industry-related employment, Lagos has a tremendous urban unemployment problem. The realization of this Project will help to improve the existing situation by increasing the availability of employment in skipjack fishery and other related industries.

However, in order to achieve the socio-economic benefits stated above through the successful realization of this Project, the following activities need to be undertaken urgently:

- training of necessary local staff
- sufficient investigation and research on available skipjack and live bait resources
- propagation of skipjack fishery to the Nigerian industrial sector

Through the grant of a Skipjack Pole and Line Fishing Research and Training Vessel, the primary aim of this Project is to assist the Nigerian Government in undertaking the three main activities stated above. On the assumption that there is a large unfulfilled demand for fish on the one side, and abundant availability of unexploited skipjack resources on the other, the effective implementation and operation of this Project should bring about substantial socio-economic benefits to the Federal Republic of Nigeria.

VI. Conclusions and Recommendations

One of the major problems currently faced by the Federal Republic of Nigeria is the lack of a sufficient food supply for its immense population. This shortage is particularly severe in the case of proteins, causing numerous health and welfare problems.

Furthermore, this situation is aggravated by Nigeria's dependence on its oil exports as a base for the national economy. Due to the current surplus in the international oil markets, the Nigerian balance of payments has experienced a sharp decline. The Nigerian Government would therefore like to reduce its imports of food-stuffs in order to save valuable foreign exchange.

In view of the above, the Nigerian Government has placed top priority on the achievement of self-sufficiency in food production as a goal in its Fourth Five Year National Development Plan.

As one of the possible sources of animal protein, Nigeria's 200 mile exclusive economic zone has an abundant supply of skipjack which is yet to be exploited. This is in contrast to its coastal waters which has limited potential for further development due to the narrow continental shelf and the danger of overfishing.

The Nigerian Government, fully aware of the potential, has already embarked on a programme for skipjack fishery development on its own initiative. The Government's major goals in this programme are as follows:

- training of necessary personnel in skipjack fishing;
- research and exploitation of live bait resources;
- propagation of skipjack fishing to the Nigerian industrial sector.

This Project, involving the grant of a Skipjack Pole and Line Fishing Research and Training Vessel, will be an integral part of the Nigerian Government's skipjack fisheries development programme since it will provide the concrete means of achieving the objectives stated above.

Furthermore, there are three additional points which make this Project especially appropriate to the existing circumstances. First, since skipjack fishery tends to be a relatively energy intensive industry, it is particularly suited to an oil-producing nation such as Nigeria. The operating costs will be relatively low since the cost of fuel is about half that of nearby non-oil. producing countries.

Second, NIOMR has already been exchanging information with ICCAT concerning stock assessment and population dynamics for skipjack in the Western Atlantic Ocean. With the start of this Project, the quality and quantity of this information exchange can be improved.

Finally, since Nigeria is one of the leading countries of West Africa in research and training, it is expected that with the start of pelagic resources exploitation, of skipjack, particulary, Nigeria will play a major role in the fisheries sector. This means that the effect of this Project is expected to be transferred to neighboring countries.

Although there is infinite potential for the success of this Project, the ultimate result will depend on the solution of the problems pointed out in this report. In particular, the execution of the Project is expected to hinge on the following:

- The executing agency will need to make adequate provisions to cover the necessary costs for the execution of this Project for such items as fuel, manpower, and maintenance.

- The executing agency should also establish an effective administration system to ensure the smooth execution of the Project.

- Provisions should be made to ensure that an adequate supply of live bait will be available.

- Currently, there is no expert who is sufficiently knowledgeable and experienced in skipjack fishery. This is an urgent problem which needs to be solved for the successful implementation and operation of this Project.

As long as the above conditions are fulfilled, the provision of the Skipjack Pole and Line Fishing Research and Training Vessel will contribute immensely not only to the country's skipjack fisheries development, but to Nigeria's overall economic development.

A P P E N D I X

Appendix 1.

List of Survey Team Members

Team Leader	Muneaki Saito	Fishing Boat Division, Oceanic Fishery Department Fisheries Agency
Coordinator	Hiroaki Yonesaka	Japan International Cooperation Agency (JICA)
Fisheries	Yasuhisa Kato	Overseas Agro-Fisheries Consultants Co., Ltd.
Vessel Design	Takashi Hirayama	Overseas Agro-Fisheries Consultants Co., Ltd.

Appendix 2.

List of Relevant Officials of the Federal Republic of Nigeria

Development Aid Division,
Federal Ministry of National Planning

Secretariat I.	Mr. M. O. Omolayo

Department of Agricultural Science,
Federal Ministry of Science and Technology

Director	Mr. D. E. Iyamabo
	Dr. B. G. Ololade

Nigerian Institute for Oceanography and Marine Research (NIOMR)

Chairman of the Board of Directors	Chief (Dr.) B. Idoniboye-Obu
Chief Officer	Mr. J. G. Tabor
Officer	Dr. T. O. Ajayi
Officer	Dr. S. O. Talabi
Officer	Mr. A. Amadi

Farm

Chief Officer	Dr. B. I. Ezenwa

Office at Port-Harcourt

Chief Officer	Dr. M. A. Afinowi

Federal Marine Fisheries School

Principal	Mr. A. A. Olanlawo
Vice Principal	Mr. Olajide Ayinla
Professor	Mr. K. Washizu

Farm at Port-Harcourt (at Buguma)
Food and Agricultural Organization

	Mr. Eliseo Grino
Officer	Mr. Tubonimi Idoniboyo-Obu
Officer	Mr. Augustine Magor

Federal Department of Fisheries

Director	Mr. B. F. Dada
Assistant Director	Mr. A. A. Aderounmu
Officer at Port-Harcourt	Dr. C. Akitoye

Lagos State Fish Board

Director	Mr. O. Bakare

Osadjere Fishing Company, Ltd.
Taiyo Fishery Co., Ltd.

President	Mr. T. Ohno
Officer	Mr. K. Fukuhara

Appendix 3.

Survey Itinerary

13/3/83 (Sun.)	-	Lv. Tokyo, Ar. Paris
14/3/83 (Mon.)	-	Lv. Paris, Ar. Lagos
15/3/83 (Tue.)	-	At Lagos
9:00		Visit to Japanese Embassy
10:00		Visit to Ministry of National Planning
12:00		Meeting at Japanese Embassy
16/3/83 (Wed.)	-	At Lagos
9:00		Visit to Ministry of Science and Technology
11:00		Visit to Nigerian Institute for Oceanography and Marine Research (NIOMR)
15:00		Survey of local markets in Kingsway
17/3/83 (Thu.)	-	At Lagos
9:00		Meeting at NIOMR
10:00		Visit to Federal Department of Fisheries
11:00		Visit to the Processing Department of NIOMR
12:00		Meeting at Federal Marine Fisheries School
15:00		Survey of fish markets in Barbeach
18/3/83 (Fri.)	-	At Lagos
9:00		Visit to Federal Marine Fisheries School
10:00		Visit to the farm of NIOMR
11:00		Visit to Osadjere Fishing Company Ltd.
12:00		Visit to a Nigerian-Indian joint venture
13:00		Survey of fish markets in Ijola

19/3/83 (Sat.)	-	At Lagos Survey Team Meeting
20/3/83 (Sun.)	-	At Lagos Survey Team Meeting
21/3/83 (Mon.)	-	Lv. for Port-Harcourt
12:00		Meeting on Minutes
22/3/83 (Tue.)	-	At Port-Harcourt
9:00		Survey of the fishery terminal
10:30		Visit to the fish exporting companies (Glove and Universal)
14:00		Survey of the farm at Buguma
15:00		Survey of the African Regional Aquaculture Center at Alu
23/3/83 (Wed.)	-	Lv. for Lagos
12:00		Meeting on Minutes
24/3/83 (Thu.)	-	At Lagos
9:00		Visit to Federal Marine Fisheries School to collect data
10:00		Visit to Federal Department of Fisheries to collect data
11:00		Visit to NIOMR and Meeting
14:00		Meeting on Minutes
25/3/83 (Fri.)	-	At Lagos
9:00		Visit to Federal Department of Fisheries to collect data
10:00		Visit to NIOMR and Meeting
14:00		Visit to Ministry of Science and Technology for Signing and Exchange of the Minutes
28/3/83 (Sat.)	-	At Lagos
10:00		Attend the graduation ceremony at the Federal Marine Fisheries School

27/3/83 (Sun.)	-	At Lagos Survey Team Meeting
28/3/83 (Mon.)	-	At Lagos
9:00		Visit to Federal Marine Fisheries School and Meeting
10:00		Visit to Federal Department of Fisheries to collect data
11:00		Visit to Lagos State, Fisheries Department
13:00		Survey of the markets at Jankara
29/3/83 (Tue.)	-	At Lagos
10:00		Meeting with local consultants
15:00		Visit to NIOMR to collect data
30/3/83 (Wed.)	-	At Lagos
9:00		Visit to Japanese Embassy for reporting and courtesy call
11:00		Visit to Ministry of National Planning for reporting and courtesy call
31/3/83 (Thu.)	-	Lv. Lagos, Ar. London
01/4/83 (Fri.)	-	Travel Time
02/4/83 (Sat.)	-	Ar. Tokyo

MINUTES OF DISCUSSION OF BASIC DESIGN STUDY ON SKIPJACK POLE AND LINE FISHING RESEARCH AND TRAINING VESSEL IN THE FEDERAL REPUBLIC OF NIGERIA

In response to the request made by the Government of the Federal Republic of Nigeria for grant aid assistance for Skipjack Pole-and-Line Fishing Research and Training Vessel Project (Hereinafter referred to as "the Project"), the Government of Japan has sent to Nigeria, through the Japan International Co-operation Agency (JICA), a team headed by Mr. Muneaki Saito to conduct a basic design study from 14th March to 31st March, 1983.

The team has carried out a field survey, held a series of discussions and exchanged views with the authorities concerned of Nigeria.

As a result of the survey and discussions, both parties have agreed to recommend to their respective governments and the authorities concerned to examine the result of the survey attached herewith toward the realisation of the Project.

LAGOS: 25th March, 1983.

D. E. IYAMABO 25/3/83
Director
Department of Agricultural Science
Federal Ministry of Science & Technology
for: Permanent Secretary.

齋藤宗郎
MUNEAKI SAITO
Team Leader
Japanese Survey Team

ATTACHMENT

1. The objective of the Project is to help promote the skipjack in Nigeria by providing the Government of Nigeria with a skipjack pole-and-line fishing research and training vessel. (Hereinafter referred to as "the Vessel").

2. On the Nigerian side, the Federal Ministry of Science and Technology will be responsible for the administration of the Project.

3. Nigerian Institute for Oceanography and Marine Research (NIOMR) to which the Vessel will belong, will operate the Vessel as the executing agency under the jurisdiction of the Federal Ministry of Science and Technology.

4. The expected operations of the Vessel will be done in Nigerian Exclusive Economic Zone and its adjacent areas, being based in Lagos Port. The itemized operational plans of the Vessel for research and training are described in ANNEX I.

5. In order to ensure smooth implementation of the Project, the Government of Nigeria will make necessary arrangements as follows:

a) to provide data and information needed for design and implementation of the Project.

b) to undertake prompt custom clearance of the Vessel at the Port of Nigeria.

25/3/83

c) to exempt the Japanese nationals concerned in the Project from custom duties, internal taxes and other fiscal levies which may be imposed in Nigeria, on the occasion of the handing over of the Vessel and other services for the Project.

d) to accord the Japanese nationals concerned in the Project legal permissions required for carrying out the Project.

e) to bear all the expenses other than those to be borne by Japanese economic co-operation in Grant Aid.

and

f) to make complete budgeting and personnel preparations for operation of the Vessel.

6. The Japanese survey team will convey to the Government of Japan the desire of the Government of Nigeria that the former takes necessary steps to materialise provision of the Vessel described in ANNEX II within the budgetary limits of Japanese economic co-operation in Grant Aid.

7. Both parties confirmed that the system of the Japanese Grant Aid was fully understood by Nigerian Authorities concerned through an explanation given by the Japanese Survey Team.

25/3/83

齋藤

ANNEX I

1. Research:

   1. Stock assessment of Skipjack and other fishery resources.

   2. Biological identification of species, seasonal distribution, migration pattern etc..

   3. Accessibility to local bait fish for skipjack pole-and-line fishing.

   4. Economic viability of skipjack pole-and-line fisheries in Nigeria.

2. Training:

   1. Short term basic training for, in principle, all the students of Federal Marine Fisheries School, an affiliated school with NIOMR.

   2. Long term specialised training for the students of Mate Course and Motormen Course of Federal Marine Fisheries School, to meet future industrial demands.

25/3/83

ANNEX II

Main Particulars:

1.	Vessel type:	Single decker with forecastle and bridge.
2.	Gross tonnage:	Approx. 280 G/T. (International tonnage measurement).
3.	Complement:	30 persons.
4.	Max. one training trip:	20 days.
5.	Type of fishing training:	Skipjack pole-and-line fishing.

25/3/53

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JICA