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INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT
INTERNATIONAL DEVELOPMENT ASSOCIATION

FISHERIES PROJECT
GHANA

September 8, 1969

Agriculture Projects Department

CURRENCY EQUIVALENTS

1 New Cedi (N¢)	=	US\$0.98
1 US\$	=	N¢1.02

WEIGHTS AND MEASURES
British/U.S. System

1 nautical mile	=	1.15 statute miles
	=	1.85 kilometers
1 fathom	=	6 feet
	=	1.83 meters
1 ton	=	2,240 pounds
	=	1,016 kilograms
1 U.S. gallon	=	3.79 liters

ABBREVIATIONS

ADB	-	Agricultural Development Bank
BD	-	Boatyards Division
GFC	-	Ghana Fishing Corporation
GIHOC	-	Ghana Industrial Holding Corporation

GHANA
FISHERIES PROJECT
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This report is based on the findings of an IDA appraisal mission in September/October 1968, to Ghana composed of Messrs. M.J. Walden and F.A. Brume (of IDA), C. Beever and O. Gulbrandsen (of FAO).

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FISHERIES PROJECT

SUMMARY AND CONCLUSIONS

- i. The project comprises the construction of 40 purse seiners by the Boatyards Division (BD) of the Ghana Industrial Holding Corporation - a state-owned enterprise; technical assistance to BD; and studies of the harbor facilities needed for expansion of fisheries beyond the proposed project.
- ii. The borrower would be the Government of Ghana who would lend the proceeds of the credit relating to construction of purse seiners to the Agricultural Development Bank (ADB) at 6½% interest. ADB would on-lend to approved sub-borrowers at 9% interest. Loans to sub-borrowers would be for six years, including one year of grace. ADB would repay the Government as repayments were receivable from sub-borrowers.
- iii. The proposed addition to the inshore fishing fleet would increase fish supplies for domestic consumption by an estimated 9,000 tons annually with a landed value of US\$1.3 million. The purse seiners would operate in the Atlantic close to the Ghanaian coast. These vessels would fish mainly sardinella, locally called "herring". The boats would be similar to those at present in use in Ghana, though technically improved.
- iv. Ghana has become one of the largest producers and consumers of marine fish in tropical West Africa; its production has increased three times the 1961 level. The supply of animal protein to the population is still too low and much of it is imported. Fish is a preferred source of protein in the country. Consequently, the project would contribute to the improvement of nutrition while saving foreign exchange.
- v. Assuming a ten-year operating life for the boats, the project would yield a financial rate of return of about 30%. The rate of return to the economy would be considerably higher than this. The project cost would be about US\$2.3 million of which US\$1.3 million would be in foreign exchange. The project is suitable for an IDA credit of US\$1.3 million to finance such foreign cost.

GHANA

FISHERIES PROJECT

I. INTRODUCTION

1.01 The Government of Ghana has requested an IDA credit of US\$1.3 million for the construction of medium-sized purse seine fishing vessels to expand its inshore fishing fleet, and for harbor feasibility and cost studies. The total cost of the project is estimated at US\$2.3 million of which US\$1.3 million would be in foreign exchange.

1.02 The project was identified by a Bank identification mission in October/November 1966 and prepared with the help of an FAO/IBRD Cooperative Program mission in June 1967. The Government's request for finance was received in August 1968 and this report is based on the findings of an IDA appraisal mission in September/October 1968 to Ghana, composed of Messrs. M.J. Walden and F.A. Brume (of IDA), C. Beever and O. Gulbrandsen (of FAO).

II. BACKGROUND

General

2.01 Ghana has an area of 92,100 square miles. In 1968, the population was estimated at eight million and the per capita income at US\$225. The economy is based on agriculture, principally cocoa, and between 1962 and 1967, cocoa annually averaged 64% of exports.

2.02 Although the Government has designated agriculture as the top priority sector in its development efforts, progress is not encouraging at present. The Government's development plan, mid-1968/mid-1970 anticipates no significant increment in farm output per unit of labor during that period. The Government is not satisfied with the current performance and appreciates the necessity for careful planning to improve it. Accordingly, the Ministry of Economic Affairs has a resident Harvard University Advisory Group which includes an agricultural officer. The planning group of the Ministry of Agriculture is being strengthened by technical advisors from FAO and USAID. Sector studies are being undertaken by a firm of consultants into agriculture, water resources, transport and telecommunications. Those in agriculture and water resources are designed to produce short and medium-term programs for development and priority programs for immediate development.

2.03 The Bank undertook an agriculture sector review in depth in 1965 as part of a Bank economic mission. Resulting from this, a Bank identification mission to Ghana in October/November 1966 identified a number of agricultural projects. The project now proposed is the first for Bank/IDA finance in the agriculture/fisheries sector; the Bank/IDA is, in addition, currently assisting the Government in the preparation of an oil palm and a cocoa project.

2.04 Ghana has a low per capita consumption of animal protein, approximately 65% of that which nutritionists consider adequate 1/. Fish, both imported and domestically produced, contributes 68% of animal protein supplies. The Government seeks to increase the local production of animal protein and to reduce imports which now account for 31% of total supplies. The further development of fisheries would materially assist in achievement of these objectives.

2.05 With its coast about 5° north of the Equator, Ghana is favorably located in relation to Atlantic deep sea fishing grounds, particularly those of Southwest Africa and the Canary Islands. Further, the coastal waters of Ghana are rich in fish, particularly sardinella, locally called "herring". Most importantly, Ghanaians are very enterprising fishermen.

Current Position of the Fishing Industry

2.06 Ghana has become one of the largest producers and consumers of marine fish in tropical West Africa, and its 1967 production of 92,000 tons, three times its 1961 production (Annex 1), is exceeded only by that of Senegal.

2.07 Consumption of fish has risen erratically from 78,000 tons in 1961 to 113,000 tons in 1967 2/; an overall annual growth rate of between 6% and 7%. The Government forecasts the long-run growth of demand to remain the same. Demand could be considerably increased, however, by a wider distribution of fish beyond the coastal areas to the north of the country (Annex 2). In the past, demand exceeding local production has been met by imports, mainly from foreign fishing vessels landing their catch for direct sale on the Ghanaian market. Such direct landings have accounted for 25-30% of total consumption in the past, but decreased sharply to about 14% in 1967. Since imports are subject to stringent controls they provide no reliable indication of overall demand.

2.08 Domestic fishing operations involve a wide variety of fishing vessels and fishing techniques and employ some 60,000 full-time and about 6,500 part-time fishermen. Operations are based on 195 village centers and 220 beaches in addition to the port of Tema. Map 1 shows the dispersal of operations over the Ghanaian continental shelf 3/. The present composition

1/ Republique Francaise: Societe Centrale pour l'Equipement du Territoire Cooperation: "Etude technique et economique comparee de la distribution du poisson de mer dans less pays de l'ouest africain: Ghana".

2/ These figures relate only to marine and not to freshwater fish; **statistics** on the latter are unreliable. With the exception of Volta Lake production, the quantities of freshwater fish are too small to be material. All other references to fish production and consumption in this report are similarly restricted to marine fish except where specifically indicated otherwise.

3/ To the 100 fathom depth line (Map 1).

of the fishing fleet is outlined in Annex 3. Major changes over the last six years have been the introduction of large, long-distance trawlers, now numbering 47, and an increasing number of smaller mechanized inshore purse seiners, operating mostly from the fishing port of Tema. The traditional fleet of about 10,000 dug-out canoes is still a major source of fish supplies but, whereas in 1961 it provided almost all domestic production, in 1967 it accounted for only 43%.

Deep Sea Fishery

2.09 Encouraged by its strategic location to the deep sea fishing grounds off West Africa, which were being exploited internationally, Ghana decided in 1961 to give priority to the development of a deep sea fishing fleet. As a result of this the present fleet comprises 47 vessels between 75-300 ft. However, the expansion has been too rapid and the fleet has not been efficiently operated. Therefore, current government policy is to hold back on further expansion of the deep sea fleet while raising the productivity of the existing fleet. Further details of deep sea fishing vessels are given in Annex 4.

Inshore Fishery

2.10 Some 10,000 dug-out canoes and over 200 mechanized vessels of 27 to 45 ft fish in inshore waters overlying the Ghanaian continental shelf. Additionally, some 1,800 beach seines, and many cast nets and traps are operated directly from the beach. The inshore catch accounted for over 66% of Ghana's domestic production in 1967. The canoe fleet, while not expanding, is still important, especially during good sardinella seasons. Its production has remained relatively stable for some years and its contribution to inshore fish production is declining in relation to that of the growing fleet of mechanized, plank-built inshore vessels. The latter fleet has been built up since 1953, and is comprised largely of vessels of 27-30 ft in size. These vessels, while representing an important first stage in the modernization of the Ghanaian fleet, have only a slightly better fishing range than the canoes. Accordingly, over the past 5 years there has been a growing preference for 40 and 45 ft vessels of which about 80 are now in operation. These larger boats have a higher profitability due to their longer range, greater capacity, and their capacity to use large modern purse seines of much greater catching power than the nets used by the smaller boats. Ghanaian inshore fishermen are highly skilled and have acquired considerable proficiency in the use of this modern equipment.

2.11 The greater part of the income of the inshore fishing fleet derives from the sardinella season, July to October. During this period upwellings of colder water occur which attract the sardinella to the surface where they can be caught with the gear of small vessels.

Freshwater Fisheries

2.12 Fishing is carried on in numerous rivers, dams and small ponds. By far the largest freshwater resource is the 3,000 sq miles of artificial lake created by construction of the Volta Dam 1/. A rapid and considerable migration of fishermen to the lake is taking place and approximately 3,000 canoes are now operating there. The canoes are planked boats of 20/30 ft in length which operate gill nets in the shallow fringe waters of the lake. Bottom fishing is precluded by submerged vegetation, and so far there has been no commercial exploitation of the much deeper water in the center of the lake. Fish caught find a ready market in villages near the lake, and it is estimated that 10,000 - 12,000 tons are caught annually by these simple traditional methods. Since the lake is an entirely new body of water it is not yet possible to determine its fisheries potential, but this is being investigated in the Lake Volta Project (para. 2.14(b)).

Tuna Transshipment

2.13 Ghana has a well-established transshipment trade in tuna which is landed by foreign vessels fishing off the West African coast, and subsequently shipped abroad. In 1967 such transshipments amounted to nearly 8,000 tons. During the early part of 1968 this trade was running at double the 1967 level. Hitherto, Ghana has not participated directly in tuna fishing. However, one of the private local companies is contemplating direct participation (para. 2.28).

Fisheries Research and Training

2.14 Three Government research programs related to fisheries have been established with the assistance of FAO/UNDP(SF):

- (a) The Fishery Research Unit, concerned with marine stocks.
- (b) The Lake Volta Fisheries Project, concerned with the fishery development of the Volta Lake.
- (c) The Food Research Center which is attaching high priority to the development of the fish-based food industry.

2.15 Two simple training course, for inshore boat coxswains and engineers respectively, are provided by the Fisheries Department at Takoradi. These provide training in elementary navigation and pilotage, and in the operation, maintenance and repair of small marine diesel engines. Forty-eight engineers and 107 coxswains were trained during 1967. At present, there is no institution in Ghana providing training for the deep sea fleet. Until now such training has been provided abroad, and so far 153 fishermen

1/ IBRD Loan No. 310 GH

have been, or are being trained, in Norway, the United Kingdom and the U.S.S.R., in fish processing, engineering, navigation and radio. Under a recent bilateral assistance agreement, Norway will help to establish special courses at the Nautical College near Accra. These courses are expected to start in 1969.

Fisheries Administration

2.16 Primary responsibility for fisheries is vested in the Fisheries Division of the Ministry of Agriculture. Many matters directly affecting fisheries, however, fall within the responsibility of other ministries: foreign assistance in the fisheries sector is under the Ministry of Economic Affairs; port and shore facilities for fishing vessels at Tema and Takoradi come under the Ministry of Communications; the construction and sale of fishing boats is under the Ministry of Industries; and the provision of credit finance in the fishing industry is under the Ministry of Finance. Fortunately, development of the inshore fishery does not appear to have suffered as a result of this diversified responsibility.

Fishing Boat Construction in Ghana

2.17 The traditional Ghanaian fishing craft is a dug-out canoe, 25 to 40 ft long with a beam of about 4 ft. The canoe is built in the forested hinterland and brought to the coast. In 1952, as a part of Government's efforts to develop and modernize the fisheries industry, a Government-owned boatyard was established in Sekondi for the construction of plank-built 27 ft length fishing boats powered with inboard diesel engines. In 1962, a second Government boatyard was established in Tema to construct boats of 40 ft length and upwards. Both yards now construct 40 and 45 ft vessels, although some 30 ft boats are still being constructed at Sekondi (Annex 6).

2.18 The 45 ft boat appears to be very suitable for Ghanaian inshore fishing operations. However, the current design of this boat has several construction disadvantages. It is complicated, time consuming and requires the use of expensive copper nails and brass screws. Moreover, the local hardwoods, required because of their resistance to marine borers, often split when bent into the curves needed in the round-bottom hulls. Consequently, the introduction of a hard chine hull design 1/, requiring less costly materials, less craftsmanship and less construction time, is desirable and is proposed for project vessels. The boatyards have wanted to modernize their designs in this way for some time but have lacked the necessary expertise.

1/ Descriptions of, and differences between, the round and hard chine construction (which involve, respectively, "U"-shaped and "V"-shaped hulls) are given in Annex 8 and in Drawing 2.

2.19 Until July, 1968 the boatyards were run as a statutory corporation, the State Boatyards Corporation, and enjoyed considerable autonomy. The State Boatyards Corporation subsequently became a division, the Boatyards Division (BD) of the Ghana Industrial Holding Corporation (GIHOC). GIHOC was formed to amalgamate State-owned manufacturing enterprises for reasons set out in para. 4.07 and Annex 6. BD is currently the largest producer of plank-built vessels in tropical Africa.

2.20 BD has been operating effectively and since 1965 has made net profits on its operations despite a number of difficulties, including a shortage of foreign exchange for import of parts, which has caused periodic underutilization of capacity. Despite the resulting relative inefficiency, boat costs compare favorably with those of foreign boats that could be imported. This is largely because:

- (a) timber is relatively cheap;
- (b) high quality labor is cheap;
- (c) apart from a nearby African country which does not have the advantages of (a) and (b) above, foreign builders would have to meet the high costs of freighting vessels from Europe or Asia.

Foreign competition and prices are discussed and quantified in Annex 6. It is unlikely that foreign yards could deliver boats to Ghanaian fishermen at lower prices than BD.

2.21 Over the last two years, BD management has acted effectively in overcoming its problems and delivering as many boats as possible to fishermen at reasonable cost. There have, however, been some minor deficiencies in BD administration, notably in the financial and cost accounting systems; but these have not been serious and their improvement would not be difficult.

Fisheries Credit

2.22 Credit to fishermen in Ghana provides for the purchase and equipment of fishing craft. The credit institutions involved are the Fisheries Division of the Ministry of Agriculture, the Agricultural Development Bank and, to a lesser extent, the National Investment Bank. Non-institutional credit is also available, although at a high cost; the principal source being the "mammies" who dominate the marketing and distribution of fish (para. 2.24).

2.23 In the past, the Fisheries Division played the paramount role in fisheries credit. Currently, the Agricultural Development Bank (ADB) is the most important fisheries credit institution for the inshore fleet (Annex 7). Since mid-1967, the Government has allocated funds to ADB for lending to purchasers of boats from BD. Because ADB lacks experience in this type of lending activity, and has little knowledge of the fishermen, it relies on BD for the screening and selection of credit applicants, and for the collection of repayments. For these services, BD receives a margin of 1½% p.a. of the unamortized credit.

Fish Marketing in Ghana

2.24 In common with many other commodities, fish is marketed and traded by women dealers known as mummies. Modernization of the fishing fleet and of port facilities has not materially changed this system, which appears to be very efficient in the context of the Ghanaian economy. Mummies are highly specialized, buying directly from fishermen, and operating as wholesalers, distributors, and retailers. In many cases they contribute substantially to the financing of fishing vessels and their operations.

2.25 Over half of total supplies are landed at Tema, and the Tema/Accra area alone absorbs two-thirds of this quantity. Even in this relatively well developed area fish is sold directly to mummies at quayside, or, in the case of frozen fish, ex-cold store. Along the rest of the coast mummies provide the only means of dealing quickly with small individual landings by large numbers of boats at many scattered landing points. While some fresh fish is sold locally in areas near landing points, the bulk is smoke-cured by mummies for subsequent sale in retail markets. This applies also to frozen fish, either ex-cold store, or landed by Ghanaian and foreign long-distance trawlers. Virtually no fish is retailed in frozen form.

2.26 Seasonality in supplies is reflected in wide price fluctuations. Prices usually vary between N¢100 and N¢300 per ton. Frozen fish from the deep sea fleet may be stored to await more favorable prices but this practice has not been followed to any great extent in the case of catches from the inshore fleet. About 12,000 tons of cold storage space is available in Tema/Accra and there are 13 small ten-ton depots in inland centers. Additional facilities are being planned. These, together with improved communications, should facilitate the extension of fish distribution and should enable a more strategic use of cold storage. Further details of fish marketing are given in Annex 2.

Fisheries Expansion

2.27 The first priority in the expansion of Ghana's fisheries is the modernization of the inshore fishing fleet. This can best be achieved by strengthening RD to enable it to produce modern, technically improved vessels, and by providing institutionalized credit for their purchase. However, the present capacity of the available ports is sufficient, even when efficiently used, for only about forty additional vessels of approximately 45 ft; priority must therefore be given to engineering, cost and feasibility studies for the expansion of fishing ports. These aspects are included in a first stage project proposed to the Bank for financing.

2.28 A second stage of expansion would include implementation of these port studies and further expansion of the inshore fleet. At the same time, however, the technical and managerial efficiency of the deep sea fleet should be improved when allocation of Government-owned vessels is determined (Annex 3.). New ventures in this second stage may include:

- (i) Direct participation by Ghana in tuna fishing. Recently tuna catches in the South Atlantic have increased sharply. The Ghanaian fleet has not to date entered the tuna fishery, but one of the private companies has concluded an agreement for technical cooperation with a foreign company relating to tuna fishing. It is possible that the deep sea tuna fishery might offer opportunities for profitable investment by Ghana in the near future.
- (ii) Development of a shrimp fishery. There are sporadic reports of good shrimp catches close to the Ghanaian coast. An investigation of West African shrimp resources is to be undertaken shortly by the African Development Bank and FAO. The results of this survey may indicate further project possibilities for Ghana as a transshipment base, or for direct participation by the Ghanaian fishing industry.
- (iii) Further development of the Volta Lake arising from the research project referred to in para. 2.14(b).

III. THE PROJECT

Project Description

3.01 The project is the construction, equipment and operation of forty 48 ft purse seine fishing vessels for inshore fishing off Ghana; technical assistance to the Boatyards Division (BD) of the Ghana Industrial Holding Corporation (GIHOC) who would construct the vessels; and harbor studies preparatory to a second stage project for further expansion of Ghana's fishing industry. Vessel construction and studies are expected to take place over two years.

3.02 The proceeds of the IDA credit relating to the construction of purse seiners would be lent by the Government to the Agricultural Development Bank (ADB). ADB would on-lend these proceeds to individuals and companies, who would have been evaluated on their technical and financial suitability.

Purse Seine Fishing Vessels

3.03 The proposed purse seiners would be of approximately 48 ft overall length and 20 tons hold capacity carrying a crew of 15 to 25. They would be of hard chine construction and of standardized design with insulated holds. Engines would be between 75 and 80 hp. Deck machineries would be minimal as the purse seine net of about 1,800 ft length and 200 ft depth would be hand-hauled. A small dinghy would be carried.

Assistance to Boatyards Division

3.04 As indicated in para 2.18 the round form of construction at present used by BD is deficient in some respects and a new, simpler and somewhat cheaper design would be introduced. Outline details of such a new design are given in Annex 8 and Drawing 1. A discussion of its advantages is given in Annex 6, and Drawing 2. A naval architect has recently been engaged as an addition to the UNDP/SF project referred to in para. 2.14(a) and assigned to BD in order to finalize the new design in a form suitable for use by BD, and to initially supervise the construction and testing of new vessels. His services would be required for a period of 12 man-months over a total period of two years. The first six months would be spent in residence and the latter six months on a non-resident basis.

3.05 Production inefficiencies which principally derive from a shortage of foreign exchange leading to delays in parts procurement would be eliminated by the proposed project. However, in order to take full advantage of the favorable opportunity of improving the overall production efficiency of BD a production manager, experienced in the production of boats of the project type and size, has been engaged in the same manner as the naval architect referred to in para. 3.04. He would plan and supervise the production of the new hard chine design and would be required for a period of two to three years.

3.06 The engagements of the naval architect and the production manager under the UNDP/SF project are for periods of six months and two years respectively. The proposed IDA project would provide for any necessary extensions of these services in the event these could not be accommodated under the UNDP/SF project. In addition, the IDA project would provide for the purchase of hand tools and minor equipment needed by BD and spare parts for the maintenance and repair of project vessels. With these, the maintenance and repair facilities of BD would be sufficient for the servicing of project vessels in addition to the existing fleet.

Reorganization of Tema Fishing Harbor

3.07 All vessels to be financed under the present project would be expected to operate from Tema Fishing Harbor. Under present operating conditions, this is somewhat congested and to accommodate the project vessels, a reorganization would be necessary. The government has agreed on this reorganization which involves negligible cost and consists of:

- (a) Providing moorings within the fishing harbor, clear of the quay.
- (b) Ensuring that vessels are only alongside the quay for purposes of landing fish and taking on supplies and move to moorings if an extended period in harbor is required.

- (c) Ensuring that fish trading takes place in the market adjoining the quay and not on the quay.

Preparations for Second Stage Project

3.08 The number of project vessels has been restricted to 40 because the reorganized facilities at Tema would be unable to accommodate more additions to the existing fishing fleet. Consequently, a possible second stage project for expanding the fisheries industry in Ghana would include the expansion and development of fisheries harbors. To this end, the present project includes preparation for a second stage project. This would comprise engineering studies of harbors and a determination of the type and number of additional fishing vessels required.

3.09 Tentative proposals have been considered for the expansion of landing facilities of Tema (Map 2) and the development of another fishing port towards the west of Ghana. Some of the future development of fisheries ought to take place in the Western or Central Regions (Map 1) because of the present relatively low per capita consumption of fish in these areas (Annex 1). The fishing ports of Elmina and Mumford in the Central Region have been identified as offering possibilities of expansion.

3.10 The harbor engineering studies would comprise:

- (a) detailed engineering studies at the fishing port of Tema;
- (b) comparative preliminary engineering studies at the fishing ports of Elmina and Mumford;
- (c) detailed engineering studies at either the fishing port of Elmina or the fishing port of Mumford.

Consultants satisfactory to IDA would be employed for the harbor studies on terms and conditions satisfactory to IDA and their terms of reference would be approved by IDA. At the conclusion of the studies in (b) above, the Government and IDA would exchange views and agree upon which port to carry out the studies in (c) above.

Project Costs

3.11 Total project costs are estimated at US\$2.3 million equivalent, including working capital for three months' operation of the vessels. The following table summarizes total project costs; Annex 9 shows the cost estimates of one purse seiner.

SUMMARY OF PROJECT COST ESTIMATES

	<u>Local^{1/}</u>	<u>Foreign</u>	<u>Total</u>	<u>Local^{1/}</u>	<u>Foreign</u>	<u>Total</u>	<u>%</u>
	<u>--- N\$ '000s</u>	<u>--- '000s</u>	<u>---</u>	<u>---</u>	<u>US\$ '000s</u>	<u>---</u>	<u>Cost</u>
<u>Sub-borrowers' 40</u>							
<u>Purse Seiners</u>							
Engines	-	268.0	268.0	-	262.6	262.6	11
Timber	131.2	-	131.2	128.6	-	128.6	6
Nets and Gear	41.3	279.2	320.5	40.4	273.7	314.1	14
Other Materials and Equipment	52.0	295.2	347.2	51.0	289.2	340.2	15
Labor, Overhead and Profit	599.6	-	599.6	587.6	-	587.6	25
Contingency, 10% on costs of Engines, Nets and Other Materials and Equipment	9.3	84.2	93.5	9.1	82.6	91.7	4
Working Capital	<u>59.6</u>	<u>30.0</u>	<u>89.6</u>	<u>58.4</u>	<u>29.4</u>	<u>87.8</u>	<u>4</u>
Sub-total:	893.0	956.6	1,849.6	875.1	937.5	1,812.6	79
<u>Assistance to BD</u>	15.3	178.5	193.8	15.0	175.0	190.0	8
<u>Harbor Studies</u>	<u>65.3</u>	<u>234.6</u>	<u>299.9</u>	<u>64.0</u>	<u>230.0</u>	<u>294.0</u>	<u>13</u>
<u>Total Project</u>							
<u>Cost</u>	<u>973.6</u>	<u>1,369.7</u>	<u>2,343.3</u>	<u>954.1</u>	<u>1,342.5</u>	<u>2,296.6</u>	<u>100</u>

^{1/} Local currency expenditures include Duty and Sales Tax N\$80.6 thousands (US\$79.0 thousands).

3.12 Purse seiner construction cost estimates are based on the ex-yard prices of vessels of similar size currently built by BD. Labor costs and overheads should be lower for project vessels because of the improved design and a higher and more even production flow. Assurances were obtained during negotiations that the price to project vessels purchasers would not exceed N\$44,000 except as agreed with IDA.

3.13 Vessel construction costs would account for about 75% of total project costs. Foreign exchange requirements, representing engines, nets, and other equipment, would amount to 52% of vessel construction costs.

3.14 Working capital of US\$87,800 has been included in the project cost. This amounts to US\$2,200 per vessel, required for three-months operation based on experience with 40 ft and 45 ft vessels.

Financing

3.15 The following table shows proposed sources and applications of project finance:

Sources and Applications of Project Finance
(US\$'000)

	<u>IDA</u>	<u>Government</u>	<u>Sub- Borrowers</u>	<u>Total</u>
40 Purse Seiners (Including Working Capital)	895.0	484.8	432.8	1,812.6
Assistance to BD	175.0	15.0	-	190.0
Harbor Studies	<u>230.0</u>	<u>64.0</u>	<u>-</u>	<u>294.0</u>
TOTAL:	<u>1,300.0</u>	<u>563.8</u>	<u>432.8</u>	<u>2,296.6</u>
Percentage:	<u>57</u>	<u>24</u>	<u>19</u>	<u>100</u>

3.16 IDA would finance all foreign exchange items with the exception of a small element included in working capital.

3.17 The Government of Ghana would be the borrower. Proceeds of the credit relating to the construction of purse seiners would be on-lent to selected sub-borrowers through ADB. GIHOC and the Railway and Ports Administration would administer the assistance to BD and harbor studies respectively.

3.18 Of purse seiner construction costs, 52% would be financed by IDA, 28% by the Government through ADB and the remaining 20% by sub-borrowers. The latter would also provide their own working capital. This financial contribution by sub-borrowers is reasonable.

Terms and Conditions of Sub-loans

3.19 The terms of sub-loans would be different from those presently extended to vessel purchasers (Annex 7). Sub-borrowers would make a cash deposit of their 20% on ordering vessels and would repay ADB at interest of

9% over six years, including a grace period of up to one year covering vessel construction and initial operations. This period of sub-loan repayment would allow a reasonable debt-service coverage (para. 4.02) and would be well within the expected vessel life of 10 years. ADB would repay the Government the capital element of sub-borrowers' repayments approximately as these were receivable together with interest at 6½%. ADB would bear the credit risk out of its margin of 1%, and a margin of 1½% would go to BD for the provision of its technical services (para. 2.23). The Government would bear the foreign exchange risk on all repayments due to IDA.

3.20 Prior approval of IDA would be required for sub-loans to any one sub-borrower totalling in excess of US\$150,000.

3.21 The proceeds of the credit relating to assistance to BD would be lent by the Government to BD at 6½%.

Procurement and Disbursement

3.22 Component parts of the vessels financed by IDA under the project would be obtained through international competitive bidding. These include engines, winches and nets. Tenders would be supervised by BD and most bid documents and proposed awards would be submitted to IDA for approval. In the case of items costing less than US\$10,000, the documents would be forwarded to IDA after award. Full details of procurement and other procedures involving ADB and BD are set out in Annex 12. IDA would disburse against shipping documents in respect of imported items; disbursements are expected to continue over a period between two and three years.

IV. ORGANIZATION AND MANAGEMENT

Sub-Borrowers

4.01 The ultimate borrowers of the credit proceeds would be private Ghanaian individuals or companies, though the former are expected to predominate. The typical borrower would be an experienced and relatively successful fisherman. Some sub-borrowers would be business or professional people wishing to invest in fisheries and who would employ experienced fishermen to operate their boat or boats. Sub-borrowers or their employees would be familiar with the fishing grounds, fellow fishermen, and the mummies that dominate the marketing of fish.

4.02 Annex 11 shows the estimated cash flow of a sub-borrower in respect of one purse seiner. This shows that the cost of each vessel, including working capital, of N¢46,000 would be met by N¢11,000 from the sub-borrower and an ADB loan of N¢35,000. Debt service coverage would be 1.7 over most of the years of loan repayment.

4.03 The number of sub-borrowers is expected to range from 25 to 30. Some individuals and companies may wish to apply for credit for two or more purse seiners. Most of the sub-borrowers, however, would probably be eligible for credit for only one purse seiner.

The Agricultural Development Bank

4.04 The ADB, established in April 1965, took over the functions of the former Rural Credit Department of the Bank of Ghana. It has a board of seven directors and a staff of 77, and is increasing in size and area of operations.

4.05 ADB's management is competent; its financial structure is sound (Annex 7), and it appears capable of handling its expansion in agriculture successfully. It has, as yet, little direct contact with the fishing industry and no staff specializing in this field since lending for boats from BD commenced only in mid-1967. An agreement was then signed under which BD appraises potential purchasers and arranges for debt collection on ADB's behalf. These arrangements work well and there have been no bad debts to date. BD has the experience and knowledge of fishing industry necessary to perform this function satisfactorily. ADB takes the credit risk and can refuse to accept BD's recommendations on financial grounds. The project sub-loans would be handled similarly; full details of procedures involving ADB and BD are contained in Annex 12. Vessels are insured to their full replacement value, and assurances were obtained during negotiations that this practice would be continued for all project vessels, in addition to appropriate insurance cover during construction. ADB's expansion plans include an office in the port of Tema, appropriately staffed to handle fisheries loan appraisal and collection functions. This change in responsibility would be subject to IDA's approval insofar as it affected the proposed project.

4.06 The auditors of ADB are Amarin, Agyeman, Ayew and Co., chartered accountants with offices in Accra. IDA would receive the audited accounts in the form in which they are produced at present, together with statement of accounts relating to the project certified by the auditors. These arrangements are satisfactory for the purposes of the project.

Boatyards Division

4.07 Until mid-1968, BD existed as a statutory body - the State Boatyards Corporation - with a managing director located at the Tema yard. It operated with great autonomy under the State Enterprises Secretariat which was responsible for coordinating the activities of the various State-owned corporations. As a result of the unsatisfactory performance of many of the State-owned corporations, the State Enterprises Secretariat was dissolved and a new organization, the Ghana Industrial Holding Corporation (GIHOC), was created to amalgamate 20 separate State manufacturing corporations and, subsequently, the State Boatyards Corporation became the self-accounting Boatyards Division of GIHOC, headed by its former managing director as general manager.

4.08 The problems confronting GIHOC with regard to most of its other divisions are considerable. Whether it will be able to operate successfully overall is difficult to judge at this stage. It is unlikely however that BD will require or receive much assistance from GIHOC management except in accounting and administration which GIHOC proposes to improve. GIHOC has stated that its present intentions involve no major alterations within BD. The present general manager of BD would be satisfactory to IDA. BD would continue to operate substantially along the same lines as at present. It has been strengthened by the addition of the production manager and the services of the naval architect. Further details of BD are contained in Annex 6.

4.09 The audit of GIHOC is performed by the State Enterprises Audit Corporation, a body responsible through the Auditor General to the government for the audit of various state-owned industrial and commercial enterprises. IDA would receive the audited accounts of GIHOC and BD in the form in which they are produced at present, together with statements of accounts relating to the project certified by the auditors. These arrangements are satisfactory for the purposes of the project.

4.10 During negotiations, assurances were received from GIHOC that:

- (a) any future alterations to BD's functions or structure would be in agreement with IDA;
- (b) prior to any proposed appointment of a General Manager of BD, GIHOC would consider the views of IDA;
- (c) sufficient finance would be retained within BD for it to maintain or expand its capacity as necessary for it to properly carry out its functions of constructing and servicing project vessels.

V. OPERATING ARRANGEMENTS AND FINANCIAL PROJECTIONS

5.01 Purse seiners financed under the project would fish in the coastal waters overlying the continental shelf of Ghana. They would make short voyages of one or two days each, normally leaving port one day and returning the next, and would be expected to average about 75 trips a year. It is assumed that the pattern of operations would be similar to that of the present purse seiner fleet and that the greater proportion of the catches would derive from purse seining for sardinella during the period July to October.

5.02 The vessels would be based at Tema, but might, from time to time, land catches at other centers along the coast according to convenience and season. Catches would be landed in fresh form and sold in the traditional way by direct negotiations with the mammies who would thereafter transport, process and market the fish.

5.03 On the basis of the last three years' operating results of the present fleet it is estimated that each vessel would catch 225 tons per year. The average price realized at first-sale is expected to average NØ150 (US\$147) per ton. Accordingly, the gross annual income of each purse seiner would be NØ34,000 (US\$33,000). Operating costs have been based on those of the 40 and 45 ft purse seiners operating at present. They include insurance of the vessels to their full replacement value. Estimates of the income of a project purse seiner, and the assumptions on which they are based are shown in Annex 10. The cash flow estimates for one purse seiner are shown in Annex 11.

5.04 The financial return on the total investment in a project purse seiner over a life of ten years would be 30%.

VI. JUSTIFICATION

6.01 The construction and operation of 40 purse seiners would increase the fish available for domestic consumption by about 9,000 tons per annum at a landed value of US\$1.3 million and a retail value of approximately US\$2.6 million. It would provide a valuable addition to animal protein supplies, substituting for imports.

6.02 The project would offer improved employment opportunities to some 800 fishermen at present engaged in the less efficient canoe fishery.

6.03 The construction program, with the technical assistance incorporated in the project, would enable BD to operate in a balanced and efficient manner for a period of approximately two years. This would ensure full utilization of BD during this period; at its termination the benefits of improved techniques would remain with BD.

6.04 Assuming a ten-year operating life for the purse seiners, their financial rate of return would be 30% (para. 5.04). The economic rate of return would be materially higher and is estimated to be about 50%. This is, however, very approximate as costs and benefits, other than those pertaining directly to vessel operations, are incapable of accurate quantification.

VII. RECOMMENDATIONS

7.01 During credit negotiations, agreement was reached on the following principal points:

- (a) project vessel price to purchasers would not exceed NØ44,000 except as agreed with IDA (para. 3.12);

(b) any change of responsibility for sub-borrowers' appraisal and debt collection would be approved by IDA (para. 4.05).

7.02 The proposed project constitutes a suitable basis for an IDA credit of US\$1.3 million.

September 8, 1969

GHANA

FISHERIES PROJECT

ANIMAL PROTEIN SOURCES, FISH PRODUCTION AND IMPORTS

Animal protein supplies in Ghana are derived from milk, meat poultry, game and fish. The FAO/UNDP (SF) Food and Development Center in Accra has prepared estimates, based on consumption over 1964 through 1966 which indicate that fish constitutes 68% of the animal protein intake. The following illustrates how fish compares with other products as a source of animal protein:

Individuals' Average Percentage Sources of Protein

1964 through 1966

	<u>%</u>
Fish	67.7 <u>1/</u>
Meat	11.4
Game	11.4
Milk	8.2
Poultry	<u>1.3</u>
	<u>100.0%</u>

The high average of fish consumption is not consistent over the whole country. Consumption is concentrated towards the coast; particularly in the Accra/Tema area:

1/ Includes both marine and freshwater fish.

Individuals' Average Annual Consumption of Fish^{1/} by Region

	<u>lb</u>
Accra/Tema	75
Remainder of Eastern Region	30
Volta Region	44
Central Region	40
Ashanti Region	39
Western Region	39
Bron-Ahafo Region	30
Northern and Upper Regions	7
Average all Regions:	34 lb

Table 1 shows supply and consumption of marine fish, 1961 through 1967, analyzed by year and by source.

August 20, 1969

1/ Includes both marine and freshwater fish.

GHANA
FISHERIES PROJECT
SUPPLY AND CONSUMPTION OF MARINE FISH IN GHANA
1961 - 1967

<u>SOURCE</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>
	----- <div style="text-align: center;">tons</div> -----						
LANDINGS BY GHANAIAN FISHING VESSELS							
Canoes	27,969.4	33,412.2	36,354.2	43,322.3	16,919.8	25,222.7	39,874.1
Purse Seiners ^{1/}	1,930.3	2,704.6	2,495.5	7,568.5	4,494.1	14,566.9	20,955.2
Trawlers ^{1/}	1,130.2	1,103.6	9,602.9	15,961.8	34,233.3	24,912.3	31,160.2
TOTAL DOMESTIC LANDINGS	<u>31,029.9</u>	<u>37,220.4</u>	<u>48,452.6</u>	<u>66,852.6</u>	<u>55,647.2</u>	<u>64,701.9</u>	<u>91,989.5</u>
DIRECT LANDINGS BY FOREIGN FISHING VESSELS							
	-	21,878.4	35,774.0	20,449.8	27,674.4	27,568.2	15,549.1
OTHER IMPORTS							
	47,149.7	20,137.6	19,097.3	11,019.5	5,802.8	18,930.2	5,461.9
TOTAL IMPORTS	<u>47,149.7</u>	<u>42,016.0</u>	<u>54,871.3</u>	<u>31,469.3</u>	<u>33,477.2</u>	<u>46,498.4</u>	<u>21,011.0</u>
TOTAL SUPPLIES AND CONSUMPTION							
	<u>78,179.6</u>	<u>79,236.4</u>	<u>103,323.9</u>	<u>98,321.9</u>	<u>89,124.4</u>	<u>111,200.3</u>	<u>113,000.5</u>
TUNA TRANSSHIPMENTS							
	3,628.8	4,727.2	6,701.4	5,894.9	6,993.7	7,794.3	7,727.9

^{1/} "Purse Seiners" includes the use of "ali" nets and lines; "trawlers" includes very limited inshore trawling but from 1963 onwards refers mainly to the operations of the long-distance trawling fleet.

January 30, 1969

GHANA

FISHERIES PROJECT

FISH MARKETING AND PROCESSING

1. Although there have been important changes in the pattern and types of fish production and in the establishment of shore facilities in some places, the traditional system of marketing has remained virtually unchanged. Under this system fish is purchased, processed, stored, transported and sold at all levels from producer to consumer by women merchants, known locally as "mammies".
2. The mammies operate at every fish landing point along the 270 miles of Ghanaian coast, from the numerous small beach landings to the modern fishing harbor of Tema. In most cases, they purchase fish by direct negotiation with the fishing vessels, including both the inshore boats and canoes landing fresh fish and the large deep sea vessels landing frozen fish. Where cargoes are transferred direct to cold storage, they may purchase from the cold store. The transactions are individual and private and there is no form of public auction.
3. There are no records to indicate the number of mammies or the volume and value of their transactions. In very many instances the mammies have a direct interest in the vessels from which they purchase. They either share in the ownership, or advance loans for the purchase of fishing boats and equipment. Sometimes they have close family ties with the fishermen. They therefore represent an important source of non-institutional credit.
4. The pattern of distribution has been determined by the availability of road and rail communications and is generally confined to the southern half of Ghana in urban and village centers accessible to coastal landing centers (Annex 1). With the exception of one or two trucks operated by private companies, no refrigerated or insulated transport is available. As a consequence, the distribution of fish in its fresh state is confined to the areas close to the coast which can be reached before spoilage occurs. A large proportion, possibly exceeding 60%, is processed by the traditional method of smoke-drying. This is carried on by the mammies individually, using their own small smoke-ovens. There is no centralized processing of fish in bulk. In this form fish is distributed all over southern Ghana and a strong consumer preference for the product has developed. The process is applied not only to the fresh fish landed by the inshore fleet but also to the frozen fish landed by the domestic and foreign deep sea vessels. The latter is simply allowed to thaw and then sold as fresh fish or smoke-dried in the traditional manner. In some instances it is transported to inland centers and allowed to thaw out on the journey.

5. In recent years a feature of increasing importance in the marketing of fish in Ghana has been the use of cold-storage facilities. While these have not affected the traditional manner of processing and retailing fish (as there are no significant retail sales of frozen fish) they are becoming more important as a means of smoothing out seasonal fluctuations of supply. Frozen fish landings are important in this respect. The present cold storage capacity in the country is 13,330 tons, and this is planned to expand to 17,000 tons in 1969. The location and ownership of the cold storage and ice-making facilities are as follows:

(a) <u>Cold Storage</u>		<u>Tons</u>
Ghana Cold Stores Ltd:	Tema	5,500
	Accra	1,500
	Kumasi	300
Mankoadze Fisheries Ltd:	Tema	3,000
	Takoradi	10
	Accra	800
	Kumasi	10
	Winneba	100
Ocean Fisheries Ltd:	Tema	1,000
	Accra	1,000
Ghana Fishing Corporation: 11 cold storage depots each of 10 tons capacity at Takoradi, Kumasi, Bolgatanga, Koforidua, Obuassi, Cape Coast, Sunyani, Agona Swedru, Ho, Tamale and Oda.		
Totalling:		<u>110</u>
Total:		<u>13,330</u>

(b) <u>Ice-Making Plant</u>		<u>Tons per Day</u>
Ghana Cold Stores Ltd:	Accra	40
	Tema	10
Mankoadze Fisheries Ltd:	Tema	30
Accra Brewery:	Accra	<u>20</u>
Total:		<u>100</u>

6. Two of the above companies, Mankoadze Fisheries Ltd. and Ocean Fisheries Ltd. operate their cold-storage installations in conjunction with

their own fishing fleets. Ghana Cold Stores Ltd. is engaged exclusively in freezing and cold storage. Until now it has been under the joint ownership of the Government and a private firm, Benin Gulf Enterprises Ltd. The privately-owned shares are now to be acquired by the Ghana Fishing Corporation, which would then become a majority shareholder. The operations of the first three companies above appear to have been successful commercially. The Ghana Fishing Corporation has, however, not made effective use of its inland cold storage depots. Since 1966 the Corporation has not been engaged in marketing activities and its former operations were unsuccessful, due mainly to inexperience, inefficiencies and arbitrary restraints on its distribution and pricing policies.

7. In the foreseeable future it is not envisaged that the traditional pattern of marketing will change very significantly except through the more effective use of cold storage and improved communications as a means of extending the market. The Government has two proposals in respect of which agreements were signed by the former administration with the Federal Republic of Germany and USSR respectively, but on which action has been suspended for the time being. Both of these are concerned with the processing of fish on an industrial scale. The proposals include the following provisions:

(a) West German Interlocking Food Complex

- (i) A wheat and corn flour mill of 63,000 tons p.a. capacity;
- (ii) A 30,000 tons p.a. pelletized animal food factory;
- (iii) A 30,000 tons p.a. fish canning factory;
- (iv) A can-making plant with 180 million cans p.a. capacity;
- (v) An 8,000 tons p.a. fish meal factory;
- (vi) A 15,000 tons p.a. oil mill with Hydrogenization and other oil-utilization equipment.

(b) USSR Fish Processing Complex

- (i) A 20,000 cans per day fish-canning plant;
- (ii) A 6-tons per day fish smoking plant;
- (iii) A 1-ton per day fish cooking plant;
- (iv) A 30-tons (raw material) per day fish meal and oil plant.

It seems unlikely that at present levels and costs of production, the requirements of raw material to justify these capacities could be fulfilled and the future of these proposals is still uncertain.

August 20, 1969

GHANA

FISHERIES PROJECT

COMPOSITION OF THE FISHING FLEET

A. CANOES

1. The latest census conducted in 1962 indicated more than 10,000 dug-out canoes in operation along the coast of Ghana. These are 25-40 feet in length and three to four feet in breadth. Of these more than 5,000 have been mechanized by the installation of 1.8-20 h.p. outboard motors: the remainder are propelled by paddles and sail.

B. INSHORE MOTOR FISHING VESSELS

2. This fleet, which has been built up since 1953, consists of wooden planked boats of 27-60 feet in length powered by inboard diesel engines. A total of 260 vessels in this range had been constructed in Ghana up to end 1967, as follows:

<u>Vessel Length</u>	<u>Built Between</u>	<u>Total Built</u>
27 ft	1953-1961	107
30 ft	1961-1967	72
40 ft	1962-1967	66
45 ft	1966-1967	15
60 ft	1967	<u>2</u>
		<u>262</u>

C. DEEP SEA FISHING VESSELS

3. This fleet at present comprises 47 vessels under Government and private ownership and all are of foreign construction. Delivery is pending on a further 10 to 15 1/ vessels.

1/ On five Japanese vessels construction has not yet commenced.

Government Procedures for Sale of Vessels

4. Committee: A government committee has been set up to allocate fishing vessels owned, or contracted for, by the Government to interested purchasers.

5. Terms of Sale: The terms offered by the Committee on vessels not in operation at time of handover are: 3% of price on delivery, 7% of price within three months of delivery and the balance over seven years by annuity at interest of 6% per annum. On vessels in operation at time of handover the terms would be 25% of price on contract signature and the balance over seven years by annuity at interest of 6% per annum.

6. Price: The Committee asks the price the Government had to pay to suppliers. It is willing to reduce this price when shown convincing evidence by purchasers that it should do so. To date, the only reductions considered have been on the grounds of depreciation in value caused by vessels being tied up for an extended period.

7. Collection of Sales Proceeds: The Committee has no responsibility beyond negotiation and contract signature. After signature, contract copies are lodged with the Accountant General and the Auditor General. The Accountant General will be responsible for collection but will probably assign this work to the Fisheries Division of the Ministry of Agriculture.

Vessels Already Delivered

Ghana Fishing Corporation:

12 x 162 ft Russian side trawlers laid up at Tema.

1 x 500 ton British stern trawler laid up but expected to complete refitting in six months.

6 x 550 ton Norwegian stern trawlers of which three are operational and three are being refitted in Tema.

Mankoadze Fisheries Ltd.

5 x 162 ft Russian side trawlers 1/
10 x 75 ft Russian purse seiners 2/
1 x 239 ft Russian stern trawler
1 x 254 ft Russian factory trawler (includes canning)
2 x 262 ft (700 tons) Japanese stern trawlers 3/
1 x 194 ft (600 tons capacity) Japanese carrier 4/

1 x 298 ft Russian carrier.

21 5/

Ocean Fisheries Ltd.

3 x 700 ton Japanese stern trawlers 6/
1 x 171 ft Japanese carrier 7/

—
4

Other Companies and Research

3 x 85 ft Yugoslav vessels

-
- 1/ One of these, "Kyerawe", converted to purse seiner.
2/ Designed as purse seiners but can operate as trawlers in pairs.
3/ Originally owned by Ghana Fishing Corporation. Refitted and now operated by Mankoadze since August 1967 ("Subin") and October 1967 ("Nacoa"). Mankoadze claim that they do not operate satisfactorily.
4/ Taken by Mankoadze from Government - October 1966.
3/8
4/ Still in negotiation. Committee proposes purchase from date of takeover; Mankoadze wants rental until signature of purchase contracts. No payments made and no formal agreements signed to date.
5/ General: All other vessels direct contracts between Mankoadze and Russian Government or contractors. Russia has since attempted to join Ghana Government to the contract as guarantor but without success. Operational status of all Mankoadze vessels not clear i.e., whether all are in operation and if so, length and frequency of voyages.
6/ Taken over from Government in September 1966.
7/ Taken over from Government in October 1966.
6/8
7/ Still in negotiation. Ocean does not dispute price, nor back-dating of purchase to date of takeover but would prefer more generous financing terms.

Vessels Pending Delivery

<u>British</u>	3 x 500 ton stern trawlers. Ghana Fishing Corporation (GFC) to take all three.
<u>Norwegian</u>	1 x 550 ton stern trawler for delivery to GFC.
<u>Japanese</u>	5 x 700 ton stern trawlers of a total of ten contracted for by Government. Five delivered (Mankoadre Fisheries two, Ocean Fisheries three). Construction not commenced on remaining five and further progress suspended indefinitely but cancellation is not envisaged.
<u>Yugoslav</u>	6 x 85 ft vessels. In total, 12 were contracted for by Government. Three have been delivered. Based upon performance of these, modifications have been requested and the contract is now amended to six modified vessels instead of the remaining nine. Of these six, none have yet been delivered but four have been allocated to private companies and individuals.

August 20, 1969

GHANA
FISHERIES PROJECT
DEEP SEA FISHING VESSELS

1. The present fleet comprises 47 vessels in the 75-300 ft classes. These vessels were imported under Government contracts placed during 1961-65 with Norwegian, Japanese, U.K., U.S.S.R. and Yugoslav suppliers. The contracts provide for the eventual delivery of between 10 and 15 more vessels. Purchase contracts were placed without adequate technical advice. Consequently, many vessels are unsuitable for efficient operation under Ghanaian conditions and others are probably of unsuitable design. Further, Ghana does not possess the fleet management and other expertise required to successfully operate this large number of deep sea trawlers, whose methods of operation are so much more sophisticated than those of inshore craft. Details of the deep sea fleet are given in Annex 3.

2. The major part of the existing deep sea fleet is owned by the State-owned Ghana Fishing Corporation (GFC) and two private companies. Of the 19 vessels owned by GFC, only three are fit to operate, although they are not fishing at present. Twelve have been laid up for over two years, while four are undergoing repairs. This situation reflects the serious difficulties experienced by GFC in the past due to its total inexperience of the management and operation of large, long-distance fishing vessels, and its heavy reliance on foreign personnel who were suddenly withdrawn with the change in Government in 1966. GFC has been subject to an official inquiry into its affairs and is now in the course of reorganization. The six Norwegian stern-trawlers under its ownership are to be operated under a management contract with a Norwegian firm of fishing consultants. The future of the remainder of its fleet is undecided.

3. Deep sea vessels under private ownership and management have operated more consistently and with much greater efficiency. The consensus of both Government and the private sector is that it would be neither practicable nor economic to expand the long distance fleet further at present. In the present uncertainty concerning the operational status of many units in the existing fleet, and the delivery of new vessels on order, it is difficult to forecast future production capacity, but it is highly unlikely that, even under more efficient management, the deep sea fleet will produce more than double its present volume of 25 to 30,000 tons per annum within 4 to 5 years.

GHANA

FISHERIES PROJECT

FISHERIES ADMINISTRATION

1. Primary responsibility for fisheries is vested in the Fisheries Division of the Ministry of Agriculture. The Division has a staff of about 100, comprising graduate fishery officers and junior field staff. Its activities include statistics, credit, training, research and the administration of minor fishing harbors and facilities. In the past, by far its most important activities were related to the mechanization and modernization of the inshore fleet through credit and training. While its training activities are continuing, its credit activities are virtually suspended apart from the recovery of former loans. Functions with respect to fishing and fish-marketing are mainly supervisory and regulatory, although it has recently become much more active in marine and freshwater research, as it has responsibility for counterpart personnel and services related to UNDP research projects.

2. There are many matters of very direct concern to the fishing industry which fall within the responsibility of other ministries. Thus, the Ministry of Economic Affairs is responsible for overall planning of the fishery sector. The Railways and Ports Administration, under the Ministry of Communications is responsible for the accommodation of fishing vessels and shore facilities in Tema and Takoradi. The Ministry of Industries is responsible for the Ghana Industrial Holding Corporation which, through its Boatyards Division, is responsible for boat construction and sales. The Ministry of Finance is responsible for the Agricultural Development Bank which provides credit finance for the industry.

3. Government policy aims at self-sufficiency in fish production through increased productivity of the existing long-range trawling fleet, and through the continued expansion and improvement of the mechanized inshore fleet under private ownership.

GHANA

FISHERIES PROJECT

BOATYARDS DIVISION, GHANA INDUSTRIAL HOLDING CORPORATION

1. In 1952, the Government set up a boatyard in Sekondi to construct plank-built fishing boats of about 27 ft long powered with inboard diesel engines. In 1962 a second Government boatyard was established in Tema to construct boats of 40 ft length and upwards. These boatyards subsequently became the State Boatyards Corporation, a statutory corporation. In June, 1968, by Government decree, the Corporation became the Boatyards Division (BD) of the Ghana Industrial Holding Corporation (GIHOC).

2. The first 27 ft vessel was launched in 1953. By 1961, 107 such vessels had been built at the Sekondi yard but during the year, the yard switched to the construction of 30 ft vessels with more space for fishing gear and catch. In 1962, the first 40 ft vessel was launched at the Tema yard. At present, the facilities of both yards are being directed at the construction of fairly standardized 40 and 45 ft purse seiners using imported engines, fittings and fishing gear although Sekondi continues to produce a small number of 30 ft vessels.

Organization and Management

3. Before 1968, when the Sekondi and Tema Boatyards were being run as a statutory corporation, the Managing Director of the Corporation was stationed at Tema. Apart from his functions as the Chief Executive of the whole corporation, he was also directly responsible for the supervision of operations at the Tema yard. An Administrative Manager was responsible for the Sekondi Boatyard under the general direction of the Managing Director. The Corporation operated with great autonomy, under the State Enterprises Secretariat, an organization coordinating the activities of the various State-owned corporations. The Managing Director was appointed by the Minister of Finance upon the recommendation of the State Enterprises Secretariat. The Corporation had a Board of Directors of five, including the Managing Director. There were, and still are, about 240 employees at the Tema yard and 210 at the Sekondi yard.

4. In 1968, mainly as a consequence of the unsatisfactory results from many of the State-owned corporations, the State Enterprises Secretariat was dissolved and a new organization, GIHOC, was created to amalgamate twenty State manufacturing corporations. This was aimed at centralizing the control of the various State enterprises in order to benefit from a wider use of scarce management expertise. In the ensuing reorganization, BD became a division of GIHOC.

5. Prior to the creation of GIHOC, all of BD's management decisions were taken virtually single-handedly by the Managing Director. BD has operated effectively over recent years despite a number of difficulties, generally outside its control:

- (a) Inadequate supplies of imported components caused by foreign exchange shortages. Even when components have been available, supplies have been erratic leading to an uneven flow of production;
- (b) Insufficient credit facilities to offer suitable terms to potential boat purchasers;
- (c) Inability, due to Government regulations, to dismiss surplus labor arising out of (a) and (b). In practice, such dismissals might have dissipated BD's skilled craftsmen. Nevertheless, excess labor has increased production costs;
- (d) Inadequate technical advice. Up to a year ago, BD had expatriate technical advice available. This, however, was not entirely suitable and boat designs are unsuited to construction materials, time-consuming and require unnecessarily high standard of craftsmanship. BD's management recognizes the need for a new design to simplify construction and improve the qualities of the boats, and has obtained a naval architect and production manager through UNDP.

6. The Managing Director has acted efficiently and aggressively in overcoming these problems and in making as many boats as possible available to fishermen at reasonable costs. There have been some deficiencies in administration, notably in the financial and cost accounting systems. The basic framework of the accounting systems is good but it has not been properly utilized. It has not been possible to accurately determine the actual cost of individual boat constructions to the Corporation nor has it been possible to determine the standard cost of construction assuming various levels of production. Of the industries under GIHOC's control the Boatyards appears to have been one of the more efficient and therefore justifies less assistance from GIHOC's management. Nevertheless, it is believed that GIHOC can assist Boatyards in the areas of administration and accounting and it proposes to do so.

Boat Production

7. The table below shows the production of fishing vessels at the two yards since 1952. It shows that the trend has been towards the construction of bigger vessels and at present, the 40 and 45 ft vessels are most preferred by boat owners. The Sekondi yard has also produce a number of pleasure and commercial boats ranging from 8 ft dinghies to a 52 ft research vessel.

Annual Production of Fishing Vessels

	SEKONDI				TEMA		
	<u>27 ft.</u>	<u>30 ft.</u>	<u>40 ft.</u>	<u>45 ft.</u>	<u>40 ft.</u>	<u>45 ft.</u>	<u>60 ft.</u>
1953	1						
1954	2						
1955	3						
1956	7						
1957	16						
1958	15						
1959	29						
1960	24						
1961	10	7					
1962		5			1		
1963		18	4		13		
1964		22	3		5		
1965		2	4		5		
1966		9	6	2	11	2	1
1967	<u> </u>	<u>9</u>	<u>6</u>	<u>6</u>	<u>8</u>	<u>5</u>	<u>1</u>
TOTAL	<u>107</u>	<u>72</u>	<u>23</u>	<u>8</u>	<u>43</u>	<u>7</u>	<u>2</u>

8. BD is the biggest producer of plank-built vessels in tropical Africa and the quality of craftsmanship in that size and type of vessel is as good as any in other parts of the world. Of the two yards, the Tema yard is bigger, more modern, better laid out and better equipped with technical facilities than the Sekondi boatyard. The following table shows the facilities available at both yards:

Technical Facilities of BD

	<u>Office Staff</u>	<u>Workshop Staff</u>	<u>Building Berths</u>	<u>Power-Tools (Fixed)</u>	<u>Slipway Capacity</u>	<u>Maximum Size of Boat that Can Be Built</u>
Tema	27	211	8 boats 45 ft.	2 band saws 2 circular saws 2 planers	100 tons	90 ft
Sekondi	22	188	5 boats 45 ft.	1 band saw 1 circular saw 1 planer	30 tons	50 ft.

Whereas the Tema yard concentrates on the construction of bigger vessels upwards of 40 ft, the Sekondi yard mainly builds the smaller size vessels. During 1966 and 1967, the boatyards jointly produced an average of 33 boats per annum. Their capacity is, however, higher than this; actual production was below capacity for various reasons of which a shortage of foreign exchange for imported components was the major.

9. The boats presently being built by BD have round hull steam-bent frames. There are several disadvantages to this form of construction. It is complicated, time-consuming, and requires the use of expensive copper nails and brass screws. Moreover, the local tropical hardwoods which are required because of their resistance to marine borers split when bent into the curves required in round construction. Consequently, a new boat design of a hard chine construction would be used in this project. The vessel would have a hard chine hull, requiring sawn frames and cheaper galvanized iron nails. Furthermore, it would require less craftsmanship and less construction time than the round construction. The distinction between round and hard chine construction is shown in Drawing 2. There are no disadvantages in the new design from the viewpoint of sea-worthiness or handling characteristics. On the contrary, this type of design is superior on these counts and gives a better hull form for fishing purposes.

Boat Sales

10. Demand for vessels constructed by BD has always tended to exceed supply. The major factors limiting supply have been shortage of foreign exchange for imported vessel parts and shortage of credit for potential boat purchasers (Annex 7). BD has been closely involved with its purchasers. It has always sold its vessels directly to fishermen without the use of intermediate sales agents. In recent years, where it has made sales on credit, whether using its own funds or those of ADB for this purpose, it has appraised the creditworthiness of fishermen and subsequently collected their installment payments from them. Instances of bad debts have been extremely low overall and none have resulted under the ADB program.

11. BD currently sells its vessels at the prices shown below:

<u>Length of Vessel</u>	<u>Selling Price</u>
30 ft	NØ 7,000
40 ft	NØ28,000
45 ft	NØ34,000
60 ft	NØ70,000

These do not include the costs of purse seine nets and associated gear which, in the case of boats other than the 30 ft vessels, adds an additional NØ10,000 to the selling price. A small amount of duty on some imported items is included in this price. A direct comparison with vessel prices in other countries is not possible as the characteristics of vessels vary so much. However, those comparisons which have been made indicate that it is unlikely that vessels imported would be materially cheaper (regardless of the protective tariff of 50% on the cif cost of imported vessels). It is anticipated that with the simpler form of construction and higher level of production possible under the project proposed, the present prices to vessel owners could be lower than those shown above.

Foreign Competition

12. Without international tendering to precise specifications it is very difficult to give precise prices at which foreign competitors might be able to provide boats in Ghana. However, the Fishing Vessels Section of the Fishing Vessels and Engineering Branch of FAO has, from time to time, invited tenders internationally in connection with procurement of boats for various UNDP/Special Fund Fishery Research Projects administered by FAO. Although there are major variances in size, analysis of several of these has indicated that BD prices for boats compare favorably. Specifically, there are two contracts detailed below which indicate firstly that wood is cheaper than steel in the range of project vessel sizes and, secondly, that BD's price for wooden vessels appears favorable even without taking into account costs of transport.

<u>Steel Boat:</u>	47 ft, engine 144 hp, trawl winch and echo sounder, delivered April 1966, constructed for Nigeria.	
	Price excluding transport Europe/Lagos	US\$64,500
	Transport, cargo liner Europe/Lagos	<u>US\$ 5,000</u>
	Total	<u>US\$69,500</u>
<u>Wooden Boat:</u>	50 ft, engine 150 hp, delivered April, 1965, constructed for India.	
	Price excluding transport Europe/India	US\$61,150
	Transport Europe/India	<u>US\$ 9,500</u>
	Total	<u>US\$70,650</u>

Accounts

13. Summarized consolidated balance sheets and profit and loss accounts for recent years are shown in Tables 1 and 2 respectively. These indicate the gradually improving performance of BD. They also demonstrate the substantial proportion of BD's assets which are tied up in stocks and work in progress; principally a result of the delays in production caused by the shortage of foreign exchange for imported components.

GHANA
FISHERIES PROJECT
BOATYARDS DIVISION, GHANA INDUSTRIAL HOLDING CORPORATION ^{1/}
Summarized Consolidated Balance Sheets - Tema and Sekondi Boatyards
(N¢ '000s)

	<u>ASSETS</u>				<u>LIABILITIES AND EQUITY</u>				
	<u>2/28/65</u>	<u>12/31/65</u>	<u>12/31/66</u>	<u>12/31/67</u>	<u>2/28/65</u>	<u>12/31/65</u>	<u>12/31/66</u>	<u>12/31/67</u>	
<u>CURRENT ASSETS</u>					<u>CURRENT LIABILITIES</u>				
Cash	82.38	361.59	49.92	7.05	Trade Credit Payable	42.97	58.11	112.00	210.20
Trade Debts Receivable	194.47	308.45	456.98	512.97	Contract Deposits (for Vessels)	416.28	975.29	619.23	384.71
Other Assets Receivable	10.81	80.69	114.89	195.69	Other Liabilities	21.83	22.76	31.50	176.90
Stock and Work-in-Progress	276.63	514.28	434.22	435.05					
	<u>564.29</u>	<u>1,265.01</u>	<u>1,056.01</u>	<u>1,150.76</u>		<u>481.08</u>	<u>1,056.16</u>	<u>762.73</u>	<u>771.81</u>
<u>FIXED ASSETS (net after accumulated depreciation) Mainly Land and Buildings</u>	164.95	144.30	98.40	73.31	<u>EQUITY (including accumulated Net Profit or Loss)</u>	248.16	353.15	391.68	452.26
<u>TOTAL ASSETS</u>	<u>729.24</u>	<u>1,409.31</u>	<u>1,154.41</u>	<u>1,224.07</u>	<u>TOTAL LIABILITIES AND EQUITY</u>	<u>729.24</u>	<u>1,409.31</u>	<u>1,154.41</u>	<u>1,224.07</u>

1/ During the periods covered above the Boatyards existed as the State Boatyards Corporation.

January 30, 1969

GHANA

FISHERIES PROJECT

BOATYARDS DIVISION, GHANA INDUSTRIAL HOLDING CORPORATION ^{1/}

Summarized Consolidated Income Statements - Tema and Sekondi Boatyards
(N¢ '000s)

	<u>2/28/65</u> ^{2/}	<u>12/31/65</u> ^{3/}	<u>12/31/66</u> ^{4/}	<u>12/31/67</u> ^{4/}
Sale of New Craft	310.83	207.51	685.99	791.28
Income from Repairs and Sale of Stores	107.99	335.65	428.05	458.74
	<hr/>	<hr/>	<hr/>	<hr/>
Total Sales Revenue	418.82	543.16	1,114.04	1,250.02
<u>Less</u> Prime Cost of Goods Sold	329.73	359.57	853.95	798.98
Workshop Expenses	60.16	63.04	64.28	70.56
Administrative Expenses	68.61	109.79	137.41	157.45
	<hr/>	<hr/>	<hr/>	<hr/>
Net Operating Profit (Loss)	(39.68)	10.76	58.40	223.03
<u>Add</u> Other Income	6.12	12.71	16.54	19.14
Net Profit (Loss) Before Tax	(33.56)	23.47	74.94	242.17
<u>Less</u> Taxes	1.22	4.35	5.90	152.92
Net Profit (Loss) After Tax	(34.78)	19.12	69.04	89.25
	<hr/>	<hr/>	<hr/>	<hr/>

^{1/} During the periods covered above the Boatyards existed as the State Boatyards Corporation.

^{2/} For the 11 months ended February 28, 1965.

^{3/} For the ten months ended December 31, 1965.

^{4/} For the years ending December 31, 1966 and 1967.

January 30, 1969

GHANA
FISHERIES PROJECT
FISHERIES CREDIT

1. Fisheries credit in Ghana centers principally on the provision of credit to fishermen for the purchase of fishing vessels and fishing gear. The institutions which have been involved in the provision of credit are as follows:

The Fisheries Division

2. The Fisheries Division of the Ministry of Agriculture was at one time virtually the only major source of fisheries credit in Ghana. It operated two schemes, one the "Charter Party Scheme" for the purchase of mechanized inshore craft built by the State Boatyards Corporation, and the "Outboard Motor Scheme" for the provision of outboard motors for canoes.

3. The scheme for the inshore craft was initiated in 1955 and through it, the construction and credit sale of 172 inshore fishing vessels of the 27 ft to 40 ft class was arranged. The Outboard Motor Scheme started in 1960, and under it locally built dug-out canoes have been fitted with nearly 1,200 motors. Loan repayments have been generally poor mainly because of the inadequate screening of loan applicants. Consequently, the Fisheries Division has halted its lending activities and is now concerned only with the recovery of repayments on outstanding loans.

State Boatyards

4. With the cessation of the credit for sale of their boats from the Fisheries Division, the State Boatyards Corporation was obliged to finance its own sales. It accomplished this by calling for large deposits from potential purchasers well in advance of construction of their boats. At the same time, it extended credit, on very short terms, and for a relatively small proportion of sale prices to its purchasers on delivery of vessels. This practice has disadvantages in that it is unsatisfactory for vessel owners to place substantial funds with Boatyards well in advance of delivery of their vessels, in return for unsuitably short credit for the balance after delivery. Nevertheless, it has been a useful expedient. This was not its only source of funds; Annex 6, Table 1 indicates the increase in its equity.

5. After the entry of the Agricultural Development Bank (ADB) into the fisheries credit sector (para. 6 below) Boatyards did not discontinue its own lending. There were two reasons for this. Firstly, ADB funds have only recently been available in large quantities and secondly, ADB has only been willing to finance 40 and 45 ft vessels, which sizes it considers to be optimum, while there has still been a demand for the smaller vessels constructed by Boatyards.

The Agricultural Development Bank

6. The Agricultural Development Bank (ADB) was established in April 1965. It took over the functions of the Rural Credit Department of the Bank of Ghana. The objective of ADB is to promote the development of agriculture by providing credit facilities to agriculture and cottage industries. There are seven members of the Board of Directors, the number of employees is 56. It is rapidly increasing in size and area of operations.

7. ADB has an authorized capital of NØ30 million, 51% of which is to be subscribed by the Government. It is intended that the remaining 49% will be made available for public subscription when ADB has been established for a sufficient time to gain the confidence of the public. By the end of December 1968, the subscribed capital was over NØ8 million (Table 1). At the time of its incorporation, ADB took over from the Bank of Ghana various agricultural loans, including certain fisheries loans outstanding and large amounts in respect of guarantees for the purchase of trawlers acquired under Government-negotiated contracts. The majority of these guarantees are covered by Government indemnity to ADB.

8. The management of ADB is sound and competent and it appears it can handle its expansion program in agriculture successfully. It has, as yet, little direct contact with the fishing industry and no staff specializing in this field. It commenced its present lending program to purchasers from Boatyards in mid-1967, when an agreement was signed between Boatyards and ADB, which provided for Boatyards to appraise potential purchasers and arrange for debt collection on ADB's behalf. Boatyards has the necessary expertise and knowledge of the fishing industry to perform this function. ADB bears the credit risk and can refuse to accept Boatyards' recommendations. Under this scheme, the Boatyards sells the vessels on hire-purchase to private individuals or companies. Prior to the delivery of the vessels, the potential boat owners make a deposit and the balance is repaid over a period of three years at an interest rate of 8%. Boatyards deducts 1% from the interest rate in order to cover their expenses. These arrangements work well and there have been no bad debts to date. ADB's expansion plans include an office in the Port of Tema, appropriately staffed to handle fisheries business. The date of this is not yet decided, but when the plan is implemented, ADB will be able to take over appraisal and collection functions.

9. Demand for boats by technically qualified applicants greatly exceeds supply as financing funds, both in local and foreign currencies, are limited. In order to use these funds as effectively as possible, ADB has given preference to those owners who can make the largest deposits (some have been as high as 50%), and has set the repayment period at three years to provide a fast rollover. It would prefer to accept a smaller deposit and lengthen the repayment period if more funds, and consequently more boats, were available. ADB's present lending rate of 8% to inshore fisheries is the same as that to agriculture. The relative profitability of inshore fisheries would justify

a higher rate of interest; 9% is proposed under the project submitted for IDA finance. This, combined with easier terms of deposit and repayment of 20% and five years respectively, would be more attractive to potential boat owners.

Non-Institutional Credit

10. A further, and most important source of credit for fishing is the "mammy" who buys fish from one or a number of boats. A fisherman who requires finance for boat purchase or working capital may obtain this from the mammy with whom he deals. The terms of such finance vary but invariably include the obligation to supply fish at preferential prices to the mammy. The agreements are not formalized although they are scrupulously honored and the extent of such credit is not known. The cost is invariably high, particularly for smaller amounts of finance where the effective interest including preferential fish price can exceed 30% per annum.

August 20, 1969

GHANA

FISHERIES PROJECT

AGRICULTURAL DEVELOPMENT BANK - BALANCE SHEETS

	As at 12/31/66	As at 12/31/67	As at 12/31/68		As at 12/31/66	As at 12/31/67	As at 12/31/68
	----- NØ				----- NØ		
Cash at Bankers and in Hand	59,331	139,932	166,465	Deposits and Other Accounts including Other Reserves	275,988	443,718	490,159
Short-Term Investments at Cost	364,183	1,534,710	1,792,712	Liability on Guarantees	7,191,345	9,889,388	9,501,584
Loans and Advances	1,141,447	1,484,302	2,140,387	<u>Share Capital Authorized</u> (150,000 Ordinary Shares of NØ200.00 each) <u>30,000,000</u>			
Other Accounts	49,904	128,300	176,988	<u>Issued Share Capital</u>			
Medium and Long-Term Invest- ments at Cost (Market Value at 12/31/68 NØ4,735,479)	3,380,000	3,382,000	4,382,000	Ordinary Shares of NØ200.00 each fully paid	4,780,000	6,280,000	8,240,000
Fixed Assets at Cost Less Amounts Written Off	71,638	71,637	98,018	General Reserve Fund (including Capital Reserve NØ5,958.95)	10,515	17,163	26,411
Customers' Liability on Guarantees	7,191,345	9,889,388	9,501,584				
TOTAL :	<u>12,257,848</u>	<u>16,630,269</u>	<u>18,258,154</u>		<u>12,257,848</u>	<u>16,630,269</u>	<u>18,258,154</u>

September 8, 1969

GHANA

FISHERIES PROJECT

OUTLINE SPECIFICATIONS OF PURSE SEINERS

A. Present Boatyards Forty-five Foot Purse Seiner

General

1. This purse seiner has an overall length of 45 feet, a fish hold capacity of 18 tons, a freshwater capacity of 70 gallons, a fuel tank capacity of 152 gallons and a main engine of 88 hp.

Construction

2. Round-bottom hull of wood.

Rigging

3. Wooden mast with brailing boom.

Deck Equipment

4. One hydraulic purse seine winch.

Propulsion Machinery

5. Main engine of 88 hp with stern gear.

Navigation and Electronic Equipment

6. One compass.

Fishing Gear

7. Purse seine of about 1,800 feet in length and 200 feet in depth.

Auxiliary Craft

8. Seine dinghy of about ten feet in length.

B. Proposed Project Forty-eight Foot Purse Seiner

General

1. This purse seiner would have an overall length of 48 feet, a fish hold capacity of 20 tons, a freshwater capacity of about 80 gallons, a fuel tank capacity of about 370 gallons and a main engine of 75-80 hp.

Construction

2. Chine construction of wood.

Rigging

3. Wooden mast with brailing boom.

Deck Equipment

4. One hydraulic purse seine winch.

Propulsion Machinery

5. Main engine of 75-80 hp with stern gear.

Navigation and Electronic Equipment

6. One compass and one echo sounder.

Fishing Gear

7. Purse seine of about 1,800 feet in length and 200 feet in depth.

Auxiliary Craft

8. Seine dinghy of about ten feet in length.

August 20, 1969

GHANAFISHERIES PROJECTCOST ESTIMATES - ONE PURSE SEINER

	<u>Local</u>		<u>Foreign</u>	<u>Total</u>	<u>Local</u>		<u>Foreign</u>	<u>Total</u>
	<u>Duty and Sales Tax</u>	<u>Other Local</u>			<u>Duty and Sales Tax</u>	<u>Other Local</u>		
	<u>₵</u>			<u>US\$</u>				
Engine	-	-	6,700	6,700	-	-	6,566	6,566
Timber	-	3,280	-	3,280	-	3,215	-	3,215
Net and Gear	1,032	-	6,981	8,013	1,012	-	6,841	7,853
Other Materials and Equipment	800	500	7,379	8,679	784	490	7,231	8,505
Labor, Overhead and Profit	-	14,989	-	14,989	-	14,689	-	14,689
Contingency, 10% on costs of Engines, Net and Other Materials & Equipment	183	50	2,106	2,339	179	49	2,064	2,292
Total cost of vessel construction to sub-borrower	2,015	18,819	23,166	44,000	1,975	18,443	22,702	43,120
Working Capital	-	1,490	750	2,240	-	1,460	735	2,195
<u>TOTAL:</u>	<u>2,015</u>	<u>20,309</u>	<u>23,916</u>	<u>46,240</u>	<u>1,975</u>	<u>19,903</u>	<u>23,437</u>	<u>45,315</u>

January 30, 1969

GHANA

FISHERIES PROJECT

ESTIMATED INCOME STATEMENT OF ONE 48 ft PURSE SEINER

Assumptions

General

1. All assumptions concerning annual catch rates and gross proceeds of sales are based on records, provided by the Fisheries Division of the Ministry of Agriculture, of 8,165 voyages made by 40 ft and 45 ft fishing vessels during the years 1965, 1966 and 1967.

Operations

2. Seventy-five voyages of one to two days duration, mainly concentrated during the period July-October. Fully operational vessels have in fact made up to 120 voyages in good fishing years.

Annual Catch

3. The annual catch is estimated at 225 tons assuming 75 voyages averaging three tons per voyage.

Selling Price

4. Based on the range of landing prices realized during the period 1965-1967; average N¢150 per ton.

Operating Costs

5. (a) Diesel Oil: Based on a consumption of about five Imperial gallons per hour by an engine of 88 HP running at 750 R.P.M. Price of diesel oil in Ghana is N¢0.36 per gallon. Consumption of lubricating oil is estimated at 45 gallons per year at a cost of N¢2.20 per gallon.

(b) Ice and Crew's Food: Based on present costs of 40 ft and 45 ft purse seiners.

(c) Maintenance: Hull and Engine. Based on present costs of 40 ft and 45 ft purse seiners.

Purse Seine. Assumes the gradual replacement of all of the different component parts of the net over a period of four years.

- (d) Insurance: Based on indemnity of 100% of replacement cost of hull and machinery at the rate of 6% p.a. charged by the Ghana State Insurance Corporation.
- (e) Remuneration of Crew: Based on the practice normally followed whereby crews are allotted one-third of the proceeds of sales, after deduction of the operating expenses, excluding depreciation and financing charges, of the fishing vessel.

Depreciation of Fishing Vessels

- 6. Hull and Engine: Based on a life of 10 years.
- Purse Seine: Covered under 5(c) above.

GHANA
FISHERIES PROJECT

ESTIMATED INCOME STATEMENT OF ONE 48FT PURSE SEINER

	<u>Year 1</u>	<u>Years 2-5</u>	<u>Years 6-10</u>
	<u>₦</u>		
<u>Annual Fish Catch (tons)</u>	<u>180</u>	<u>225</u>	<u>225</u>
Sales Income @ ₦150 per ton	27,000	33,750	33,750
<u>Operating Costs</u>			
Diesel oil and lubes	2,000	2,000	2,000
Ice	500	500	500
Water	30	30	30
Slipping	200	200	200
Engine Maintenance	1,000	1,000	1,000
Purse Seine Maintenance	2,500	2,500	2,500
Clothing	200	200	200
Food	500	500	500
Insurance	2,040	2,040	2,040
Remuneration of Crew	5,680	7,930	7,930
Miscellaneous Expenses	1,000	1,000	1,000
	<hr/>	<hr/>	<hr/>
Total Costs before Interest and Depreciation	15,650	17,900	17,900
Total Profit before Depreciation and Interest	11,350	15,850	15,850
Depreciation	3,400	3,400	3,400
	<hr/>	<hr/>	<hr/>
Net Profit before Interest	7,950	12,450	12,450
Interest Paid	3,168	1,692 ^{1/}	-
	<hr/>	<hr/>	<hr/>
Net Profit after Interest	<u>4,782</u>	<u>10,758</u>	<u>12,450</u>

^{1/} Interest paid is shown as an average; it would decrease over years 2 through 5.

January 30, 1969

GHANAFISHERIES PROJECTESTIMATED CASH FLOW STATEMENT OF ONE 48FT PURSE SEINER

	Construction Period			
	<u>6 Months</u>	<u>Year 1</u>	<u>Years 2-5</u>	<u>Years 6-10</u>
<u>SOURCE OF FUNDS</u>				
Net Profit before Interest and Depreciation (Annex 10, Table 1)	-	11,350	15,850	15,850
IDA Credit	22,800			
Government Contribution	12,400			
Sub-borrower's Contribution	11,000			
TOTAL SOURCE OF FUNDS	<u>46,200</u>	<u>11,350</u>	<u>15,850</u>	<u>15,850</u>
<u>APPLICATION OF FUNDS</u>				
<u>Debt Service</u>				
Loan Amortization		5,882	7,358	-
Loan Interest		<u>3,168</u>	<u>1,692</u> ^{1/}	-
Total Debt Service		9,050	9,050	-
<u>Capital Cost of Project</u>				
Vessel (excluding duty)	42,000			
Duty on Vessel	<u>2,000</u>			
Total Cost of Vessel	44,000			
Working Capital	<u>2,200</u>			
Total Capital Cost of Project	<u>46,200</u>			
TOTAL APPLICATION OF FUNDS	<u>46,200</u>	<u>9,050</u>	<u>9,050</u>	-
SUB-BORROWER'S NET CASH INFLOW		2,300	6,800	15,850
LONG-TERM DEBT SERVICE COVERAGE		1.3	1.7	Not Applicable

^{1/} Interest paid is shown as an average; it would decrease over Years 2 through 5.

September 8, 1969

GHANA

FISHERIES PROJECT

SUB-BORROWERS' APPRAISAL, PROCUREMENT AND OTHER PROCEDURES

1. Potential sub-borrowers would apply to the Agricultural Development Bank (ADB).
2. ADB would request Boatyards Division (BD) to conduct technical appraisals. BD would charge a reasonable appraisal fee to each applicant, such fee not to exceed N¢ 20.
3. ADB would perform credit investigations.
4. Based upon 2 and 3 ADB would sign sub-loan agreements with such sub-borrowers it found acceptable.
5. Agreements in 4 would be in the form of sub-loan agreements and purchase orders combined.
6. At 4, ADB would notify BD as BD's authority to order and commence building.
7. At 4, sub-borrower would pay 20% down payment to ADB which ADB would credit to his individual account.
8. BD would prepare specifications and other tender documents and submit to IDA for approval.
9. Documents in 8 would have been cleared by a committee comprising:
 - (a) Manager, Central Procurement - GIHOC (Chairman)
 - (b) Head of Finance and Planning Department - GIHOC
 - (c) General Manager, BD
 - (d) Production Manager, BD
10. On IDA's clearance, BD would advertise.
11. BD would submit analysis of bids, proposed awards and other relevant documents to IDA, copy to ADB, for approval.
12. On IDA's clearance, BD would contract with suppliers in the name of GIHOC and send contract copies to ADB and IDA. BD would arrange documentation for import licenses and payment of taxes and duties.
13. In the case of items below US\$10,000, advance approval by IDA for 8, 10 and 11 would not apply but documents would be forwarded to IDA, copy to ADB, after award.
14. BD would notify ADB and provide such details as ADB may require for itself and Government to make applications to IDA to make payments to, or reimburse, suppliers under the contracts in 12.

15. IDA would make payments in 14, debiting Government; Government would charge ADB; and ADB would charge the accounts of individual sub-borrowers.
16. On completion of each vessel and commissioning thereof, ADB would instruct BD of the required repayment schedule from the sub-borrower.
17. Of the interest element of 9% per annum included in each repayment, BD would deduct 1-1/2% in respect of its services and pay the balance to ADB.
18. When ADB performed activities in 2 and 17, on its own behalf, BD would cease to receive the 1-1/2% referred to in 17.

Balance of Vessel Price Above IDA's Finance

19. This balance would be financed partly by the 20% down payment by each sub-borrower; the remainder would be provided by ADB.
20. That provided by ADB would be derived from additional share capital provided to ADB by Government - as ADB and Government may agree.
21. Progress payments would be made by ADB to BD to ensure that the total value of cash and kind at each stage would be:-

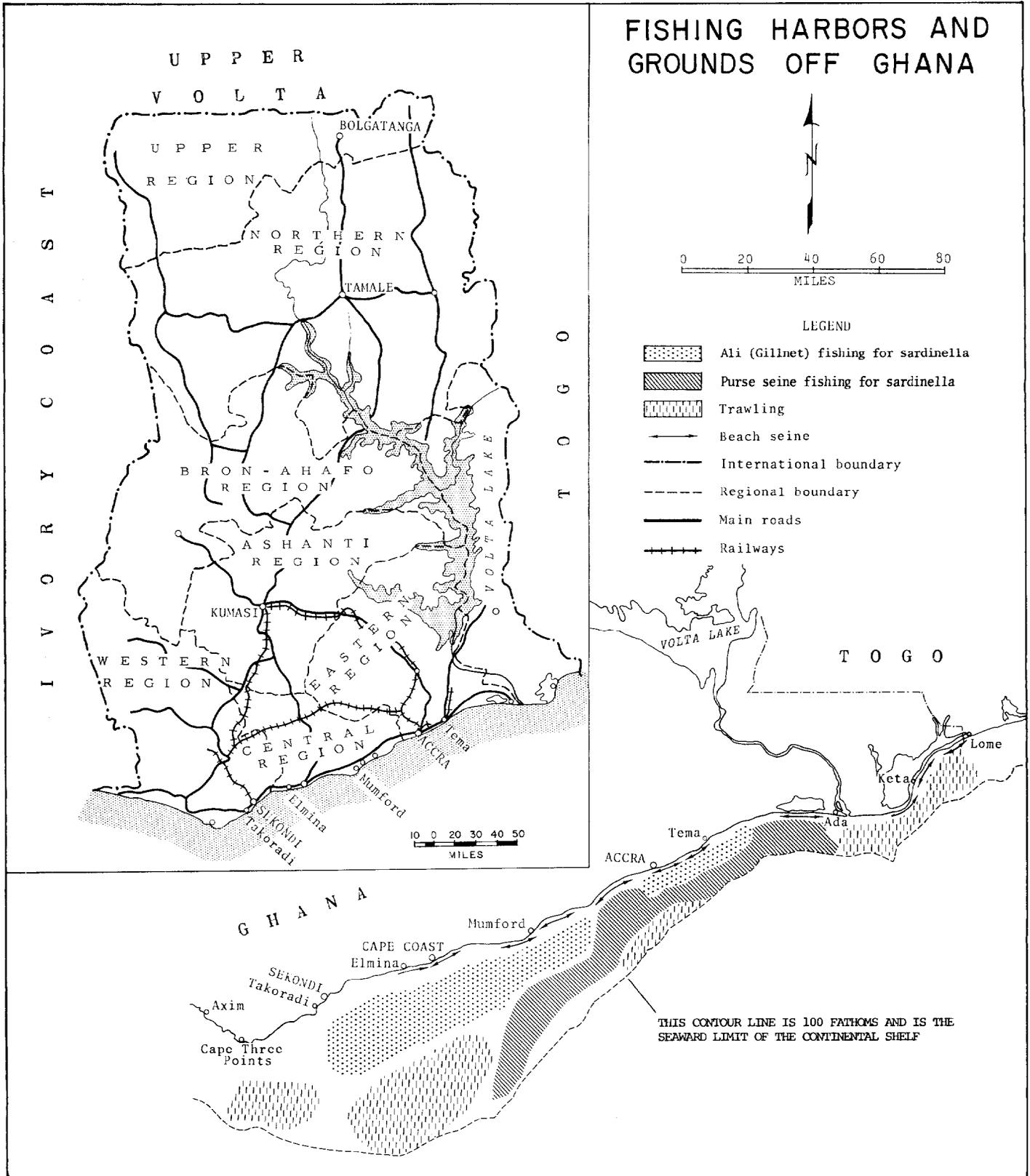
	<u>Installment</u>	<u>Total Paid to Date</u>
Initial	20%	20%
Outfitting	50%	70%
Completion	30%	100%

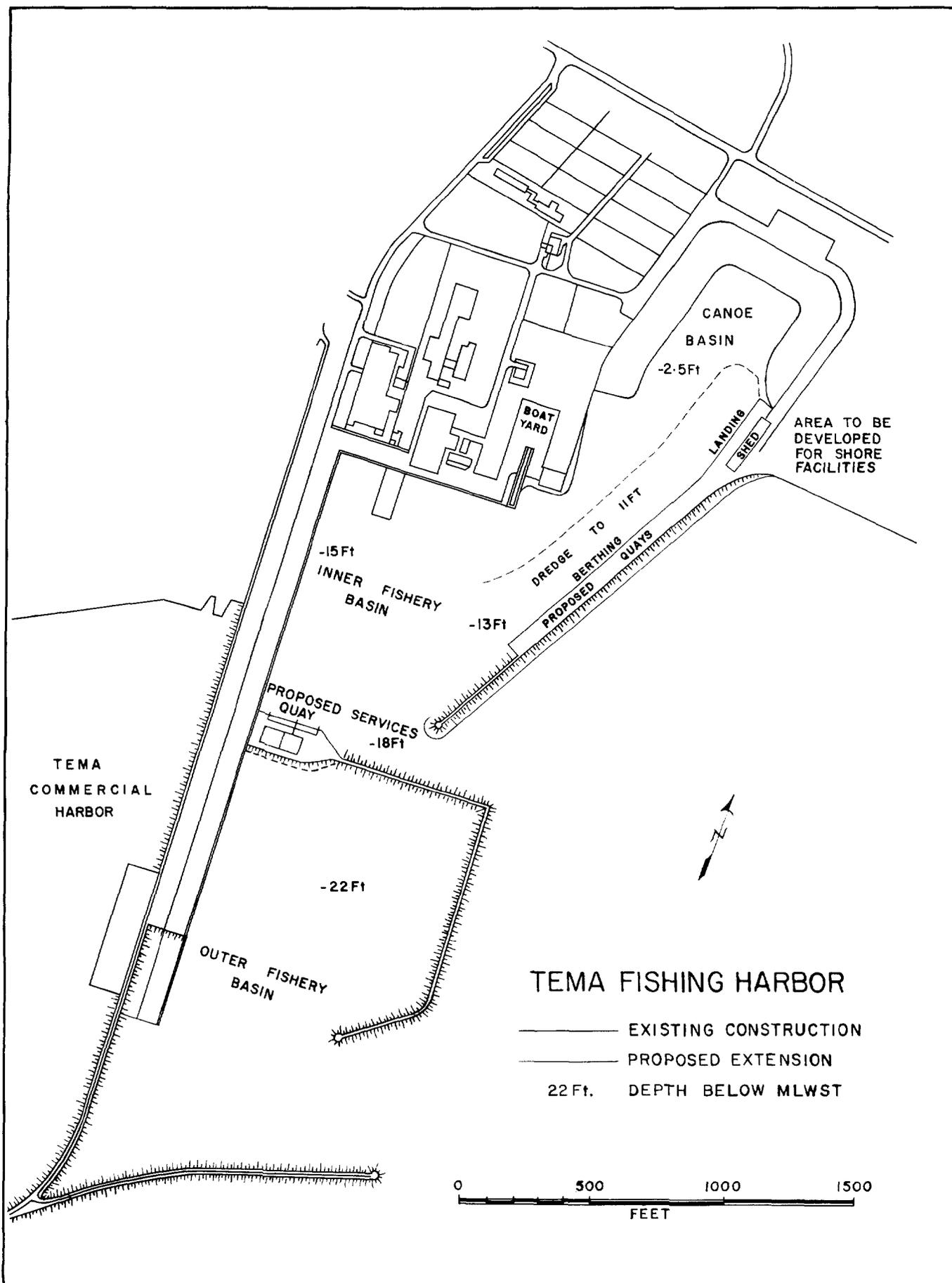
Insurance

22. GIHOC would maintain insurance on components and vessels up to the time of delivery; upon delivery, insurance would become the responsibility of the sub-borrower. ADB would ensure compliance of the sub-borrower in this respect.

August 20, 1969

FISHING HARBORS AND GROUNDS OFF GHANA

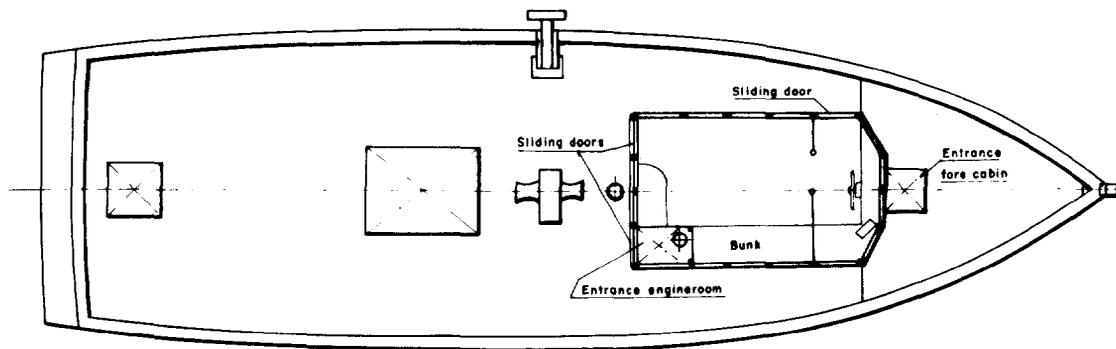
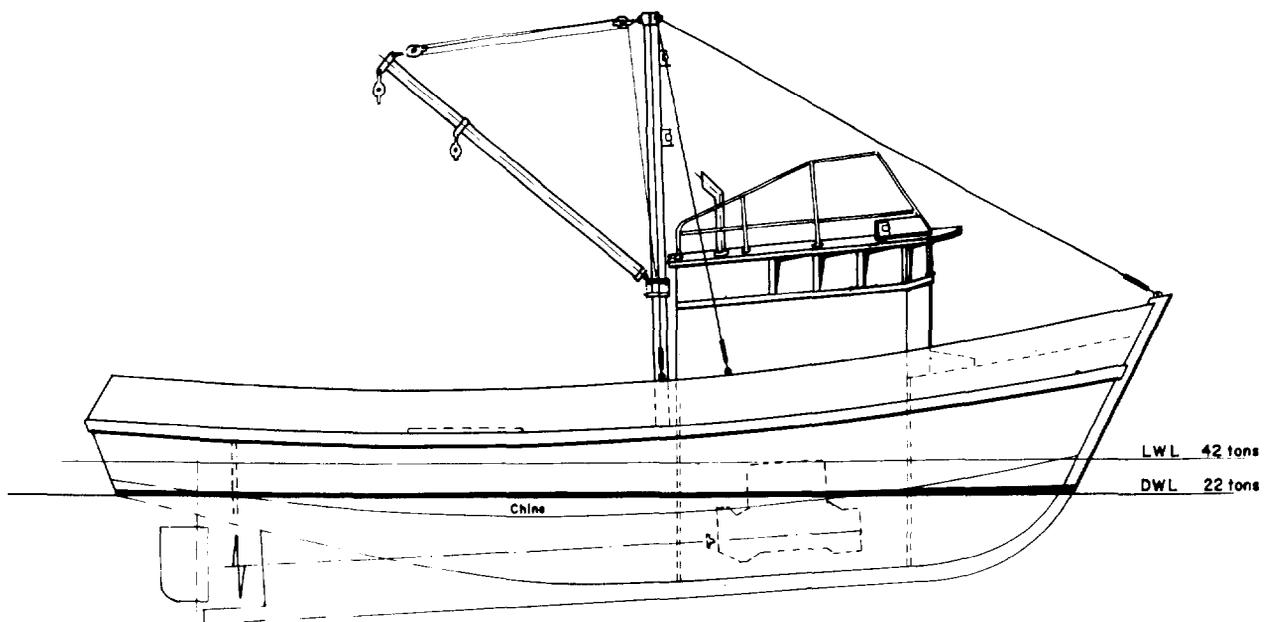




TEMA FISHING HARBOR

- EXISTING CONSTRUCTION
- - - PROPOSED EXTENSION
- 22 Ft. DEPTH BELOW MLWST

48-FOOT PURSE SEINER - CHINE CONSTRUCTION



MAIN PARTICULARS

Length over all.....	48ft
Length waterline.....	43ft 2in
Beam, maximum.....	14ft 8in
Beam, waterline.....	13ft 6in
Depth moulded.....	6ft 10in
Displacement at DWL.....	22 tons
Fish-hold capacity.....	20 tons
Engine horsepower.....	75-80