REGIONAL PROJECT FOR INLAND FISHERIES PLANNING, DEVELOPMENT AND MANAGEMENT IN EASTERN/CENTRAL/SOUTHERN AFRICA (I.F.I.P.)

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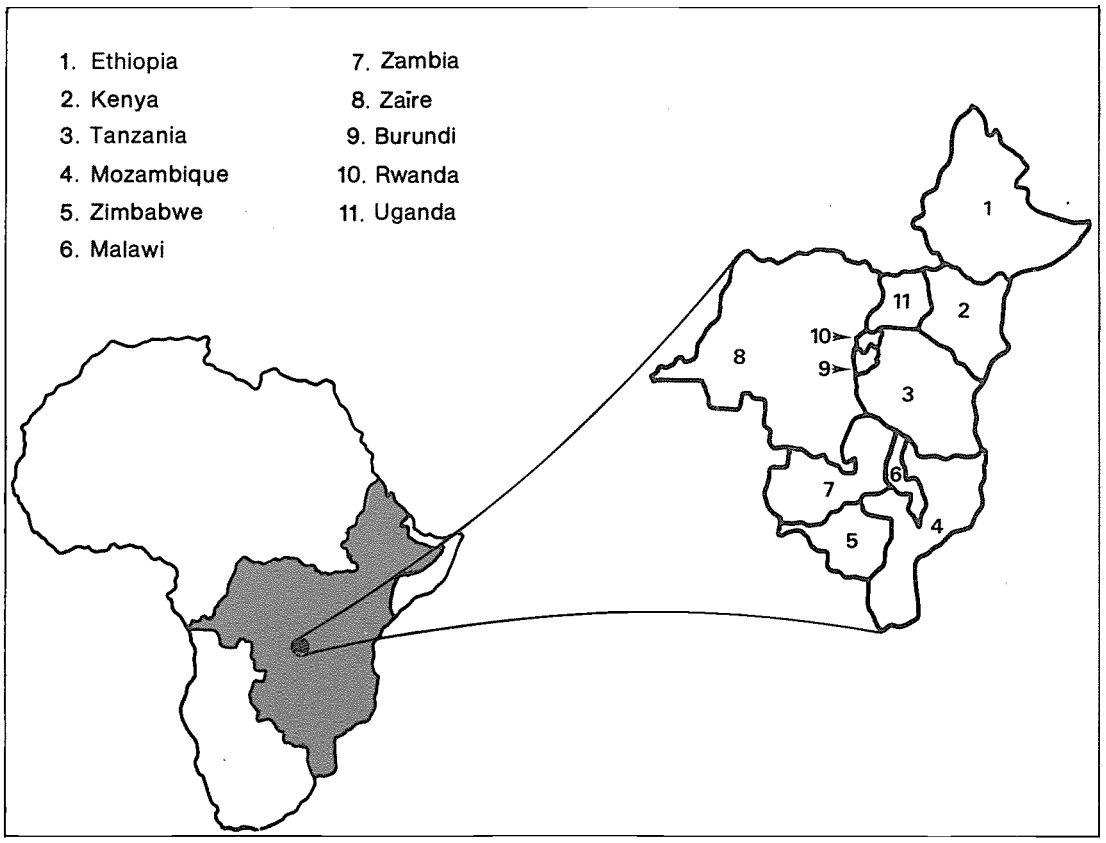
RAF/87/099-TD/20/91 (En) April 1991

A REVIEW OF FISHERIES INPUTS IN KENYA, UGANDA AND TANZANIA



UNITED NATIONS DEVELOPMENT PROGRAMME

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

UNDP/FAO Regional Project
for Inland Fisheries Planning
Development and Management in
Eastern/Central/Southern Africa

RAF/87/099-TD/20/91 (En)

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A REVIEW OF FISHERIES INPUTS IN KENYA, UGANDA AND TANZANIA

by

Mr. A. Biribonwoha

Principal,
Fisheries Training Institute,
Entebbe, Uganda

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
UNITED NATIONS DEVELOPMENT PROGRAMME
Bujumbura, April 1991

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PREFACE

The IFIP project started in January 1989 with the main objective of promoting a more effective and rational exploitation of the fisheries resources of major water bodies of Eastern, Central and Southern Africa. The project is executed by the Food and Agriculture Organisation of the United Nations (FAO), and funded by the United Nations Development Programme (UNDP) for a duration of four years.

There are eleven countries and three intergovernmental organisations participating in the project: Burundi, Ethiopia, Kenya, Malawi, Mozambique, Uganda, Rwanda, Tanzania, Zambia, Zaire, Zimbabwe, The Communauté Economique des Pays des Grands Lacs (CEPGL), The Preferential Trade Area for Eastern and Southern African States (PTA) and the Southern African Development Coordination Conference (SADCC).

The immediate objectives of the project are: (i) to strengthen regional collaboration for the rational development and management of inland fisheries, particularly with respect to shared water bodies; (ii) to provide advisory services and assist Governments in sectoral and project planning; (iii) to strengthen technical capabilities through training; and (iv) to establish a regional information base.

...

This document presents the results of a study on the availability, quality and price of fishing inputs for the artisanal fisheries of Kenya, Tanzania and Uganda with special reference to the fisheries on Lake Victoria. This study was financed and organised by the IFIP project. It was undertaken from 1st August to 2nd September 1990 by Mr. A. Biribonwoha, the principal of the Fisheries Training Institute, Entebbe, Uganda.

IFIP PROJECT
FAO
B.P 1250
BUJUMBURA
BURUNDI

Telex : FOODAGRI BDI 5092 Fax 227705 Tel. 224328

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A series of technical documents (RAF/87/099-TD) related to meetings, missions and research organized by the project.

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For both series, reference is further made to the document number (20), the year of publication (91) and the language in which the document is issued: English (En) or French (Fr).

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1. INTRODUCTION

In view of the growing importance of the fishing industry in the three East African Countries, the IFIP Project, with the support of the Governments of Kenya, Tanzania and Uganda, sponsored a one month consultancy to study the availability of fishing inputs in the three countries with special reference to Lake Victoria. The terms of reference are provided in Appendix XI. This study was undertaken by the author from the 1st of August to 2nd of September, 1990.

In each country, visits were made to fishing areas, fishing net factories, boatyards and to the retail input shops. Interviews and discussions were held with ministry officials, fisheries administrators, fishing inputs manufacturers, importers, retailers, fishermen and credit financing institutions, as well as those private and public institutions concerned with procurement and provision of the main fishing inputs.

In addition to demand and supply, the study covered pricing, economic incentives, credit availability and future plans related to fishing gear supply.

The study programme was apportioned as follows:

Eleven days each were spent in Kenya and Tanzania, eight days in Uganda, and three days in Bujumbura, Burundi. Bujumbura is the headquarters of the Inland Fisheries Planning, Development and Management Project for Eastern, Central and Southern Africa and hence the consultancy duty station. Time for international travel is inclusive.

Finalisation meetings were held with fisheries departments and other officials to examine and exchange views on the study findings as summarised in the report. Appropriate proposals and recommendations have been made in the report.

2. EXECUTIVE SUMMARY

A one month study of the fisheries inputs in Kenya, Tanzania and Uganda was undertaken between 1st August to 2nd September, 1990 under the auspices of the IFIP Project. The following are the general conclusions of the study:

1. The fisheries sectors play an important role in the economics of the three countries. It is a supplier of food, a source of employment and a potential earner of foreign exchange.

2. The fisheries of the three countries are predominantly artisanal.

3. The rate of increase in fish production is much lower than that of human population growth.

4. Estimates of the resource potential needed for reliable planning are not available in the three countries, but the countries concerned have programmes in place to carry out stock assessment and improve on data collection and information systems for both short and long term planning.

5. There is still considerable scope for the expansion of capture fisheries in Tanzania and Uganda but aquaculture offers the greatest potential for increased fish production in the long term. Of the three countries, Kenya, and to a lesser degree Tanzania, appear to be giving the development of aquaculture much more prominence in their national plans and are in the process of compiling clearly defined programmes to attract more funding.

6. Supply of gear, nets, hooks, outboard engines and seaworthy boats remain a major bottleneck, hampering exploitation of the resource which is necessary to supply the rapidly increasing demand of fish for home consumption and export.

7. National fishing net factories so far established include one in Kenya, two in Tanzania, and one in Uganda, which are operating at between 30% to 50% of their installed capacity. In Kenya this is due to some extent by the lack of marketing infrastructure but generally however, there is a severe shortage of foreign exchange which is hampering the importation of the yarn and twine required for their manufacture.

8. Lack of spare parts and the near obsolete nature of the plants is another drawback.

9. Uganda's net production is far below the estimated national requirement. This would remain so even if the factory's installed capacity was fully utilised.

10. Kenya's fishing net plant's installed capacity, if fully utilised, would meet the national demand and produce surplus for export.

11. If the two Tanzania plants were fully operational, they should be able to meet almost all the requirements for the total artisanal fisheries.

12. The boat building industry is not well developed and the artisanal fishermen by and large depend on traditional boat builders, whose crafts are not always seaworthy, have a short life span and have a limited carrying capacity.

13. Established boatyards, where they exist, are not fully utilised due to lack of (capital and operational) funding .

14. Mechanisation is extremely low in the three countries.

15. Taxation on raw materials and imported fishing gear in Kenya and Uganda remains a disincentive. The fisheries are at a disadvantage in comparison to the agricultural crop sector since the latter benefits from relatively low production prices due to low or complete exemption of taxes.

16. Artisanal fishermen do not have easy access to credit lines. Where Rural Farmers Credit Schemes do exist, adequate finance inputs are not allocated to fishermen.

3. GENERAL REVIEW OF THE FISHERIES

3.1 Generalities

Kenya:

Kenya has 582,600 sq. km. of territory and a population estimated at approximately 23 million (1989). It has one of the highest population growth rate on the continent, estimated to be about 4% p.a. The population depends largely on agriculture in its broadest sense (crops, forestry and fisheries) which contribute 30% of the G.D.P.

In East Africa, Kenya boasts of having the most industrialised economy with the investment rate high and a large part of both private and government expenditures being externally financed.

The economy of the country is relatively sound as Kenya has been able to attract external loans and I.M.F. support.

Tanzania:

Tanzania's total area is about 945,100 sq. km. with an estimated population of about 25 million people. The population growth rate is 3.4% and agriculture is the backbone of the economy.

The country is committed to "Socialism and self-reliance". However collective farming policies have not had a dramatic effect on the economy or especially on the food sector. Ujamaa fishing villages have however made a significant impact on fish productionand is one of the major rural industries in the lake area.

There are now signs of eminent gradual recovery due to adjusted programmes that the Tanzania Government has adopted which have had a favourable response from I.M.F. and assistance from bilateral donors.

Uganda:

Uganda is landlocked and has a total land area of 236,000 km^2 with a total population of 15.1 million (1986 government estimates). A population census programme is due to start soon and should provide more accurate figures. Agriculture (crops, animal industry, forestry and fisheries) remains the backbone of the country's economy and the main employer. The country's numerous lakes, rivers, dams and swamps account for 17-20% of the surface area and present a great potential for the development of the fishing industry.

Before and after independence, the country's economy was strong with GDP growing at an annual rate of 4.8%. Fisheries was one of the fastest growing rural industries.

The political turmoil that characterised the seventies brought the national economy to ruin with the agricultural subsistence sector barely surviving and fish production suffering a significant decline.

Economic policies that accompanied the coming into power of the National Resistance Movement/National Resistance Army Government were conducive to international assistance; IMF has provided stand by credit (SDR) and other international (multilateral and bilateral) financing institutions have also responded favourably.

Consequently, real GDP at factor cost grew by 7.4% in 1987 and 7.3% in 1988. These growth rates imply an increase in real per capita income of about 4% per annum. (Rehabilitation and Development Plan 1988/89-1991/92 Ministry of Planning and Economic Development.)

3.2 Survey of Fishing Inputs

General:

Amongst its noteworthy features, Africa contains several great lakes amongst which are Lakes' Victoria, Tanganyika, Edward-George, Albert, Turkana and Malawi. These lakes offer the richest lacustrine fish faunas in the world. Most of them lie between the two East African Rift Valleys, and are shared by riparian states of Eastern, Central and Southern Africa.

Of these lakes, Lake Victoria (68,800 km^2, average depth 40m, maximum depth 79m), the largest in Africa is also the second largest fresh water lake in the world. It is shared by the three riparian states: Kenya, Uganda and Tanzania. For these countries, this particular lake and the others represent a most valuable source of the much needed animal protein in the form of fish.

Kenya and Tanzania have marine fisheries whose potential is not yet ascertained and are not yet fully utilised.

Kenya:

Kenyan fisheries are based on both inland and marine waters. The fishery provides protein, employment and earns the country foreign exchange through fish exports and angling which is patronised by the country's booming tourist industry.

Fish production in Kenya has increased steadily, rising from 138,132 metric tons in 1988 to an estimated 158,073 metric tons in 1989. Of this, inland waters have contributed 150,463 metric tons, marine fish 6,708 metric tons, crustaceans 715 metric tons and other marine products 187 metric tons.

A total of 36,061 fishermen are directly employed in fishing and many more find employment in other fisheries related activities. The Fisheries Department estimates 10,360 boats of various sizes were engaged in the harvest of fish for the year 1989, the majority of which are artisanal.

In spite of the recorded increases in fish production, consumption has increased much faster, having risen from 2.98 kg (1978) to an estimated figure

of over 6 kgs per capita (1988) (source: N.Odero 1989). There is now a great demand for fish even in the central, eastern, and north-eastern provinces where fish was not formerly considered a food item by a large part of the population.

Kenya has received a great deal of technical and financial assistance for fisheries development. These have come from the World Bank, UNDP, FAO and countries like the U.K., U.S.A., Norway, Canada and Italy. None of these appear to have been specifically directed towards acquisition and supply of gear and other fishing inputs.

Tanzania (Mainland):

Tanzanian fish comes mainly from inland waters among which are threethe African great lakes, shared with other countries. Lake Victoria is shared with Kenya and Uganda; L. Tanganyika is shared with Zaire, Zambia and Burundi while L. Nyasa/Malawi is shared with Malawi and Mozambique. The country also has a marine fishery, which is predominantly artisanal, exploiting the coastal shelf area of 30,000 km^2 on a 750 km coastline. Besides employment, the fishery is a source of food and earns foreign exchange through the export of mainly highly priced shrimps.

According to the country's Budget Speech of this year (1990), fish production registered an increase of 15% over that of 1988 with a total catch of 390,000 metric tons. This may be viewed against the FAO indicative production potential of 337,000 tons for Tanzania, which appears to have not taken into account the recent unexpected explosion of Nile perch (Lates niloticus) from Lake Victoria. From the available catch statistics for the year 1987, inland fisheries accounted for about 90% of the total catch and 75% of the total value.

The number of fishermen employed in the industry was reported by the Department to be 64,241 in 1987; the SADCC/EEC fishery survey draft report (March 1989) puts the current figure at 65,390. Those engaged in fisheries related activities are estimated to be even greater. The Department reported the number of operative fishing vessels for the year 1987 to be 21,583 which, if compared with the figure of 22,402 reported by SADCC/EEC in March 1989 indicates increased fishing activity. Outboard and inboard engines for the whole country were reported as follows:

	Outboards	Inboards
1987 (Fisheries Department)	660	113
1989 (March SADDC/EEC)	638	108

The consultant is inclined to accept the Department's figures and also to presume that, in spite of the compounded low rate of investment and replacement the resent figures could be slightly higher.

In collaboration with various donor agencies a number of projects havebeen identified for external financing. Some of these projects are on going, involving provision of inputs to artisanal fishermen. Examples are: the Kigoma (L. Tanganyika) Revolving Fund Fisheries Project financed by the Government of Netherlands and the Fisheries Development Programme based at Mbegani, being funded by Norway.

Uganda:

The Uganda fishing industry is based on its numerous lakes, rivers, dams and minor lakes. These represent 17-20% of the total surface area of the country. Fisheries plays an important role in the food sector not only through provision of high value animal protein, but also as a means of livelihood to the people. It also has great potential as a foreign exchange earner.

Annual fish production is provisionally estimated by the Department of Fisheries to be at 213,600 metric tons for the year 1989. This figure would compare favourably to the production of 190,000 metric tons for 1987 reported by Dr. Gréboval (FAO-IFIP Project) in his report on "Small scale Fisheries Development and Rehabilitation of Fisheries Information Systems". However, short term surveys report smaller annual production, e.g. 136,000 metric tons (Ministry of Animal Industry and Fisheries, Planning Unit, 1988 - May 1989 - Fisheries Frame Survey); 131,954 metric tons (J.O. Okaronon and J.R. Kamanyi 1989 of UFFRO); and 160,000 metric tons (Dr. A.B. Frielink jr. 1989, Joint Fisheries Survey of Artisanal Fisheries Rehabilitation Project).

The fishing industry employs 70,000 fishermen and 100,000 people in ancillary activities (Gréboval 1987). The Fisheries Department puts the figure at 78,000 fishermen with more than 100,000 people employed in secondary and other related activities. Twenty six thousand boats are employed in the capture of fish of which about 18% are planked. The percentage of motorisation is reported to be 10% (EEC/AFRP Fisheries Survey 1988, May 1989).

Fish, once not widely eaten throughout the country (because of tribal beliefs and taboos) is now readily accepted by many people as a good substitute for (red & white) meat which is not readily available and when available, costs three to four times as much. Fish consumption per capita now stands at 12 kg per annum. This varies from region to region.

Of the many projects financed to rehabilitate the fisheries sector, procurement of fishing inputs has received the greatest attention. Projects which have supplied gillnets, outboard engines, twine, cord, ropes, hooks etc. have been financed by the EEC (Artisanal Fisheries Rehabilitation Project,) the IFAD/World Bank Project (now the Agricultural Development Project), CICS, Euro Action Accord Project and of recent, the Rural Farmers Scheme operated by the Uganda Commercial Bank.

The Euro Action Accord Programme has nearly ended the need of inputs and most of the other projects (except the Rural Farmers Scheme) are in their finalisation stages.

Other ongoing programmes include an Italian processing project, the Sino Uganda Fisheries Joint Venture and the Fisheries Statistics and Information Systems (UNDP/FAO - UGA/87/007). Also ongoing are the Rehabilitation of the Fisheries Training Institute (EEC); a boat building yard (Italy); and the EEC Regional Project aimed at reinforcing and improvement of the research capabilities of the riparian states of L. Victoria.

3.3 Fisheries Policy and Institutional Support

Objectives for the fisheries sector do not vary much between Kenya, Tanzania and Uganda. For Uganda, they are contained in the blue print published by the Ministry of Animal Industry and Fisheries, 1983. For Kenya and Tanzania, guidelines are contained in relevant policy pronouncements. The objectives may be summarized as follows:

i) To increase fish production from capture fisheries and aquaculture;
ii) To increase per capita fish consumption;
iii) To increase fishermen's earnings and improve their condition of living;
iv) To improve the quality of fisheries products and minimize post harvest losses;
v) To promote research and training in order to realise the above objectives; and
vi) To realise fish and fisheries products surplus for export.

Policies emanate at relevant ministerial levels on the advice of the departments responsible for fisheries. These policies may be affected by other decisions taken by different ministries associated with relevant activities. For example ministries responsible for manufacturing, industry or commerce and trade may issue pronouncements affecting the direction of fisheries development.

The following may assist to illustrate the point: In the case of Lake Victoria, the Lake Basin Development Authority, an organisation under the Ministry of Regional Development, undertakes fisheries development among its other activities. Its opinions are held in high regard by the Department of Fisheries. In Uganda, the Minister of Animal Industry and Fisheries has set up a committee on Fisheries Exploitation which is advisory to him and is composed of a wide cross section of experts. Its terms of reference are attached as Appendix I.

It will be observed that the economic situations prevailing in some countries in the region adversely affect the performance and commitment of the manpower engaged in implementing otherwise good policies. This is most relevant with regard to level of salaries and other renumerations as well as general staff morale.

3.4 Status of the Fisheries and Resource Base

General:

Both Kenya and Tanzania have inland and marine capture fisheries. They also have extensive programmes in aquaculture.

Unlike the two neighbouring counties, Uganda depends entirely on inland fresh water fish capture. Its aquaculture programme needs serious re-activation as its contribution to the national catch is at the moment only 35 tons per annum. (Livestock and Fisheries Policy and Development Programme towards the year 2000. Ministry of Animal Industry and Fisheries 1989).

For the present time, inland fisheries contribute the largest percentage of the recorded national catch for both Kenya and Tanzania.

By and large, the fisheries of the three countries are artisanal, with limited industrial commercial fishing being undertaken by Kenya on Lake Victoria; Tanzania on both Lake Victoria and Lake Tanganyika and for both countries in the Indian Ocean.

Uganda's "Sino-Uganda Fisheries Joint Venture Company Ltd." has just put into production two medium sized pair trawlers, which heralds industrial exploitation of Lake Victoria's fishery the effects of which are uncertain in relation ot both on the sustainability of stocks and also the socio-economic status of the artisanal fishermen who pesently dominate the industry.

Kenya:

Some 150,000 metric tons of landed fish out of Kenya's estimated 158,073 for the year 1989 came from inland waters (Source - Fisheries Department). The breakdown is as follows:-

Lake Victoria contributing	134,000 metric tons
Lake Turkana contributing	990 metric tons
Lake Naivasha contributing	263 metric tons
Lake Baringo contributing	233 metric tons
Lake Jipe contributing	93 metric tons
Tana River Dams contributing	572 metric tons
Fish Farming contributing	922 metric tons
and other areas contributing	289 metric tons

Marine fisheries contributed 6,708 metric tons of fish, crustaceans contributing 715 metric tons and other marine products contributing 187 metric tons.

About 80% of the fish landed from Lake Victoria were Lates niloticus, followed by Oreochromis niloticus and Rastrineobola argentea. Other species landed in smaller numbers included Bagrus docmac, Protopterus eathopicus, Schilbe mystus, Barbus spp., Clarias spp. etc. By and large, the first three species mentioned now form the major commercial fishery having replaced the endemic tilapias (O. esculentus and O. variabilis) and the Haplochromine species complex.

The present standing stock of resource is not well established nor is the amount of fish that can be cropped without endangering the apparent evolving fragile ecosystem brought about by the introduction of Nile perch. Kudhongania and Cordone (1974) estimated the biomass of the whole lake to be around 750,000 to 800,000 tons with exploitable fish stocks at 250,000 tons.

Other Kenyan lakes, dams and ponds produce predominantly Oreochromis spp., Tilapia, Black Bass and an assortment of other Nile fauna. The rivers naturally contain andromous species but their potential yields remain undetermined. Prawns, cray fish (Pracambus clarkii) are being raised in ponds.

Prawns, reef fish, sharks and tunas are caught in the Indian Ocean but the size of their stocks has not been established.

There is, therefore, an urgent need to determine the size of the fish stocks in the various other water bodies of Kenya. Such assessment should take into account the climatic changes that are reducing the size of the Rift Valley lakes and the shifts in relative species abundance likely to be brought about by Nile perch in the L. Victoria ecosystem before the fish stocks attain an equilibrium.

Tanzania:

What has been said for Kenyan waters with regard to the Lake Victoria resource base holds true for Tanzania except that Tanzania has the largest share of Lake Victoria and her waters are supposed to be very productive in Nile Perch and Rastrineobola spp.

Tanzania marine fisheries, apart from the species already mentioned, are also relatively rich in prawns, lobsters and sea weeds. A summary of the fishery statistics including production from major and minor fresh water systems and marine fisheries is found in Table 2.

Again, there is an extremely important need for stock assessment and monitoring in order to establish a resource base for better planning and management of the industry.

Fish production and the situation relating to fishing gear for L. Tanganyika and L Nyasa is not covered in this report due to the limited study time scheduled for Tanzania and limitations/difficulties experienced in internal travel arrangements and funding. It was however understood that consideration of providing inputs to L.Nyasa under a similiar scheme to Kigoma (L. Tanganyika) was under consideration (1990 Fisheries Budget Speech). Separate coverage for the lakes would provide a better understanding of the situation.

Uganda:

The situation with regard to the stocks of L. Victoria is the same with Kenya and Tanzania.

The Uganda Fisheries Department recognise the presence of large quantities of fresh water mussels (Mutala sp.) which remain unexploited and could offer an excellent product for export if the economic viability of harvesting is established. There are also known stocks of fresh water shrimp (Caridina sp.) which are abundant in the lake and could possibly be harvested and converted into animal and poultry feed without destabilizing the food web of the aquatic fauna in the lake. These possibilities should be examined and their potential for development determined.

The nine major species being exploited in Lake Albert are: Lates spp., Oreochromis niloticus, Alestes spp., Hydrocynus forskhalii, Distichodus spp., Bagrus bayad, Auchenoglanis sp., Labeo horie and Synodontis schall. Other species are relatively rare in catches.

In Lake Kyoga, the major species of commercial importance are Lates niloticus, Oreochromis niloticus and Protopterus aethopicus. The first two are introduced species and appear to have displaced the indigenous species. Lates,

once predominant in the catches has declined and, according to provisional results of an ongoing ADP/World Bank survey, Oreochromis spp has established itself as the predominant species in the lake.

Lakes Edward/George and the minor lakes have Oreochromis niloticus, Bagrus spp. and Protopterus sp. as their main commercially important spp.

The resource base of all these bodies remains speculative causing difficulty for systematic development and scientific management of the resources.

4. SURVEY OF FISHING INPUTS

4.1 Fishing Technology in Kenya

4.1.1 Fishing Gear

Fishing gear used by artisanal fishermen in Kenya are conveniently classified into four categories:

i) traditional gear;
ii) gillnets;
iii) seine nets;
iv) line gear.

The weirs, barricades, baskets, papyrus, 'seine' spears and crude lines fall in the first category. Their catch includes anadromous riverine species such as Labeo spp, Barbus spp., Schilbe sp., Clarias sp. and occasionally mixed species that inhabit relatively shallow waters. Spears are targeted at the sluggish species that are common in turbid and muddy waters, in inshore water and in estuaries. Their effectiveness is limited.

Gill nets, ranging from 2.5" to 3" mesh size , catch Labeo spp., haplochromines and juveniles of Tilapia, immature Lates and others. The 4" to 6" mesh sizes catch Bagrus spp., Oreochromis sp. and the tilapias: Clarias sp. Barbus sp. Protopterus sp. and often immature Lates spp. The larger mesh nets of the 7" -12" range are targeted at Lates spp. the larger Oreochromis spp., Clarias and large Bagrus spp. and Protopterus. Gillnets are the major fishing gear used in Kenya. Their catch rates have been declining presumably due to a changing fish population structure especially in the Kavirondo Gulf (L.Victoria).

Seine nets include beach seines, mosquito seines, surround nets and ring nets. The mosquito nets, surround nets and ring nets are used to catch Rastrineobola sp. and may be used with light attraction. The beach seines (normally with a 10-28mm/cord end) mostly catch Lates and Oreochromis; there are indications that this method of fishing may be responsible for the decline in fish catches within the Kavirondo Gulf as, apart from destroying breeding and nursery grounds, it also catches immature fish. The Fisheries Department is in the process of prohibiting/restricting this destructive fishing method.

The gear being used include handlines polelines, set or drift long lines, tackle lines (mostly using Nos.6, 7, and 8 hooks), and 4.4 troll lines.

Bait used may be darth worms, kitchen remains, live bait (Haplochromis, Clarias, etc.) and artificial bait such as plastics, feathers and coloured wooden plugs. Line gear is used for carnivorous Lates sp. on Lake Victoria and Lake Rudolf and extensively on the coast by artisanal and sport fishermen.

4.1.2 Demand and Supply

There is no shortage of polyamide fishing nets in Kenya which are supplied by the Kisumu Fishnet Factory whose capacity, according to Mr. Yukihisa Miyamoto (Managing Director) and Mr. Joseph K. Lasoi (Factory Engineer) is 96-100 tons of nets and twine. Of this, the inland fisheries require 75% and marine fisheries 10%. The plant also has the potential to export.

At the time of the mission's visit, the plant was operating at 50% capacity as there was no market for their products as most of the fishermen could not afford the prices being charged. This observation was confirmed by Mr. Elijah Owino Agutu, a fisherman interviewed in Kisumu. In Uganda, two fishing gear retailers: Mr. John Mubiru and Ms. Jennifer Nansozi of Kasenyi fish landing, Uganda, stated that the heavier nets and twine of larger mesh size nets from Kisumu were very expensive and that they were not popular on the market.

Kenya Fish Net Industries Ltd. - Kisumu

The above factory is a joint venture company between the Industrial and Commercial Development Cooperation (ICDC) of Kenya and the Hirapo Corporation of Japan with local fishermen owning some of the shares. The Hirapo Corporation owns 45% of the shares while ICDC and the fishermen own 55% of the shares.

The plant has the capacity to produce 96 to 100 tons of twine, webbing and nets but, at the time of the visit, it was only operating at 50% capacity due to poor marketing of its highly priced products.

The following is a comparison of the factory prices, the recommended retail prices and what was actually being charged by the shops:

Net/Twine	Ex-factory Price (Kshs)	Recommended Retail Price (Kshs)	Retail Price at Eveready shop-Kisumu
210/2 25mm-76mm 26MD 90m	144-166	146-214	146/=
210/3 25mm-76mm 26MD 90m	162-192	162-192	208/=
210/4 38mm-76mm 26MD 90m	222-252	324-286	286/=
210/6 26MD 90m	336-378	432-486	-
210/9 26MD 90m	502-530	646-682	646/=
210/12 26MD 90m	564-760	726-978	726/=
210/15 1.5"-7" 26MD 90m	862-1190	1110-1518	958/=

NB. Exchange Rate 22.60 K.Shs. to 1 US$

4.1.3 Taxation of Locally Manufactured Nets and Others

The high prices of nets are attributed to the high level of taxation imposed on the inputs, there is a 31% import duty recently reduced from 45% and 18% sales tax (VAT) on finished products.

Floats and other ancillary fishing equipment not manufactured in the country but imported are subjected to the following level of taxation.

	June 1989/90		June 1990/91	
	Import Duty	VAT	Import Duty	VAT
Floats	40%	17%	35%	18%
Hooks	20%	17%	45%	18%
Rods	50%	17%	45%	18%
Reels	50%	17%	45%	18%
Artificial flies	50%	17%	60%	18%
Landing nets	50%	17%	45%	18%

It may be noted that the following agricultural implements do not attract Value Added Tax (VAT) in Kenya:

- Fertilisers hand pumps, water pumps, acaricides, weed killers, herbicides, agricultural tools, pangas, fencing materials, coffee and tea machinery and combine harvesters.

Most of the above items are imported duty free and where taxation exists it is as low as between 10% to 25% (Personal communication with Messrs. J.G. Kabiru and C.M. Kamau of the Ministry of Finance, Taxation Department, Kenya).

4.1.4 Boats and Mechanization in Kenya

According to Mr. James Siwa Mbuga, a Kenyan fishing gear technologist, fishing boats being used by artisanal fishermen in Kenya may be classified by using the following categories:

i) Sese Canoe: Hard chine, non-transomed (except when modified for use with an outboard engine) canoe which may be paddled or use sail.

ii) Mataruma: Flat bottomed and similar in shape to the Sese canoe, the boat is non-transomed and is usually made with 4 planks on each side. It may be paddled or use sail. The boat is suitable for Rastrineobola fishing.

iii) Mashwa: Flat bottomed and transomed (in order to accommodate fixed rudder). The boat is bulky and usually rigged for sail. It is used for over night off shore fishing.

iv) Dhow: Dhows are large and spacious, ideal for off shore fishing. They may be mechanised, rigged with sails or both. They make ideal transport boats for collecting fish from distant fishing points, carrying livestock and passengers.

v) Dug-outs and rafts: Used in shallow waters and inland marshy areas.

The timber used for the construction of the boats are generally Mvuli (Chlorophora excelsa,) African mahogany (Khaya spp.) and other hard woods which mostly come from outside Kenya. There is need to look at alternative materials for boat construction in view of the eminent danger of deforestation and the competitive use of the available timber for furniture and the construction industry. It is understood that the Lake Basin Development Authority has commissioned UNIDO to undertake a study into the feasibility of modernising the Kenyan boat building industry. (Personal Communication with Aloys Achieng). The UNIDO report was not available at the time of the mission.

The mission was not informed of any established boatyard catering for the artisanal fisheries. As of now, the industry is being served by the untrained but experienced beach boat builders whose crafts leave much room for improvement.

4.1.5 Supply of Outboard Engines

Mechanisation in the artisanal fisheries is extremely low and is composed of assorted makes of engines such as Yamaha, Johnson, Mercury, Mariner, Evinrude, C.M.C, Suzuki, etc. All the engines are imported by private dealers who are expected to pay 25% import duty and 17% Value Added Tax (VAT). The import duty for diesel inboard engines is 10%. (Personal Communication with Mr. O.V.E. D'Souza and Harry M. Watson of Car and General, Nairobi).

The low percentage of mechanisation may be attributed to import restrictions due to foreign exchange constraints and the actual prices of the machines which are generally beyond the financial resources of a small scale artisanal fisherman. (Mr. O.V.E. D'Souza and H. Watson).

PRICE LIST NO. 1/900/1/1/90 OF 12TH JUNE 1990
MWANZA MOTOR - MARINE DIVISION OF CAR AND GENERAL (KENYA) LIMITED

YAMAHA OUTBOARD MOTORS	DUTY PAID	+17% VAT	TOTAL DUTY PAID	DUTY FREE
4 ACS	19,231/=	3,296/=	22,500/=	17,375/=
E 8 DS	29,829/=	5,071/=	34,900/=	26,910/=
E 15 BS	37,436/=	6,364/=	43,800/=	33,725/=
E 15 BL	37,991/=	6,459/=	44,450/=	34,225/=
E 25 FL	44,701/=	7,599/=	52,300/=	40,770/=
E 40 9 L	59,872/=	10,178/=	70,050/=	53,940/=
E 48 CL	71,667/=	12,183/=	83,850/=	64,565/=
E 60 HEML	93,590/=	15,910/=	109,500/=	85,100/=
E 75 BL	97,094/=	16,506/=	113,600/=	87,470/=
85 AETL	123,205/=	20,945/=	144,150/=	111,000/=

4.1.6 Credit Availability

There are no official lines of credit available to fishermen to enable them to enter or expand their fishing businesses apart from that offered by Cooperatives and Commercial Banks. However, fishermen often get credit from traders and fish processors on a short-term basis in return for payment in fish. Often such arrangements place the fisherman at a disadvantage.

It was understood from the Department that the Fishermen's Loans Scheme suspended in 1984 is soon to be reactivated. The Department is also considering recommending a subsidy similar to that of Jua Kali (Assistance to disadvantaged) which was established in order to assist the indigenous artisans to start small scale industries. (Personal communication from Norbert Odero).

4.1.7 Recommendations

(i) Different taxes imposed on raw materials and imported items for the fishing industry be waived so that local production can operate at full capacity in order to supply local demand and export excess on competitive levels. A reduced rate of taxation of imported materials which compete with local products e.g. fishing nets, could be considered.

(ii) Fisheries be given the same treatment as the crop agricultural sector with regard to taxation, availability of credit schemes and allocation of resources including foreign exchange.

(iii) In importing outboard and diesel inboard engines the Fisheries Department should be consulted. Big horse power engines intended for commercial fisheries should be kept at the bare minimum: smaller engines are more ideal for artisanal fishing and more economical to run.

(iv) Every effort should be made to improve on the quality and safety of the fishing crafts; some boat yards should be set up to carry out research on more suitable and economic types of boat to be used in the different fishing areas.

(v) Recognition should be taken of the nature of available resources; there is need to determine the most economic method of harvesting the resources in order to avoid over capitalization of the industry.

4.2 Fishing Technology in Tanzania

4.2.1 Fishing Gear

Figures of the types and numbers of fishing gear in use during the year 1987 in Tanzania provided by the Fisheries Department, Statistical Division are as follows:-

TYPE	INLAND	MARINE (MAINLAND)
Gillnets	118,039 pieces	9,549
Beach seines	2,719 Nos.	1,087
Dagaa	1,228 Nos.	
Purse Seines	491 Nos.	
Scoop nets	3,660 Nos.	
Lift nets	540 Nos.	
Hooks nets	641,964 Nos.	10,700 (Handlines)
Traps nets	5,988 Nos.	
Cast nets	598 Nos.	510
Long lines	45,296	135
Basket traps		7,888
Fixed traps		3,052
Ring nets		34
Shark nets		3,193
Unspecified gears		198

In addition, illegal dynamite fishing along the coast and use of poisonous substances (Thiodine and Dudumac in North Bukoba) in Lake Victoria was also reported. Concern about use of dynamite was also expressed in this year's Budget Speech by the Ministry of Natural Resources and Fisheries 1990/91. The Department was intensifying its educational programme, strengthening its patrol unit and advocating heavy penalties in order to discourage these destructive fishing methods. It would appear sometimes that these illegal practices are carried out as a last measure since the fishermen involved cannot find or afford the current prices of gear.

Gill-nets, Dagaa Seines and lift nets are the major types of gear in use and their catch account for the highest percentage of the national production.

4.2.2 Demand and Supply

There is an acute shortage of fishing gear in the country in spite of the presence of two plants with installed production capacity of 450 tons of polymides. (M.Ba, B.d.Avis, M.Guidicelli and G. Ssentongo - 1988). At the time of the consultant's visit the Dar-es-Salaam factory was operating one shift and the factory in Mwanza was not functioning at all. (This was mainly due to a lack of foreign exchange necessary for the importation of raw materials and spare parts). The national demand is reported to be approximately 3,000,000 pieces (about 1280 tons).

The present source of supply has been mainly through:

(i) Dar-es-Salaam and Mwanza Fishnet Factories;
(ii) Tanzania Co-operative and Rural Farmers' Scheme;
(iii) Mbegani Fisheries Development Centre;
(iv Tanzania Fisheries Cooperation; and
(v) The private Sector.

Tanzania Fishnet Industries Ltd.

The plant was established in 1967/68 but actual production did not start until 1969. The company is owned by the Workers Development Corporation and various private investors. It has a 247 ton production capacity but, due to the ageing machinery and lack of foreign exchange needed to import raw materials and spare parts, production has constantly been declining and is now around 40%.

According to information provided by Mr. D. M. Kyakalaba, (Production and Purchasing Manager), Tanzania Fishnet Industries Ltd. has liquidity problems this year due to currency devaluation and the low purchasing power of their customers. Customs duty and sales tax on imported raw materials and fishing gear were removed this year but, according to the 1990 Finance Bill (Item 59.04), it would appear that twine, cord and ropes have been overlooked. Customs duty was increased from 25% to 30% and it is recommended that this tax also be abolished.

The plant has in the past exported its products to Zaire, Burundi and Zambia. Its production plan and anticipated sales are attached as Appendix II.

Mwanza Fishnet Manufacturers Ltd.

The factory was established in 1964 in order to supply nets for local use and for export. The share holders include:

- Karmali Juma and Sons - 51%
- Tanganyika Development Finance Co. Ltd. - 29%
- Hirata Corporation of Japan - 20%

The factory has an installed capacity of 336 metric tons but itscapacity utilisation from January to June 1990 was reported to be only 18%. The plant's most pressing problem is the availability of foreign exchange having been allocated only 3.0 million Tanzania shillings by the Government between 1981 and 1988. Foreign exchange supplied by other agencies are as follows:-

- 1984 Tanzania Investment Bank Tshs 4950 million
- 1985 FRG Commodity Aid Tshs 7300 million
- 1986 Norwegian Import Support Tshs 19 000 million
- Netherlands Import Support Tshs 26 000 million
- Norwegian Import Support Tshs 75 000 million

The management complained of the 100% cash cover for import support demanded by the Treasury and the high interest rates charged by commercial banks. For example, the factory took a short term loan of Tshs. 64.0 million from the National Bank of Commerce to meet a 100% cash cover for the Norwegian Import Support of NOKr. 4.0 million. This loan had attracted TShs 24,749,099/= interest by July 1990.

The plant has previously been using nylon filament yarn for the manufacture of twine, nets and cord. It was however found necessary to import twine which now carry 30% import duty increasing the cost of the locally made product. Finished nets are exempted from duty and, as such, imported fishnets on the market are relatively cheaper than those manufactured locally.

From 1983 onwards, Mwanza Fishnet Manufacturers embarked on an expansion programme and now has forty net making machines although only one can make double knots. This expansion programme was made possible with the financial support of the Tanzania Investment Bank and Tanganyika Development Finance Company Ltd. The loan outstanding as of December 31 1989 was as follows:-

- Tshs 2402 million to Tanzania Investment Bank and Tshs.125 million towards interest on loan arrears.

Given the necessary financial support, access to foreign exchange, removal of import duty on twine and easing of the 100% cash cover now required on import support, Mwanza Factory would be in a position to manufacture gear for the home industry and for export.

Fishing Gear Supply by the Cooperative and Rural Development Bank

The Cooperative and Rural Development Bank is operating a credit scheme which has benefited artisanal fishermen on L. Tanganyika. The scheme is funded by the Dutch and covers approximately 75% of fishing inputs. The beneficiary receives a loan to cover one of the alternatives indicated below:

(i) A lift net, an outboard engine, and a pressure lamp; or
(ii) A beach seine, an outboard engine and a pressure lamp.

The items are exempted from duty and sales tax. The customer is required to have a good boat and must be recommended by the Fisheries Department.

The scheme started in 1984/85 and its performance to date stands as follows:

YEAR	NO. OF BORROWERS	AMOUNT APPROVED	REMARKS
1984/85	10 Villages	4,435,700/=	Disbursed
1985/86	60 Individuals	8,934,925/=	"
1987/87	15 Individuals	3,773,479/=	"
1987/88	21 Individuals	7,995,000/=	"
1988/89	17 Individuals	6,345,030/=	"
1989/90	152 Individuals	67,929,465/=	Approved but not fully disbursed.

Source:- Mr. E. Musaua, Principal Project Officer, Co-operative and Rural Development Bank.

Repayment is good but funds are limited. Resources permitting, this scheme should extend to other lake regions.

Gear Supply by Mbegani Fisheries Development Centre

Mbegani Fisheries Development Centre is a Training Institution located about 7.5 km. south of the historic Bagamoyo town. It was developed/upgraded and initially run by NORAD. The centre caters for training of artisanal operators as well as government employees for vocational, refresher, certificate and diploma courses. One of the centre's divisions is concerned with development and extension services. Between 1986 and 1989 the centre under this division, has operated a commodity supply scheme whereby small scale gear (nets, ropes, hooks etc.) were distributed to Tanga on the coast and later in Mara and Musoma regions. Fishermen paid cash but the prices were generally lower than the market prices. Funds for this scheme are reportedly exhausted.

Other major sources of gear supply are the private sector and Tanzania Fisheries Development Co-operation. In 1987, the Government of Tanzania initiated a National Export Drive Incentive Programme whereby importers were allowed to retain 50% of their foreign exchange earnings to operate their businesses. TAFICO, which largely exports shrimps used 25% of the retention money to import fishing inputs for artisanal fishermen. The quantities imported remains small due to lack of foreign exchange. (See the appended revised list for 1990/91, Appendix III).

The ex-factory prices as indicated on price list No.2 for Tanzania Fishnet Industries and price list No.3 for Mwanza Fishnet Manufacturers do not seem to differ significantly. More so as list No.3 (Mwanza) is for year 1989 (see Appendix IV and V).

4.2.3 Mechanization

In Tanzania in 1987 the total number of mechanised fishing boats were 17,988 vessels operating in fresh water and 3,595 in marine. There was a total of 660 outboard engines: 415 for fresh water and 245 for marine. There was a total of 113 inboard engines: 48 operating on the lakes and 65 on the ocean. There were 8 commercial trawlers and 7 commercial purse seiners operating in fresh water and a total of 19 trawlers and purse seiners fishing on the Indian Ocean. (The foreign exchange situation has not drastically improved for the last two years and it is therefore safer to assume that mechanisation of the artisanal fisheries in Tanzania will remain extremely low (between 5% and 10%).

The sources of supply for the outboard engines have mainly been TAFICO, the Co-operative and Rural Development Bank Scheme, Mbegani Fisheries Development Centre, and the private sector. Inboards have been mainly supplied through the Dutch-financed Pasiansi Boatyard in Mwanza.

4.2.4 Supply of Fishing Boats

The lake shore traditional boat builders remain the major suppliers of wooden boats for artisanal fishing and transport. These boat builders have been able to improve gradually on their designs and quality of construction especially around Mwanza area through the influence of the Departmental Boatyard and the attraction of qualified boat builders from Mwanza boatyard who have reinforced their skills.

Tanzania has a number of well established boatyards at: Pasiansi, Pangani, Mwanza, Mbegani, Musoma, Liuli and Makindini. All, except Pasiansi, construct wooden hulls. Liuli on Lake Nyasa is under Roman Catholic Missionaries while the rest are either associated with or connected to the Fisheries Department. The consultant was able to visit Mbegani, Pansiansi and Mwanza boatyards during the mission. Remarks made will be limited in some detail to these three.

Mbegani Fisheries Development Centre operates a training boatyard which offers three basic courses namely a 2 year certificate course and a 3 year diploma course in wooden boat construction. A certificate in carpentry and joinery is a pre-requisite for admission to the certificate course in boat building. Four types of crafts are being constructed at the boatyard:

i) 16 ft. out rigger canoe - (Ngalawa), single chine, which costs Tshs.70,000/=
ii) 20 ft. hard chine boat which can take an outboard engine at a cost of Tshs.400,000/=
iii) 24 ft. hard chine which can use sails, inboard or outboard engines costing Tshs.600,000/=
iv) 28-32 ft. 'Masua' with either 32-56 Hp. inboard engine. Its cost depends on whether it is open, or with a wheel house and cabin. It ranges from Tshs.1.2-2.0 million. These quotations do not include the cost of engines.

The timber commonly used is Pterocarpus angolensis (Muninga). The boatyard is undertaking research on alternative types of non-traditional timber in boat construction and on improving traditional boat building techniques. The design and workmanship of boats at Mbegani were excellent and finances have not been a problem with NORAD funding. Fears were expressed in some quarters on the future financing of the centre once NORAD pulls out completely (presumably by the end of 1990). A recommendation should be to regionalize the centre under SADCC if the centre is to continue operating without financial constraints.

Mwanze Boatyard:

Mwanza boatyard, located on the shores of L. Victoria, is very well run but faces financial problems especially with regard to the mechanisation of the large boats and small trawlers that are in great demand in the area. The boatyard is concentrating on constructing single chine flat bottom boats, single chine V-bottom boats and trawlers ranging from 7.6 metres to over 11 metres L.O.A. The yard can build these canoes but it is unable to compete with traditional boat builders.

At the time of the mission, 3 trawlers of 11 metre and of one 8.7 metres were under construction. Of the four trawlers, only one had an inboard engine ready to be installed. Two other smaller boats (6m and 4.5m) were, at the time of the visit, also under construction. The workmanship was excellent. The heavy duty machinery was in good order but the management complained of lack of operational funds (now most customers provide their own materials) and foreign exchange for the purchase of equipment and importation of inboard engines. The boatyard lacks portable hand power tools.

Pasiansi Boatyard - Mwanza

Construction of the above boatyard started in 1983 under TAFICO with Dutch aid which still provides technical and administrative support. It specialises in steel hull construction. Last year (1989), it constructed one cargo boat and one 13 metre trawler, all for separate individuals. The yard has orders up to next year which include:

- 2 ferries of 300 tons dead weight each;
- 1 15 metre research vessel for TAFICO; and
- 2 patrol boats for coast guards (Tanzania Government).

Although the boatyard is capable and has designs for artisanal fishing vessels, orders have not been forthcoming and it has never constructed an artisanal fishing vessel. This might be due to non-aggressive salesmanship coupled with the Fisheries Department's failure to popularise steel hull boats through extension services, or it might be attributed to the comparative prohibitive cost of the hull. The management was of the view that the Department had not popularised their boats.

It is difficult to illustrate the economic justification of use of steel hulls. This needs to be investigated. Personal experience on L. Albert has shown that gill netters used by the Greeks and confiscated in the early sixties (after 30 years) are still in sound condition in spite of poor maintanance. The utility (longevity) of the steel hull might in the long term outway the prohibitive initial cost especially in fresh water.

The healthy financial position of Pasiansi was reported since, under Dutch aid, raw materials, inboard engines and other equipment were readily funded. The Netherlands assistance will soon be finishing and arrangements for future co-operation between Pasiansi and one of the Dutch companies was being considered.

4.2.4 Recommendations

(a) It is recommended that funds be sought for rehabilitation and full operation of the two fishnet manufacturing plants for the eventual supply of fishing gear for the domestic market and export.

(b) Management and future funding of the wooden boatyards now under the Department but not being fully utilised be carefully examined with a view to making them less dependent on the Government budget and more productive.

(c) Expansion of present research and development of alternative construction materials (e.g. fibreglass) and wind propulsion systems should be undertaken.

(d) Effort should be made to have artisanal fishermen benefit from the presence of the Pasiansi boatyard. Tanzania has a well qualified local naval architect who should be utilised to design suitable steel hull boats for use in the small scale fishery.

(e) Activities of the Rural Farmers Scheme operated by the Co-operative and Rural Farmers Scheme should be financially supported to cover other lake regions.

(f) The fisheries sector should, along with other agricultural sectors, enjoy its due share of foreign exchange.

(g) A nationwide survey of non-operational outboard engines should be undertaken with the view to importing spare parts for their repair so that the level of mechanisation is improved.

(h) Fishermen should be taught hand braiding so that they can utilise their spare time to make nets of their choice once twines are provided. In Mwanza, threads of old tyres were being used to braid nets which would suggest that the fishermen have the basic skills necessary.

4.3 Fishing Technology in Uganda

4.3.1 Fishing Gear

The major commercial fishing gear used in Uganda by artisanal fishermen are gill nets, hooks, traps and weirs. Beach seines, poison, and explosives although sometimes employed, are illegal (Joint Fisheries Survey Report A.F.R.P. and UFFRO, April 1990).

The authorised gill nets range in size from 2 ply X 2.5" to ply - 15" mesh. In L. Victoria and L. Albert bigger meshes may be hand braided for the capture of Nile perch (Lates niloticus and L. n. albathianus) although generally hand braiding is more common on Lake Albert. The small mesh nets are mainly used for catching Alestes spp. and Hydrocynus spp. which are the major commercial species in Lake Albert. The medium sized nets catch Oreochromis spp., Tilapia and Synodontis schall etc. while the larger mesh nets are used to catch Bagrus spp., Lates sp, and the large Oreochromis niloticus. The latter has become relatively abundant in L. Victoria and is reportedly recovering from distress (overfishing) in L. Kyoga (ADP/World Bank survey findings).

It has been observed that canoes using gill nets might be smaller than 10% of the total fleet. (A.F.R.P./UFFRO Fishery Survey April, 1990). The ability to catch by small ply nets is reported to be high: a factor which favours most of the nets imported from Korea, Taiwan, China and Indonesia. (Personal communication from Mr. Levi Oluka, a fish dealer at Kasenyi). However, nets from Uganda Fishnet Manufacturers Ltd. are the most popular nets with the fisherfolk, which, according to Mr. Deo Mukiibi a Senior Officer in the Department and Mr. Levi Oluka (referred to above), is attributed to a number of factors such as:

i) The quantity of yarn, twist of the twine and good uniform net webbing;
ii) Durability;
iii) Colouring - (the common ones from the factory are white, blue and yellow); and
(iv) Patriotism on the part of the fishermen.

The A.F.R.P./UFFRO joint survey 1988, reports that the life span of the gill nets vary from 6 months to 12 months a range accepted by the Fisheries Department. The heavy twine gillnets constantly in use have been known to last about 24 months (personal communication with Mr. Patrick Mungi - a fisherman at Bugonga fish landing station near Entebbe). While the longevity of the nets may be directly related to the twine (ply) size, the A.F.R.P./UFFRO - 1990 survey found a strong correlation with mending of nets.

It is reported that on L. Wamala, where only 10% of the fishermen mend their nets, the nets' life expectancy was 6 months and on L. Albert, where 68% of the fishermen mend their nets, the average life expectancy was reported to be over 1 year. The popular size of nets is different in each case: small ply for L. Wamala and bigger ply for Lake Albert. While this phenomena could be attributed to lack of know how, it would be worthwhile finding out whether the economics do really justify the mending of nets.

Although seine nets remain banned, a frame survey conducted by the Planning Department (Ministry of Animal Industry and Fisheries 1988) on behalf of EEC/A.F.R.P. reported that 460 seine nets were in operation between 1988 and May 1989. This fishing method is very popular with the fishermen because of its effectiveness and the fact that the nets are not prone (like gillnets) to theft which remain most of the time unattended. It is suggested that the management (i.e. Department of Fisheries) could, together with research (undertaken by UFFRO), find a compromise by: enforcing/recommending an optimum code end (bag) mesh size; and restricting the use of the gear to certain areas which are not considered to be breeding grounds. Tanzania has established closed seasons. Alternatively due to surveillance problems the Fisheries Department could consider a total ban of beach seining.

The fishery of Rastrineobola sp. inevitably necessitates the use of either mosquito seine nets or lift nets (used at night in conjunction with light attraction). The latter method must be developed and encouraged in Uganda once circumstances in the country permit the lifting of the ban on night fishing.

Long lining and the general use of hooks is not at the moment being extensively used to exploit Nile perch in Ugandan waters. The EEC/A.F.R.P. Fishery Survey (1988-May 1989) estimated that only 132,000 hooks were being employed in the industry. This method of fishing should be promoted by the Department through research, upgrading the present skills of operation (especially rigging) and popularising the use of the now locally manufactured hooks.

4.3.2 Demand and Supply

As already indicated, the national requirement for polyamide gill nets is not certain. The sample survey carried out by UFFRO/A.F.R.P. estimated the number of nets being used at any given time to be less than 200,000 units, and the annual requirement to be 250,000 nets. The Department estimated however that, in view of current developments and given the establishment of processing plants (now three in all, with two recently commissioned), the national requirement of gill nets will be in the region of 1.2 million pieces of assorted sizes. This would represent approximately 640 tons of (webbing, twine and cord) polymide.

The present supply which is considered inadequate has been mainly from the following sources:

i) Uganda Fishnet Manufacturers Ltd.;
ii) barter trade;
iii) loans and grants;
iv) Rural Farmers' Scheme of Uganda Commercial Bank; and
v) private importers.

Uganda Fishnet Manufacturers Ltd.

The factory located in Kampala is the sole local producer of fishing nets, twine and cord. The company is a parastatal body under the Ministry of Industry and Technology. It started in 1965 as a private limited liability company with 55% of the shares being held by the Abdulla family, 255 of the shares by the Uganda Development Corporation, and the remainder by individuals including the 7% still owned by UNITIKA.

The plants' installed capacity is 550,000 pieces (i.e. 310 tons) per annum but due to the age of the machinery, lack of spare parts and restricted foreign exchange for the purchase of raw materials, the plant can only produce approximately 50,000 pieces per annum (Appendix VI). The sources of raw material depends on the competitive price offered, but essentially they are from the Far East, especially Japan, South Korea and Taiwan.

Since 1984, the company claims that it has been operating profitably and maintains a sound liquidity position despite the ageing state of some of its machinery. In addition, the company is not leveraged at all, i.e. it has no outstanding long term loans. The annual balance sheet of audited accounts shown to the consultant would seem to confirm the company's apparent healthy financial position.

The major bottlenecks are:

- lack of spares for most of the old machinery (1963 model);

- lack of funds (foreign exchange) to import raw materials and spare parts;

- unfair competition from either tax free inputs provided by the Ministry (which come under various forms of grant or long-term loan schemes) or importers who evade taxation (smugglers);

- the present status of the company, since the Government signed a Memorandum of Understanding with some of the owners of the Departed Asian Properties, it is not clear as to whether the Abdulla family intends to claim back the factory. The company cannot therefore attract any substantial credit until the ownership problem is resolved. It is understood that the African Development Bank (through the East African Development Bank) is seriously considering financing the fishnet factory but the above problem remains a major handicap. (Personal communication with Mr. F. Tibeita, E.A.D.B.)

- The factory has to pay the following taxes:

  (a) 10% sales tax on raw materials;
  (b) 10% Import Duty; and
  (c) 10% sales tax on final products. (This is normally passed on to the customer).

Immediate plans are to replace:

- 14 sets of fishing net making machines - single knot;
- 4 sets of fishing net making machines - both single and double knots;
- 29 sets of bobbin winding machines;
- 18 sets of resining systems; and
- An assortment of spare parts for the fishing net machines.

The long term plan is to expand so that the factory can meet nearly all the national demands. The quality of the nets and twine is good but pricing, as indicated later, remains uncompetitive.

Fishing Nets Supply Under Barter Trade

The Ministry of Commerce issues out licences to some fishing gear suppliers who have the capacity to import. This policy will remain so as long as local production does not meet the domestic demand. The importer has however to pay 1% commission C.I.F. value to off-set the cost of documentation. Under the barter trade arrangement, a total of 10,950 pieces of fishing nets had been imported by individuals between January and July 1990, mostly from Zaire. The prospects of this arrangement continuing and expanding appear good.

Fishing Nets Supply under Loans and Grants:

The Agriculture Rehabilitation Programme (IFAD) supplied the following fishing inputs to northern and eastern L. Kyoga, in the period 1983-1984:

- Assorted fishing nets	178,000	pieces
- Twine of all sizes	550,000	spools of 603
- Cords	300,000	spools of 1203
- Floats (cork)	2,000	units
- Sinkers (lead)	2,000	units
- Seine nets for fish ponds	5,000	metres (most of them remain unsold because of the ban on seining)
- Ropes		500 metres

The second phase of the above programme, which again is operational in the northern and eastern part of L. Kyoga but now extended to the southern shores of the Lake (Code-named Agriculture Development Programme (A.D.P.) is

being financed by the World Bank. By September 1990 it is expected to bring into the programme area the following:

- Fishing nets 68,000 pieces
- Twine and cord 551,000 spools

The Artisanal Fisheries Rehabilitation Programme which was funded by an EEC grant provided the following inputs for sale during the period 1987/89 period.

- Fishing nets (assorted sizes) 60,000 pieces
- Twine, cord, rope and corks

At the time of the assignment, the following items were awaiting distribution (sale) through the Uganda Commercial Bank (Rural Farmers' Scheme):

- 3" to 8" mesh size nets of different ply totalling 47,000 pieces
- 210/4, 210/6, 210/9, 210/12, 210/24,
- 210/35, 210/48, 210/52 twine and cord totalling 22,668 bobbins

The consultant was informed by the co-ordinator of the programme that the inputs would be sold at an average of 30% below market price.

Fishing Gear Supply Under the Rural Farmers Scheme

The above is an on going credit scheme under the Uganda Commercial Bank and is administered by local branches. Fishermen obtain a package of 50 to 60 pieces of nets, enough twine, cord and corks to mount them, and an outboard engine. The repayment period is from six to twelve months at an interest rate of 40% instead of the usual commercial rate of about 50%. In the fisheries sector the target group are the small scale artisanal fishermen. The sector boasts over 90% repayment rate which is an excellent record of recovery and the bankers are well satisfied. The scheme is handicapped by lack of funds to operate on a large scale. It has so far distributed about 300 outboard engines ranging from 6.6 - 55 Hp. and a substantial number of nets, twine and cord.

Fishing Gear Supply by the Private Sector

As mentioned earlier, private importers are licensed to supply nets by the Ministry of Commerce. Figures from the Ministry indicated that, by July 1990 apart from importation under barter trade arrangements, licences had been issued to import the following fishing gear:

- 6564 pieces of net from Korea;
- 1000 kgs polymide from Taiwan and a substantial quantity (figure not available) from Korea.

Substantial quantities of nets and twine also appear to be coming into the country unrecorded. A visit to Kasenyi fish landing station revealed the source of supply of fishing nets and twine on sale to have been:

- China, Indonesia, Japan, Korea, Kenya (Kisumu) Tanzania (Dar-es-Salaam and Mwanza) and Zaire (Kinshasa).

The quality of the nets in the country supplied under the various schemes was generally good, save one batch under Rural Farmers Scheme which, according to Mr. Kabaalu David of Kasenyi, had the sizes of the ply confused, the nets had running knots, they only had a single salvage line, and because of soft twisting of the yarn weak webbing was presumed.

The following table gives comparative pricing. It would appear with taxation relieved, Uganda Fishnet Manufacturers Co. Ltd. would be in a position to compete on the open market.

COMPARISON OF PRICES

All nets should be assumed to be 26 meshes deep and 90 metres long.

Mesh Size	Uganda Fishnet Ex-factory price (Appendix VII)	Retail with 10% S. Tax	Nile Fishing Co. Retail price (App. VIII)	Kasenyi fish landing price
2 ply X 4 2 ply X 4.5	3,200.00	3,250.00	3,000.00	
3 ply X 2.5 3 ply X 3 3 ply X 4 3 ply X 5	4,850.00	5,335.00	4,000.00 4,500.00 4,500.00	5,500.00 - 6,500.00
4 ply X 4 4 ply X 4.5 4 ply X 5 4 ply X 6	6,300.00	6,930.00	5,000.00	7,500.00 - 7,800.00
6 ply X 4.5 6 ply X 6	7,450.00	8,195.00	7,000.00	8,000.00 - 9,000.00
8 ply X 6	-		-	10,000.00
9 ply X 4.5 9 ply X 6 9 ply X 7 9 ply X 8	11,350.00	12,485.00	12,000.00 10,000.00	14,000.00 15,000.00
12 ply X 8	14,900.00	16,390.00	14,000.00	16,000.00 - 18,000.00

It is the view of the consultant that the private sector and the local factory are in a position to supply nets and twine for the industry. It is recommended that nets imported by loans or grants be kept to the minimum to benefit the really poor fishermen who are often not served due to remoteness by the private sector. Pricing however should be kept as near as possible to the market price in order to protect local industry and minimise temptation of re-export by unscrupulous businessmen.

Local Fishing Hooks Manufacture

Afro Engineering Ltd., a locally incorporated company in Uganda is manufacturing fish hooks. According to the Manager, Mr. Alan Tulip, the production line is capable of manufacturing any size of hook and has the capacity to turn out 2,000 hooks per day. He reports having problems with marketing the hooks because the fishing community in Uganda is more gillnet oriented and has a bias towards using white shiny hooks.

Afro Engineering has so far been able to sell their products in the West Nile, on the northern shores of L. Albert, the River Nile as well as to Lakes Edward/George area. The factory is capable of expanding its production output, once there is a demand, to meet national requirements and even have surplus for export. It is strongly recommended that the Department research and develope the current methods of long line rigging through extension work to popularise long lining and use of hooks in Uganda.

Taxation of Nets

The following taxes are imposed on imported raw materials or finished products:

- 10% sales tax on yarn and raw materials;
- 10% import duty; and
- 10% sales tax on finished products.

The latter is invariably passed on to the customer. Some unscrupulous businessmen are able to evade taxes and undersell the locally manufactured fish nets.

It is the consultant's strong recommendation that the taxes be eased if not removed as is the case with production inputs in the crop sector. This will not only reduce prices thus giving impetus to fish production but also remove unfair competition which the Uganda Fishnet Manufacturers now face from unscrupulous private importers and from the heavily subsidised fishing gear imported by the Government under aid schemes, whose fishing gear is usually exempted from taxation.

Alternatively, a small tax may be imposed on imported gear once locally produced gear is not available in sufficient quantities to meet local demand.

4.3.3 Boat and Boat Building in Uganda

The fleet of fishing boats in Uganda, in spite of the long history of training in modern boat construction, is predominantly the Ssese canoe, the planked congo barque and for the middle and northern part of L. Albert, the double chine Kabalega type introduced during the late 50's (Gooding 1969). All save the last are constructed by untrained boat builders. According to the Ministry's survey (1988 - May 1989) 10,168 planked boats and 1,872 dugouts were in use. The Department however estimates the national figure for the number of fishing boats to be 26,000. The number of boat builders is estimated to be 514 (Ministry of Animal Industry and Fisheries 1988/89).

The Congo Barque is a design from Zaire introduced from Kasenyi to replace traditional dugouts. They are heavy, slow and generally unseaworthy (Cadwalladr - 1970, J.E. Reynolds February 1990)

The Ssese canoe are made in various sizes, with the larger types used for fishing and transport as they lend themselves easily to mechanisation. The transom however, is generally of weak construction and has been a cause of fatal accidents during rough weather. The Department has come up with numerous designs and modifications of the Ssese canoe in an effort to improve on their performance (safety at sea, manoeuvrability etc.) but these designs have not caught on due to their high cost of production. The fishermen in general still prefer the cheaper and lighter traditional makes. It should be noted that the beach boat builders have also gradually been improving on the hygiene, safety and and production quality of the boats. However, the designs now used for wooden hulls are extremely wasteful of scarce timber resources.

The Fisheries Department has two operational boatyards: the Fisheries Training Yard and another one for the department's boat construction, repair and general woodwork. Both are generally well equipped but operate very much under capacity due to lack of sufficient operational funds. The Fisheries Training Institute boatyard will soon have a slip way and will be used to repair the research vessel M.V. Ibis under EEC funding. It is currently constructing 10 fibreglass canoes of a new design under the supervision of the FAO/UNDP - Fisheries Statistics and Information Systems project - UGA/87/007.

The Department also has commercial boatyards located at Bugondo on L. Kyoga, Katwe on L. Edward, and Wanseko on L. Albert. All of these are virtually non-operational due to lack of funding, equipment and staff.

The Societa Internazionale per la Cooperazione e lo Sviloppo S.I.C.S. of Pudua (Italy) under an agreement signed on 30th October, 1984 between the governments of Uganda and Italy, was appointed to implement a programme of boat building, yard and landing pier construction at Masese (Jinja). This project has lately been revived (17th February, 1990) after being suspended in 1985.

Once constructed, the boatyard will be capable of producing wooden, steel and fibreglass hulls. While this project offers the country alternatives with regard to future boat building development, it is strongly advised that the experts in the Department determine the suitability, quality and relevance of the finished hulls being imported complete and approve the machinery provided for future operation of the complex.

Victoria Equipment, a locally incorporated company is manufacturing fibre glass canoes as well as pleasure boats. Their output is small due to presumably limited demand.

4.3.4 Mechanisation

Mechanisation on Uganda waters is now estimated at 11% of the fishing crafts and transport boats (MAIF - 1989). Although small it is nevertheless quite significant when compared to its two neighbouring countries.

The relatively high percentage of mechanisation is due to the constant supply of outboards by the Government through aid programmes. For example:

In 1983-84, 255 units were imported under the International Fund for Agricultural Development Programme as follows:

- 120 of 6 Hp.;
- 75 of 10 Hp.;
- 40 of 15 Hp.; and
- 25 of 20 Hp.

In 1986/87 under Artisanal Fisheries Rehabilitation Programme:

- 500 of assorted sizes.

In 1989 under Agriculture Development Programme (A.D.P.):

- 30 of 25 Hp.;
- 100 of 15 Hp.;
- 2 of 5.9. Hp.;
- 2 of 25 Hp.; and
- 2 of 40 Hp.

It is expected that in 1991/92, the (A.D.P.) programme will import:

- 20 units of 25 Hp.; and
- 60 units of 15 Hp.

The following importers are also licensed to deal in outboards:

- Gailey and Roberts - (Johnson/Mercury)
- Cooper Motors - (Johnson/Evinerude)
- Cycle Mart Ltd. - (Suzuki/Yamaha)
- Nile Fishing Company - (Marina, Yamaha and Johnson)
- Victoria Industries - (Marina Models)

No actual figures of units imported could be obtained from the dealers (save the Nile Fishing Company who claimed to have so far handled 200 units this year). However, given the required foreign exchange, there is no doubt that Uganda has potential private importers who are capable of providing after sales service. The Department estimates the annual requirement of the industry to be 1,850,000 units, the bulk of which should be in the range of 6.5 to 15 Hp.

A sample carried out by the Department's marine engineer 1987 (personal communication with Mr. James Wasukira) revealed that the average age of outboard engines was 3.2 years, although 8 year old engines were found to be operational. The same survey found that, out of 22 engines reported out of order, 16 were technically repairable. 141 mechanics operate on the beaches (M.A.I.F. 1988/89) but lack of spares is a major constraint. A countrywide survey of redundant outboard engines is recommended in order to establish the number of machines repairable, and the funds found to import the required spares. The consultant is of the view that such an exercise would save the country considerable foreign exchange in importing new machines. Short courses in engine operation, maintenance and trouble shooting should be organised for operators and mechanics by the Government in conjunction with importers. Such courses should be mandatory for those acquiring engines under credit schemes.

4.3.5 Recommendations

Among the recommendations made, emphasis should be placed on the following:

(a) Priority be given to Uganda Fishnet Manufacturers to complete rehabilitation and increase production to full operation.

(b) The subsidy of importation and sale of fishing gear be kept to the minimum to meet special situations.

(c) Economics of mending vis-a-vis not mending nets be studied and fishermen be advised accordingly.

(d) Exploitation of Rastrineobola be encouraged and advantage be taken of available local expertise (Tanzania), through study tours and consultancies on relevant gear fabrication and operation.

(e) The Rural Farmers Scheme be expanded and given the funding it badly needs.

(f) Survey and funding of repair of outboard engines, now redundant, be undertaken.

(g) Popularisation of longlines be undertaken as an alternative fishing method for Lates spp. in order to take advantage of the local hook manufacturing factory.

(h) Study of the boat building industry in a regional context be undertaken to:

i) establish how the present boatyards can be best managed, funded and utilised;
ii) recommend improved designs of boats for the various water bodies and develop the use of new materials and propulsion systems (including wind);
iii) assess the contribution of untrained boat builders to the industry and how best they can be assisted to improve on their designs and skills through extension services and workshops;
iv) recommend the future direction of the boat building industry in Uganda and the region at large.

(i) Encourage import of gear under barter trade.

(j) Relieve taxation on imported raw materials and fisheries inputs.

(k) Improve allocation of foreign exchange required for purchase of spares, equipment and raw materials related to manufacture and provision of fisheries inputs.

5. GENERAL RECOMMENDATIONS

Relevant recommendations have been made for the individual countries under the issues reviewed. The following are recommendations of a general nature:

1. Each country should endeavour to have a clear inventory of fish stocks and take measures to gather accurate data, catch/effort statistics and information so as to minimise the margin of error in proper planning for the industry.

2. Each country must ensure sufficient foreign exchange allocation for fisheries inputs i.e. high priority should be accorded to acquisition of tools for production.

3. A review of excessive import duties and sales tax, VAT etc... on raw materials and fishing inputs should be undertaken with a view towards minimising or abolishing them.

4. Funds should be procured for rehabilitation of existing fishing net factories.

5. Encouragement of inter-regional trade, bilaterally or through a P.T.A. clearing house system should be made in the case of countries which have installed capacities of production of fisheries inputs in excess of their national requirements.

6. Introduction or improvement of gear for the economic harvest of Rastrineobola and Lates should be undertaken on a regional basis through study tours and/or consultancies.

7. A survey of non-operational outboard engines which could be repaired through importation of the necessary spare parts should be undertaken, funds procured and repairs made instead of continuously importing new machines.

8. It is recommended that studies be undertaken to establish the improved economic utilisation and future management of existing boatyards in each country.

9. Sail propulsion is a seriously neglected aspect of small craft development. Greater reliance on wind could yield considerable foreign exchange savings and reduce dependence on imported O/B engines, which are unreliable.

10. There is need to promote better and more cost effective small craft design and construction, incorporating efficient sail rigs wherever possible.

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Appendix I

TERMS OF REFERENCE FOR THE COMMITTEE ON FISHERIES EXPLOITATION IN UGANDA

1. Clearly define the function of Government vis-a-vis the private companies and the Parastatal bodies in the development of the fishing industry.

2. Examine and take note of the available population sizes of fish stocks of the various bodies of water in the country.

3. Determine and recommend the required measures to obtain accurate information on population sizes of fish stocks of the various bodies of water in the country.

4. Examine and recommend on the present levels of investments in the fisheries sector.

5. Determine and recommend on the nature and capacities (levels) of future investments in:

   (a) Fishery exploitation
   (b) Fish processing
   (c) Fish marketing

6. Examine fish export potential and recommend on its possibilities and limits.

7. Examine possible sources of funding fisheries research from the industrial fisheries enterprises.

8. Formulate and recommend guidelines for the prevention of pollution of aquatic environment.

9. Examine the existing fisheries regulations and recommend amendments where necessary.

10. Submit a technical report of your recommendations to the Hon. Minister of Animal Industry and Fisheries within a period no exceeding 90 days.

MINISTRY OF ANIMAL INDUSTRY & FISHERIES
P.O. BOX 7003
KAMPALA

27-11-1989

Appendix II

TANZANIA FISHNETS INDUSTRIES LIMITED

SALES PLAN FOR 1990

PRODUCT	PRODUCTION PCS.	PRODUCTION KGS.	YEAR END STOCK PCS.	YEAR END STOCK KGS.	SALES PCS.	SALES KGS.	PRICE	ANNUAL VALUE TSHS.	MONTHLY PCS.	MONTHLY KGS.	MONTHLY VALUE TSHS.
GILL NETS											
210D/2 x 26 x 45 C	97,704	13,670.56	24,426	3,420	73,278	10,250.56	475	34,807,050.00	6,106	854.88	2,900,350.00
210D/2 x 26 x 90 C	9,501	2,565.27	2,375	641	7,12[illegible]	1,924.27	950	6,769,700.00	594	160.36	564,300.00
210D/2 x 26 x 45 F	-	-	-	-	-	-	-	-	-	-	-
	107,205	16,243.83	26,801	4,061	80,404	12,182.83		41,576,750.00	6,700	1,015.24	3,464,650.00
210D/3 x 26 x 90 C	38,137	15,[illegible]36.17	9,534	3,909	28,[illegible]03	11,727.17	1,380	39,473,140.00	2,383	977.26	3,289,340.00
210D/4 x 26 x 45 C	5,070	1,821	1,517	379	4,553	1,138	960	4,370,880.00	379	94.92	363,840.00
210D/4 x 26 x 45 F	-	-	-	-	-	-	-	-	-	-	-
210D/4 x 26 x 90 C	3,069	1,749.33	767	437	2,302	1,312.33	1,830	4,212,[illegible]30.00	192	109.36	351,360.00
	8,139	3,570.33	2,284	816	6,855	2,450.33		8,583,540.00	571	204.28	715,200.00
210D/6 x 26 x 45 C	3,316	1,525.36	829	381	2,487	1,144.56	1,475	3,[illegible]80,325.00	207	95.33	305,325.00
210D/6 x 26 x 45 F	1,580	1,374.60	395	344	1,185	1,030.60	1,655	1,[illegible]75,025.00	99	85.88	164,835.00
	4,896	2,899.96	1,224	1,949	3,672	2,174.96		5,641,350.00	306	181.21	470,160.00
210D/9 x 26 x 45 C	2,274	1,591.80	568	398	1,706	1,193.80	1,850	5,156,100.00	142	99.48	262,700.00
210D/9 x 26 x 45 F	69	51.75	17	13	52	38.75	2,080	100,150.00	4	3.23	8,320.00
210D/9 x 26 x 90 C	2,014	2,610.20	503	654	1,511	1,956.20	3,440	5,197,840.00	126	163.68	433,440.00
	4,357	4,251.75	1,088	1,065	3,269	3,196.75		8,452,100.00	272	266.39	704,460.00
210D/15 x 26 x 45 F	522	678.60	130	169	392	509.60	3,440	1,348,480.00	33	42.47	113,520.00
210D/15 x 26 x 45 C	3,039	3,646.80	760	912	2,279	2,734.80	3,030	6,905,370.00	189	227.90	572,670.00
210D/15 x 26 x 90 C	399	917.70	99	229	300	690.70	5,805	1,741,500.00	25	57.39	145,125.00
	3,960	5,243.10	989	1,157	2,971	3,933.10		9,995,350.00	247	327.76	831,315.00
210D/18 x 26 x 45 C	1,407	2,110.5	352	528	1,055	1,582.5	3,970	4,188,350.00	88	396.00	349,360.00
	169,101	49,965.64	42,272	14,126	126,829	38,455.14		117,920,580.00	10,567	3,368.14	9,824,485.00
BEACH SEINE NETS											
210D/4 x 130 x 135 F	114	570	28	142	86	428	16,645	1,431,470.00	7	10.67	119,289.00
210D/6 x 130 x 135 F	208	1,560	52	390	156	1,170	22,640	3,531,840.00	13	97.50	294,320.00
210D/6 x 130 x 165 D	40	304	12	96	38	288	23,160	833,760.00	3	24	69,480.00
210D/9 x 130 x 135 F	132	1,584	33	396	99	1,188	26,475	2,621,025.00	8	99	218,420.00
210D/9 x 130 x 165 C	7	119	2	30	5	89	31,760	150,800.00	1	7.42	13,230.00
210D/9 x 130 x 135 C	41	410	10	102	31	308	26,160	810,960.00	3	25.67	67,580.00
	550	4,627	137	1,156	415	3,471		9,387,855.00	35	264.26	782,379.00

Appendix IIIa

TANZANIA FISHERIES CORPORATION

FISHING GEARS AND EQUIPMENTS - REVISED LIST FOR ARTISANAL FISHERY ASSISTANCE SCHEME. 1990-1991

ITEM NO	PARTICULARS				QUANTITY
	A. * NYLON GILLNETS (ENGLISH KNOT)				
	* THICKNESS	MESHSIZE	WIDTH	LENGTH	PIECES
1.	210d/2ply	76.2 mm	26 md	45 mtrs	500
2.	210d/3ply	76.2 mm	26 md	45 mtrs	1000
3.	210d/3ply	76.2 mm	26 md	45 mtrs	500
4.	210d/3ply	76.2 mm	26 md	45 mtrs	250
5.	210d/6ply	76.2 mm	26 md	45 mtrs	250
6.	210d/9ply	76.2 mm	26 md	45 mtrs	250
7.	210d/18ply	152.4 mm	26 md	45 mtrs	250
8.	210d/30ply	152.4 mm	50 md	145 mtrs	100
9.	210d/36ply	127.0 mm	50 md	145 mtrs	250
10.	210d/36ply	152.4 mm	50 md	145 mtrs	250
	B. NYLON SEINE NETS- ENGLISH KNOT				
1.	210d/9ply	19 mm	1200 md	100 mtrs	30
2.	210d/18ply	19 mm	1200 md	100 mtrs	30
3.	210d/24ply	19 mm	1200 md	100 mtrs	25
4.	210d/4ply	36 knot per 6"	540 md	54 mtrs	20
5.	210d/6ply	36 knot per 6"	540 md	54 mtrs	20
6.	210d/8ply	36 knot per 6"	540 md	54 mtrs	16
	C. ROPES 3 STRANDS POLYSTER				
1.	Ropes: 4 mm medium laid 200 mtrs coil				100
2.	6 mm medium laid 200 mtrs coil				100
3.	10 mm medium laid 200 mtrs coil				100
4.	18 mm medium laid 200 mtrs coil				10
	D. TWINE: NYLON				
1.	210d/2ply	in procision spool of	200 grs		600 spools
2.	210d/3ply	-do-	200 grs		1000 "
3.	210d/4ply	-do-	200 grs		200 "
4.	210d/9ply	-do-	500 grs		200 "
5.	210d/15ply	-do-	500 grs		100 "
6.	210d/18ply	-do-	500 grs		100 "
7.	210d/6ply	-do-	500 grs		100 "
8.	210d/24ply	-do-	500 grs		100 "
9.	210d/30ply	-do-	500 grs		100 "
10.	210d/36ply	-do-	500 grs		100 "

Appendix IV

TANZANIA FISHNETS INDUSTRIES LIMITED

TEL: 48341 & 49071

P.O. BOX 21005
DAR ES SALAAM

PRICE LIST NO.2 OF 1990 FOR LOCALLY MANUFACTURED NYLON FISHING NETS AND ACCESSORIES

Our esteemed customers are hereby informed that all previous price lists issued by us are hereby cancelled and the following prices will be effective from 1st July 1990. This has been necessitated by re-introduction of customs duty on raw materials and the fall of the shilling in relation to the US Dollar.

		WHOLESALE PRICE PER PIECE
A:	NYLON GILL NETS	
	210D/2PLY x 25MM TO 44MM x 26MD x 45MTRS.	SHS. 620.00
	210D/2PLY x 50MM & OVER x 26MD x 45MTRS.	570.00
	210D/2PLY x 50MM & OVER x 26MD x 90MTRS.	1,140.00
	210D/3PLY x 50MM & OVER x 26MD x 45MTRS.	835.00
	210D/3PLY x 50MM & OVER x 26MD x 90MTRS.	1,670.00
	210D/4PLY x 50MM & OVER x 26MD x 45MTRS.	1,150.00
	210D/4PLY x 50MM & OVER x 26MD x 90MTRS.	2,300.00
	210D/6PLY x 25MM TO 44MM x 26MD x 45MTRS.	2,000.00
	210D/6PLY x 50MM & OVER x 26MD x 45MTRS.	1,770.00
	210D/6PLY x 50MM & OVER x 26MD x 90MTRS.	3,540.00
	210D/9PLY x 25MM TO 44MM x 26MD x 90MTRS.	2,495.00
	210D/9PLY x 50MM & OVER x 26MD x 45MTRS.	2,220.00
	210D/9PLY x 50MM & OVER x 26MD x 90MTRS.	4,440.00
	210D/12PLY x 50MM & OVER x 26MD x 45MTRS.	3,060.00
	210D/12PLY x 50MM & OVER x 26MD x 90MTRS.	6,120.00
	210D/15PLY x 25MM TO 44MM x 26MD x 45MTRS.	4,130.00
	210D/15PLY x 50MM & OVER x 26MD x 45MTRS.	3,635.00
	210D/15PLY x 50MM & OVER x 26MD x 90MTRS.	7,270.00
	210D/18PLY x 25MM TO 44MM x 26MD x 45MTRS.	5,650.00
	210D/18PLY x 50MM & OVER x 26MD x 45MTRS.	4,765.00
	210D/18PLY x 50MM & OVER x 26MD x 90MTRS.	9,350.00
	210D/24PLY x 50MM & OVER x 26MD x 45MTRS.	7,250.00
	210D/24PLY x 50MM & OVER x 26MD x 90MTRS.	14,500.00
B:	KOKORO NETS	
	210D/4PLY x 28MM x 130MD x 135MTRS.	19,975.00
	210D/6PLY x 28MM x 130MD x 135MTRS.	27,170.00
	210D/9PLY x 28MM x 130MD x 135MTRS.	31,770.00
	210D/6PLY x 50MM & OVER x 130MD x 165MTRS.	27,790.00
	210D/9PLY x 50MM & OVER x 130MD x 165MTRS.	38,110.00

Appendix IV (continuation)

C: SEINE NETS	PRICE PER PIECE WHOLESALE
210D/6PLY x 25MM x 90MD x 45MTRS.	6,635.00
210D/6PLY x 19MM x 200MD x 54MTRS.	19,035.00
210D/6PLY x 19MM x 400MD x 54MTRS.	38,035.00
210D/9PLY x 19MM x 200MD x 54MTRS.	31,260.00
210D/19PLY x 19MM x 400MD x 54MTRS.	59,290.00
210D/18PLY x 19MM x 400MD x 54MTRS.	98,460.00
210D/18PLY x 19MM x 400MD x 54MTRS.	138,750.00

D: DAGAA NETS	
210D/4PLY x 36 x 6" x 270 x 54MTRS.	27,980.00
210D/4PLY x 36 x 6" x 300 x 54MTRS.	31,250.00
210D/4PLY x 36 x 6" x 540 x 54MTRS.	55,960.00
210D/6PLY x 36 x 6" x 300 x 54MTRS.	41,990.00

E. SHARK NETS	
210D/24PLY x 152MM x 58MD x 146MTRS.	43,225.00
210D/36PLY x 152MM x 58MD x 146MTRS.	69,875.00
210D/36PLY x 152MM x 116MD x 146MTRS.	See (d)
210D/45PLY x 152MM x 58MD x 146MTRS.	
210D/60PLY x 152MM x 116MD x 146MTRS.	below.

F. POLYTHELENE TWINE	PER BUNDLE
380/18PLY x 40 x 100GRMS.	5,560.00
380/39PLY x 40 x 100GRMS.	5,560.00

G. POLYTHELENE ROPES	PER COIL
4MM	1,390.00
6MM	2,780.00
8MM	5,560.00

H. NYLON TWINE	PER KG.
210D/2PLY x 10 x 100GRMS.	2,665.00

1. COTTON TWINE	PER KG.
340/12PLY - 60PLY x 10 x 100 GRMS.	1,680.00

TERMS AND CONDITIONS

a) Strictly cash or Banker's draft with order.

b) The above prices are subject to change without prior notice and the prices to be charged will be those prevailing at the time of delivery.

c) Responsibility of the company immediately after the goods are booked with the carriers of your choice.

d) SHARK NETS will be made on special orders and prices are negotiable.

Appendix Va

MWANZA FISHNET MANUFACTURERS LTD
P O BOX 1443 MWANZA

PRICE LIST NO.3 OF 1989 FOR LOCALLY MANUFACTURED
NYLON FISHING NETS AND ACCESSORIES

Our esteemed customers are hereby informed that all previous price lists issued by us are hereby cancelled and the following prices will be effective from 11th December, 1989.

A: NYLON GILL NETS		PRICE PER PIECE
210/2PLY x 25MM TO 44MM x 26MD x 45MTRS	....	SHS: 565.00
210/2PLY x 47MM & OVER x 26MD x 45MTRS	....	515.00
210/2PLY x 47MM & OVER x 26MD x 90MTRS	....	1030.00
210/3PLY x 50MM & OVER x 26MD x 45MTRS	....	795.00
210/3PLY x 50MM & OVER x 26MD x 90MTRS	....	1590.00
210/4PLY x 50MM & OVER x 26MD x 45MTRS	....	995.00
210/4PLY x 50MM & OVER x 26MD x 90MTRS	....	1990.00
210/6PLY x 50MM & OVER x 26MD x 45MTRS	....	1585.00
210/6PLY x 50MM & OVER x 26MD x 90MTRS	....	3170.00
210/9PLY x 50MM & OVER x 26MD x 45MTRS	....	2160.00
210/9PLY x 50MM & OVER x 26MD x 90MTRS	....	4320.00
210/12PLY x 50MM & OVER x 26MD x 45MTRS	....	2880.00
210/12PLY x 50MM & OVER x 26MD x 90MTRS	....	5760.00
210/15PLY x 50MM & OVER x 26MD x 45MTRS	....	3025.00
210/15PLY x 50MM & OVER x 26MD x 90MTRS	....	6050.00
210/18PLY x 50MM & OVER x 26MD x 45MTRS	....	3890.00
210/18PLY x 50MM & OVER x 26MD x 90MTRS	....	7780.00
B: KOKORO NETS (BEACH SEINE NETS):		
210/4PLY x 28MM x 130MD x 135MTRS	....	21600.00
210/6PLY x 28MM x 130MD x 135MTRS	....	25920.00
210/9PLY x 28MM x 130MD x 135MTRS	....	36000.00
210/6PLY x 50MM & OVER x 130MD x 165MTRS	....	25920.00
210/9PLY x 50MM & OVER x 130MD x 165MTRS	....	31680.00
C: SEINE NETS:		
210/6PLY x 19MM x 400MD x 54MTRS	....	25920.00
210/9PLY x 19MM x 400MD x 54MTRS	....	34560.00
210/12PLY x 19MM x 400MD x 54MTRS	....	50400.00
210/15PLY x 19MM x 400MD x 54MTRS	....	69120.00

Appendix Va (continuation)

D: DAGAA NETS:

210/4PLY x 14MM x 200MD x 54MTRS	....	8640.00
210/4PLY x 14MM x 400MD x 54MTRS	....	17280.00
210/6PLY x 12MM x 300MD x 54MTRS	....	27360.00
210/6PLY x 12MM x 600MD x 54MTRS	....	54720.00

E: NYLON MENDING & MOUNTING TWINE:

210/2PLY TO 210/60PLY IN 50GRMS/100GRMS/200GRMS SPOOLS/HANKS ..... 2500.00 PER KG

F: COTTON TWINE: .... 1200.00 PER KG

G: SECOND QUALITY:

NETS OF ALL SIZES .... 1800.00 PER KG

H: IMPORTED PRODUCTS:

PVC HONGKONG FLOATS .... 45.00 PER PIECE

I: POLYETHELENE TWINES EX HONGKONG:

18PLY/36PLY/45PLY .... 1500.00 PER KG

TERMS AND CONDITIONS:

1) Strictly cash or Banker's draft with order

2) The above prices are subject to change without prior notice and the prices to be charged will be those prevailing at the time of delivery.

3) Responsibility of the Company ceases immediately after the goods are booked with the carriers of your choice.

4) Packing and forwarding charges willl be extra.

Appendix VI

KENYA FISHNET INDUSTRIES LIMITED
P.O.BOX. 1878, KISUMU, KENYA
PRICE LIST WITH EFFECT FROM 30TH NOVEMBER, 1989
NYLON FISHING NET & TWINES,
EX-FACTORY - KISUMU.

Date: 10th November, 1989

PLY	Mesh SIZE	MD	45MTR SHS.	90MTR SHS.
210/2	25mm	26	83	166
	28mm	26	83	166
	38mm	26	65	130
	47mm	26	65	130
	50mm	26	65	130
	63mm	26	65	130
	76mm & ABOVE	26	57	114
210/3	25mm	26	96	192
	28mm	26	96	192
	47mm	26	86	172
	50mm	26	86	172
	63mm	26	86	172
	76mm & ABOVE	26	81	162
210/4	38 to 63mm	26	126	252
	76mm & ABOVE	26	111	222
210/6	38 to 63mm	26	189	378
	76mm & ABOVE	26	168	336
210/9	38 to 63mm	26	265	530
	76mm & ABOVE	26	251	502
210/12	38 to 63mm	26	380	760
	76mm	26	330	660
	76mm & ABOVE	22	282	564
210/15	1.5"	26	590	1190
	2.5"	26	525	1050
	3"	26	451	902
	6"	26	435	870
	7" & ABOVE	22	372	744
	7" & ABOVE	26	431	862

DAGAA NET

PLY	MESH SIZE	MD	LENGTH MTR	PRICE PER PC
210/2	10	400	27	1370
210/3	10	400	27	1686
210/4	10	400	27	2373

GOGO

210/3	28	130	117	1201
210/4	28	130	117	1612
210/6	28	130	117	2352
210/9	28	130	117	3645

GENERAL

210/2	13	200	45	1143
	13	130	45	711
	19	130	45	520
210/9	19	100	100	3050
	28	130	45	1446
	38	200	45	2330
210/36	50	100	45	6880
	152	58	144	8350

Appendix VI (continuation)

MENDING TWINES

ON SPOOL:

WHITE:	210/2 - 4PLY SHS	210/6 & ABOVE SHS
400 gms	332	319
200 gms	345	332
100 gms	351	338
50 gms	377	358

COLOURED:

	210/2 - 4PLY SHS	210/6 & ABOVE SHS
400 gms	351	345
200 gms	364	358
100 gms	377	364
50 gms	403	390

Appendix VII

KENYA FISHNET INDUSTRIES LIMITED
P.O.BOX. 1878, KISUMU, KENYA
PRICE LIST WITH EFFECT FROM 30TH NOVEMBER, 1989
NYLON FISHING NET & TWINES,
(CONSUMER PRICES INCLUDING 17% SALES TAX FOR NETTING)

Date: 10th November, 1989

PLY	Mesh SIZE	MD	45MTR SHS.	90MTR SHS.
210/2	25mm	26	107	214
	28mm	26	107	214
	38mm	26	84	168
	47mm	26	84	168
	50mm	26	84	168
	63mm	26	84	168
	76mm & ABOVE	26	73	146
210/3	25mm	26	124	248
	28mm	26	124	248
	47mm	26	111	222
	50mm	26	111	222
	63mm	26	111	222
	76mm & ABOVE	26	104	208
210/4	38 to 63mm	26	162	324
	76mm & ABOVE	26	143	286
210/6	38 to 63mm	26	243	486
	76mm & ABOVE	26	216	432
210/9	38 to 63mm	26	341	682
	76mm & ABOVE	26	323	646
210/12	38 to 63mm	26	489	978
	76mm & ABOVE	26	425	850
	76mm & ABOVE	22	363	726
210/15	1.5"	26	759	1518
	2.5"	26	676	1352
	3"	26	580	1160
	6"	26	560	1120
	7" & ABOVE	22	479	958
	7" & ABOVE	26	555	1110

DAGAA NET PLY	MESH SIZE	MD	LENGTH MTR	PRICE PER PC
210/2	10	400	27	1763
210/3	10	400	27	2170
210/4	10	400	27	3054
GOGO				
210/3	28	130	117	1546
210/4	28	130	117	2075
210/6	28	130	117	3027
210/9	28	130	117	4697
GENERAL				
210/3	13	200	45	1471
	13	130	45	915
	19	130	45	669
210/9	19	100	100	3925
	28	130	45	1861
	38	200	45	2998
210/36	50	100	45	8855
	152	58	144	10746

Appendix VII (continuation)

MENDING TWINES

ON SPOOL:

WHITE:	210/2 - 4PLY SHS	210/6 & ABOVE SHS
400 gms	365	351
200 gms	380	365
100 gms	386	372
50 gms	415	394

COLOURED:

	210/2 - 4PLY SHS	210/6 & ABOVE SHS
400 gms	386	380
200 gms	400	394
100 gms	415	400
50 gms	443	429

UGANDA FISHNET MANUFACTURERS LIMITED

PRODUCTION SINCE THE FACTORY STARTED OPERATION, 1965-1988

YEAR	JAN. pcs	FEB pcs.	MARCH pcs	APRIL pcs	MAY pcs	JUNE pcs	JULY pcs	AUGUST pcs	SEPT. pcs	OCT. pcs	NOV. pcs	DEC pcs	TOTAL pcs
1965	10,261	13,006	14,486	12,018	12,500	14,230	16,068	20,174	24,653	24,042	27,977	28,831	218,246
1966	25,227	20,671	27,147	20,734	21,560	21,916	20,577	21,031	19,291	20,519	19,416	20,574	258,644
1967	19,406	22,436	23,847	27,085	26,196	24,196	23,939	23,540	26,749	25,253	27,836	22,740	297,940
1968	27,273	26,560	31,872	36,445	41,000	38,646	43,189	47,348	38,346	45,007	41,799	37,893	456,283
1969	36,385	33,093	45,294	47,552	41,150	46,439	56,470	43,242	42,741	47,083	44,756	34,738	525,943
1970	40,317	46,942	56,051	44,577	38,980	40,517	41,372	45,999	36,526	43,717	42,081	41,353	489,174
1971	32,085	29,331	40,942	34,164	44,564	39,746	52,145	44,457	48,350	46,253	38,231	17,625	467,096
1972	21,449	36,609	36,075	35,917	37,826	39,279	38,094	39,068	31,635	33,735	39,052	17,597	406,432
1973	22,858	33,643	40,992	26,290	43,740	24,814	18,509	31,532	28,428	25,522	31,032	21,757	349,235
1974	16,172	17,667	28,828	31,610	43,150	25,168	35,206	32,491	36,527	43,146	33,085	19,530	362,780
1975	13,385	29,091	27,467	29,425	31,199	28,400	27,923	25,271	24,960	23,678	23,050	14,835	298,664
1976	6,606	20,696	30,312	22,102	16,368	-	9,607	10,944	11,995	2,107	14,823	8,576	154,136
1977	6,917	6,655	8,140	7,899	8,031	676	4,446	5,171	9,043	10,662	12,827	12,968	92,435
1978	9,619	11,003	11,790	19,397	3,662	12,814	19,156	15,228	11,607	11,955	4,306	4,306	140,502
1979	2,878	5,580	6,241	-	1,000	6,425	6,543	7,251	4,818	3,985	2,420	-	47,141
1980	1,650	4,554	4,798	1,861	5,879	5,540	5,538	-	-	-	-	-	35,138
1981	-	2,962	2,455	3,662	3,184	-	-	-	-	-	-	-	12,263
1982	-	-	-	-	3,469	4,281	3,657	4,683	5,442	5,317	6,157	4,729	37,735
1983	2,252	4,631	7,605	6,377	8,493	7,603	7,251	4,043	6,217	8,058	9,645	2,368	71,543
1984	2,684	4,184	6,615	5,466	6,195	5,660	5,855	5,540	4,819	4,890	4,328	2,466	58,702
1985	-	-	1,734	818	5,019	2,893	4,398	2,882	2,679	2,575	3,022	1,584	27,676
1986	19	2,236	3,094	3,628	2,592	2,461	1,461	-	-	965	3,777	4,193	24,396
1987	3,309	3,938	3,203	419	2,457	5,266	5,266	4,394	6,145	5,802	5,609	3,341	46,761
1988	920	4,082	3,567	3,755	4,825	6,669	6,669	6,957	5,924	3,198	6,112	1,715	53,202
1989	636	2,767	6,085	5,717									
1990													

UGANDA FISHNET MANUFACTURERS LIMITED

PRODUCTION SINCE THE FACTORY STARTED OPERATION 1965 - 19.88

TWINES:

YEAR 19--	JAN. kgs.	FEB. kgs.	MARCH kgs.	APRIL kgs.	MAY kgs.	JUNE kgs.	JULY kgs.	AUG. kgs.	SEPT. kgs.	OCT. kgs.	NOV. kgs.	DEC. kgs.	TOTALS kgs.
65	3,887	4,616	5,945	4,887	4,384	5,507	8,399	8,393	8,246	10,393	10,307	9,645	84,159
66	10,200	10,227	14,6[illegible]3	10,383	9,970	10,480	12,160	11,726	11,29[illegible]	11,725	11,923	10,221	134,920
67	12,194	11,929	12,220	12,597	14,418	16,324	13,341	12,064	11,610	11,937	12,214	11,325	152,173
68	1,474	1,286	11,486	12,690	14,863	13,328	14,126	14,231	12,329	11,295	8,646	6,542	112,278
69	9,057	10,486	13,411	12,525	14,822	12,541	11,800	15,072	14,997	14,318	13,290	9,025	151,344
70	12,435	11,489	11,050	14,859	11,016	12,435	15,657	5,220	11,023	11,860	11,071	11,695	139,710
71	10,709	9,913	11,751	12,484	16,872	17,316	18,324	18,550	18,289	18,226	12,792	10,204	175,430
72	11,193	15,414	17,173	16,314	20,944	18,807	17,596	13,817	14,039	9,775	19,145	8,904	183,701
73	8,970	15,575	16,929	13,151	14,665	13,293	12,985	12,260	13,529	14,352	18,896	8,438	163,043
74	5,215	8,622	8,922	8,283	12,290	15,142	15,490	14,135	13,785	19,045	13,380	4,929	139,250
75	4,634	11,480	247	11,861	1,649	10,017	13,157	11,613	9,892	9,418	10,159	4,388	109,513
76	4,113	9,736	11,613	6,754	11,543	2,072	1,519	1,981	5,342	3,204	7,838	2,684	68,399
77	2,519	6,272	3,902	4,169	7,764	4,422	3,749	4,005	3,390	7,386	7,214	6,400	57,192
78	5,365	6,544	3,975	9,319	10,553	9,172	7,827	7,784	6,513	10,399	8,600	5,500	96,565
79	2,046	5,165	4,942	-	2,000	5,148	6,351	3,960	3,445	4,386	2,717	-	40,160
80	2,012	3,717	4,536	5,066	4,388	2,530	2,439	2,924	-	313	122	375	29,422
81	-	3,630	4,202	3,380	2,789	8	-	211	30	117	17	467	14,851
82	-	-	-	-	5,325	5,597	2,204	5,475	4,056	2,564	2,466	-	27,687
83	1,341	1,499	2,711	2,045	6,514	6,610	6,196	8,358	8,850	7,751	6,574	3,664	62,113
84	111	4,005	3,994	3,309	3,881	3,914	3,660	1,982	1,560	1,886	1,594	359	30,255
85	-	3	-	109	144	29	81	102	87	188	671	326	1,740
86	159	1,062	1,326	1,858	1,431	1,103	938	2,262	1,496	2,116	1,940	1,347	17,038
87	1,311	1,662	2,559	2,601	1,895	1,785	2,245	1,715	1,677	1,880	1,335	1,204	21,869
88	747	890	989	1,330	1,553	2,637	2,639	2,334	2,289	2,547	2,563	1,288	21,606
89													
90													

Appendix IX

NILE FISHING COMPANY LTD. (NIFCO)

Telephone 259832

P.O. Box 9786
Kampala

Our Ref:

Date: 10th JULY, 1990

Your Ref:

PRICE LIST:

FISHNETS:

	TWINE:	MESH SIZE	DEPTH:	LENGTH:	AMOUNT:
(1)	210 D	12 x 8	26 MD	90 MTRS	14,000/-
(2)	210 D	9 x 8	26 MD	90 MTRS	10,000/-
(3)	"	9 x 7	"	"	12,000/-
(4)	"	6 x 6	"	"	7,000/-
(5)	"	4 x 5	"	"	5,000/-
(6)	"	3 x 5	"	"	4,500/-
(7)	"	3 x 4.5	"	"	4,500/-
(8)	"	2 x 4.5	"	"	3,000/-
(9)	"	3 x 3	"	"	4,000/-

TWINES:

	PLY:	WEIGHT:	AMOUNT:
(1)	6	500 gm	3,000/-
(2)	9	500 gm	3,000/-
(3)	12	"	3,000/-
(4)	24	"	3,000/-
(5)	36	"	3,000/-
(6)	48	"	3,000/-
(7)	54	"	3,000/-
(8)	60	"	3,000/-

NB: PAYMENT IS ONLY BY CASH:

MANAGEMENT - NILE FISHING COMPANY:

Sign..... (M.D.)

CHRISTOPHER SAAZI.

Appendix X

MOTOR OIL - MARINE SERVICES DIVISION

MWANZA

PRICE LIST NO. 1/900/1/1/90

YAMAHA MOTOR CYCLES:	DUTY PAID	+17% V.A.T.	TOTAL DUTY PAID	DUTY FREE
MR 50	42,000/=	7,140/=	49,140/=	33,957/=
YB 100	40,479/=	6,881/=	47,360/=	31,304/=
DT 100	56,214/=	9,556/=	65,770/=	43,847/=
DT 125	63,966/=	10,874/=	78,582/=	52,217/=
DT 175	67,590/=	11,490/=	83,034/=	55,010/=
VESPA SCOOTERS:				
PK 100	39,320/=	6,515/=	44,835/=	29,890/=
PX 150/lml 150	29,829/=	7,354/=	50,610/=	32,850/=
PX 200	46,487/=	7,903/=	54,390/=	34,970/=
OUTBOARD MOTORS:				
4 ACS	19,231/=	3,269/=	22,500/=	17,325/=
E 8 DS	29,829/=	5,071/=	34,900/=	26,910/=
E 15 BS	37,436/=	6,364/=	43,800/=	33,725/=
E 15 BL	37,991/=	6,459/=	44,450/=	34,225/=
E 25 FL	44,701/=	7,599/=	52,300/=	40,770/=
E 40 9L	59,872/=	10,178/=	70,050/=	53,940/=
E 48 CL	71,667/=	12,183/=	83,850/=	64,565/=
E 60 HEML	93,590/=	15,910/=	109,500/=	85,100/=
E 75 BL	97,094/=	16,506/=	113,600/=	87,470/=
85 AETL	123,205/=	20,945/=	144,150/=	111,000/=

NOTE:

E 60 HEML - DUEL ELECTIC PLUG HAND START
85 AETL - ELECTRIC START, HYDRAULIC TILC, R/H CONTROL BOX
PLUG 2 X 14 FT. CABLES, OVERHEAT BUZZER.
Valuy Mini-jet open face crash helmets - 750.00
Yanmar 2 SDG 30 HP Marine diesel engine - 214,850.00
Yanmar 3 TDG 45 HP Marine diesel engine - 270,300.00
O.V. D'SOUZA
DIVISION MANAGER

Appendix XI

Terms of Reference

In close collaboration with the staff of the fisheries departments of Uganda/Tanzania/Kenya, the consultant will study the availability of fishing inputs (boats, engines, nets, etc...) for artisanal fisheries in these countries. He will further assess their quality and the prevailing prices. He will, if necessary, make recommendations to fisheries administrations to improve the situation. This review will focus especially on the following aspects:

- supply and demand for main inputs (local production, imports and exports, availability or scarcity, etc.),
- factory (if relevant) and retail prices for main inputs (specifying level of sale, import and other taxes);
- relative importance of the public and private sectors in the manufacturing, importation and distribution of fishing inputs;
- specific economic incentives (tax-free supply, subsidies etc.) or disincentives (special tax rates, import restrictions for key inputs etc...);
- relative importance of local and imported inputs;
- credit availability;
- state of local fishing input factories (output, exports, financial status, confirmed plans for expansion etc..).

A report will be prepared on this basis. It will present the findings, comparing the situation prevailing in the three countries and giving, if necessary, recommendations for improvement.

Appendix XII

OFFICIALS MET DURING THE CONSULTANCY (BY COUNTRY)

Uganda:

Hon. Prof. George Mondo-Kagonyera - Minister of Animal Industry and Fisheries, Kampala.
Mr. John Bushara - Permanent Secretary, Ministry of Animal Industry and Fisheries, Kampala.
Mr. Amir A. Khalil - FAO Representative, Kampala
Mr. Banyenzaki - Under Secretary, (Adm) Ministry of Animal Industry and Fisheries, Kampala.
Mr. Lad Byenkya-Abwooli - UNDP Programme Officer, Kampala
Mr. C. Kabuunga - Principal Assistant Secretary
Mr. E.S. Kanyike - Commissioner for Fisheries, Entebbe
Mrs. F. Sewankambo - Principal Economist, MAIF
Dr. F. L. Orach-Meza - Deputy Commissioner for Fisheries, Entebbe
Mr. Deo Mukiibi - Ag. Asst. Commissioner for Fisheries, Entebbe
Mr. Peter Mwene-Beyanga - Fisheries Officer, Planning
Mr. Fabian Tibeita - East African Development Bank.
Mr. J. Kahangirwe - Chief Planning Economist, MAIF.
Mr. Alfred Mulenga, FAO Programme Officer, Kampala
Mr. Chris Dhatemwa - Ag. Asst. Commissioner for Fisheries.
Mr. W. Kudhongania - Director, UFFRO, Jinja
Mr. B.A. Frielink - AFRP, MAIF, Kampala
Mr. Nsimbe Bulega - Kampala Ice Plant - Manager
Mrs. Joyce Acigwa - Senior Manager, Rural Farmers Scheme, UCB.
Dr. William Odelle - Manager, Rural Farmers Scheme, UCB.
Mrs. E. Kasajja - Planning Officer, Agric. Section, Ministry of Planning and Economic Development, Kampala
Mr. Edward Kabiswa - Nile Fishing Company.
Mr. Fred Lwanga Zake - Ag. Principal, Fisheries Training Institute, Entebbe.
Mr. J. C. Kasamunyu - Principal Finance Officer.
Mr. J. W. Haguma - Principal Finance Officer (External Aid Coordination) Ministry of Finance
Mr. Amos Mutabazi - Asst. Production Manager - Uganda Fishnet Manufacturers Ltd.
Eng. Ruth Orama-Atubo - Asst. Project Manager, Uganda Fishnet Manufacturers Ltd.
Mr. Remmy Ssali - Accountant
Mr. Philip Kamugungumu - Commercial Manager.
Mr. John Muhwezi W.K. - Principal Commercial Officer, Ministry of Commerce.
Mr. Alan Tulip - Manager, Afro Engineering Company.
Mr. Roger Chu - President, Emtathy Industrial Co. Ltd., Taiwan.
Mr. Eddie Yeh - President, Ropes Enterprises Co. Ltd. and Dragon Sea Marine Co. Ltd.
Mr. Francis Cosmas Aiga - AFDO, Kasenyi Fish Landing.
Mr. E. M.Ssembalirwa - AFDO, Kasenyi Fish Landing
Mr. Levi Oluka - Gear Retailer, Kasenyi.
Mr. John Mubiru - Gear Retailer, Kasenyi.
Ms. Jennipher Nassozi - Gear Retailer, Kasenyi.
Mr. Kabaalu David - Fisherman, Kasenyi
Mr. Mungi Ptrick - Fisherman, Bugonga.

Kenya

Mr. Norbert Odero - Director of Fisheries, Nairobi
Mr. Grieb U. - FAO Representative, Nairobi
Mr. B.P. Reufel - FAO Programme Officer, Nairobi.
Mr. A.S. Oburu - Deputy Director for Fisheries
Mr. Aloys Ochieng - Fisheries Specialist, Lake Victoria Basin Authority, Kisumu.
Mr. D Parker - Economist, FAO Fisheries Sub-sectorial survey, Kenya.
Mr. Charles Chege - S.F.O., Sagana Fish Farm.
Mr. Arunga - Asst. Director for Fisheries, Kisumu.
Mr. Phanuel Okelo Rambiri - Asst. Dir. Office, Kisumu.
Mr. Winston Adhiambo - Fisheries Department, Kisumu.
Mr. Winston Adhiambo - Fisheries Department, Kisumu.
Mr. Yukihisa Miyamoto - Managing Director, Kenya Fishnet Industries Ltd., Kisumu.
Mr. Joseph K. Lasoi - Factory Engineer (K.F.I.) Kisumu
Mr. Elijah Owino Agutu - Fisherman/Trader Kisumu Market
Mr. Amos O. Obage - F. Asst. (Kisumu market)
Mr. Ezekiel Muyumba - Sales Manager, Car and General, Kisumu
Mr. Harry M. Watson - Manager, General Goods Division, C & G, Nariobi
Mr. OVE D'Souza - Division Manager, Motor Cycle and Marine Division, Nairobi.
Mr. James Siwo Mbuga - Gear Technologist, Kisumu
Mr. J.G. Kamau - Taxation Dept., Ministry of Finance, Kenya
Mr. Kinyanjui Ngugi - Head, Planning Division, Fish. Dept., Nairobi.
Mr. S.G. Gachere - Planning Officer, Fish. Dept., Nairobi

Tanzania:

Mr. Sichone W. - Director of Fisheries, Tanzania
Mr. R.W. Fuller - FAO Representative, Dar-es-Salaam
Mr. James Yonazi - FAO Asst. Programme Officer, Dar-es-Salaam
Mr. T. Maembe - Chief Fisheries Officer, Dar-es-Salaam
Mr. Ngurwi Moreni - F.O. Planning, Dar-es-Salaam
Mr. G.L. Kalikela - F.O. Licencing, Dar-es-Salaam
Mr. R. Lema - Senior Fisheries Officer, Aquaculturist, Dar-es-Salaam
Mr. A.D. Mbagwile - SAFSO Boatbuilding, Dar-es-Salaam
Mr. E. Mapunda - Production/Fleet Manager, TAFICO
Mr. Mwamoto - Planning and Marketing Officer, TAFICO
Mr. D.M. Kyakalaba - Production and Purchasing Manager, Tanzania Fishnet Industries Ltd., Dar-es-Salaam
Mr. Libaba - Director, Mbegani Fisheries Development Centre.
Mr. Sylvester Kazimoto - Head of Dev. and Extension Service Division, Mbegani
Mr. Omar A. Lilungulu - Head, Boat building Department, Mbegani
Mr. E Masaua - Principal Project Officer Cooperative & Rural Development Bank
Mama Mahage - Acting Regional Natural Resources Officer, Mwanza Region
Mr. Peter Matola - Supplies Officer/Ag. Manager Pasiansi Boatyard, Mwanza
Mr. William Y. Fundi - Asst. Fisheries Officer - Mwanza Region
Mr. Thomas T. Komba - Asst. Fisheries Officer, Mwanza
Mr. Ernest Nkaka - Manager, Mwanza Boatyard.
Mr. K.S.P. Rao - Executive Director, Mwanza Fishnet Manufacturers Ltd.

Burundi (Bujumbura)

Dr. D.F. Gréboval - Coordinator, IFIP Project
Mr. G. W. Ssentongo - Fisheries Biologist, IFIP Project

FISH LANDINGS 1963-87, QUANTITY IN M.TONS & VALUE IN '000 KSHS.

YEAR	LAKE VICTORIA		LAKE TURKANA		LAKE BARINGO		LAKE NAIVASHA		LAKES JIPE & CHALLA		FISH FARMING		OTHER LAKES RIVERS & DAMS		MARINE FISH/PRODUCT		TOTAL		POP	CONS.PER CAP. KG.
	M.TONS	'000 Shs	M.TONS	'000 Shs	M.TONS	'000 Shs	M.TONS	'000 Shs	M.TONS	'000 Shs	M.TONS	'000 Shs	M.TONS	'000 Shs	M.TONS	'000 Shs	M.TONS	'000 Shs		
1963	11641	14279	1270	114	600	482	183	164	-	-	64		-	-	4189	4692	19691	21935	8,925,578	2.21
64	12000		895		600		550	370	-	-	68		-	-	4612	5356	20347	21179	9,224,585	2.21
65	13000	14560	1095	147	600		650	582	-	-	130		1800		5725	6794	23018	24776	9,533,608	2.41
66	15200	17024	1500	210	600		950	810	-	-	200		1700		6654	6540	27514	28864	9,852,984	2.79
67	15748	17360	1727	251	518	311	955	810	-	-	102	240	2443	2528	6096	6868	27589	28368	10,183,059	2.71
68	16357	14167	2044	240	554	288	885	810	-	-	121	288	2394	1327	6052	6754	28407	24814	10,524,191	2.70
69	17442	16047	3753	586	503	185	929	839	-	-	121	288	2524	2480	6748	7763	32020	28188	10,942,705	2.93
1970	16988	15815	4854	1011	717	248	1150	984	-	-	-		2136	2450	7910	9992	33755	30500	11,314,757	2.98
71	14918	15333	3612	1027	293	180	484	585	-	-	-	-	1822	1752	7035	11785	28164	30662	11,699,458	2.41
72	15989	16825	4090	1023	58	40	117	247	-	-	-	-	1832	1817	7722	10499	29808	30450	12,097,240	2.46
73	16797	18127	4927	1436	89	60	62	189	-	-	-	-	3023	3538	4024	6899	28922	32250	12,508,546	2.31
74	17175	21007	5731	2585	122	144	39	155	-	-	-	-	2098	2748	3416	8511	28581	35173	12,933,837	2.31
75	16581	21308	4236	2885	240	178	44	310	-	-	-	-	1709	2383	4531	11151	27141	40315	13,373,587	2.64
76	18680	24050	17044	17951	257	249	78	418	-	-	-	-	813	1337	4151	15074	41021	58040	13,828,289	2.97
77	19332	25681	18473	10849	246	335	71	417	0	-	547	1296	956	1815	4384	10298	40961	57183	14,298,451	2.86
78	23856	36980	15560	11513	315	487	255	1147	-	-	557	1368	1217	2146	4634	21189	46394	74820	14,784,599	3.14
79	30592	57095	13731	11177	326	498	483	2621	-	-	568	1395	698	1365	3915	18958	50413	93110	15,327,061	3.29
1980	26914	58805	12384	9601	411	560	477	3429	-	-	596	1464	2100	5330	5336	30128	48218	109317	15,986,125	3.02
81	38179	85346	10529	10849	467	617	269	2531	450	1295	421	23747	1070	2861	5967	36780	57352	164026	16,673,528	3.44
82	60958	123600	11040	12033	401	768	411	5735	499	1482	440	23818	268	1700	7116	50851	81133	219787	17,390,490	4.67
83	77327	120315	10113	13552	352	684	692	9379	473	1326	585	15880	1526	5440	6393	56111	97461	222688	18,138,281	5.37
84	71854	133309	8448	13903	297	554	320	4324	398	1191	711	24859	2172	8574	6776	63625	90976	250339	18,918,227	4.81
85	88589	190560	7460	12733	317	653	245	3462	96	326	1085	33915	1972	10233	6209	59888	105973	311770	19,731,711	5.37
86	103163	237333	7324	12167	152	511	576	5119	129	750	980	30662	870	4615	6604	68909	119798	360066	20,580,174	5.82
87	111452	317028	7240	12100	116	435	310	4697	94	832	1094	34028	1114	5808	7747	117513	131167	492441	21,465,122	6.11

Table 1

Table 2 (a)

GRAND SUMMARY OF FISHERY STATISTICS FROM ALL FISHERIES OF TANZANIA MAINLAND FOR THE YEAR 1984.

ITEM	FRESH WATERS	MARINE WATERS	TOTALS
NUMBER OF FISHERMEN	43,822	13,783	57,605
NUMBER OF VESSELS	18,100	3,556	21,656
WEIGHT OF FISH (M.TONS)	237,203.1	40,890.1	278,093.2
VALUE OF FISH (T.Shs.)	2,685,678,800/=	1,149,553,400/=	3,835,232,200/=
GEARS IN USE :-			
GILL NETS	163,919	6,955	170,874
SHARK NETS	-	2,342	2,342
SEINE NETS	1,780	462	2,242
SCOOP NETS	4,869	82	4,951
CAST NETS	5	408	413
LIFT NETS	360	-	360
DAGAA NETS	518	-	518
TRAWL NETS	17	18	35
PURSE SEINES	366	2	368
HOOKS	623,820	6,757	630,577
LONG LINES	-	134	134
BASKET TRAPS	3,265	6,418	9,683
FIXED TRAPS	-	482	482
UNSPECIFIED GEARS	-	153	153
ENGINES :-			
OUTBOARD ENGINES	225	104	329
INBOARD ENGINES	66	32	98

Table 2 (b)

TOTAL PRODUCTION AND VALUES OF ALL FISHERIES OF TANZANIA MAINLAND FOR 1984.

FISHERY	WEIGHT IN M.TONNES	VALUE IN 000'S T.Shs.
MAJOR FRESH WATERS :-		
LAKE VICTORIA	99,685.5	682,409.5
LAKE TANGANYIKA	107,111.6	1,403,618.2
LAKE NYASA	18,136.0	163,229.2
LAKE RUKWA	4,616.8	56,505.1
NYUMBA YA MUNGU DAM	1,765.1	17,683.5
MTERA DAM	3,555.6	61,283.5
SUB TOTAL	234,870.6	2,664,729.7
MINOR FRESH WATERS :-		
ARUSHA MINOR WATERS	181.4	1,687.6
DODOMA MINOR WATERS	692.3	6,922.0
SHINYANGA MINOR WATERS	29.8	608.4
SHINGIDA MINOR WATERS	1,249.5	3,490.8
TABORA MINOR WATERS	179.5	8,240.1
SUB TOTAL	2,332.5	20,949.1
TOTAL FOR FRESH WATERS	237,203.1	2,685,678.1
MARINE WATERS :-		
TANGA REGION	6,219.3	164,346.5
COAST REGION	11,463.4	211,558.2
DAR-ES-SALAAM REGION	4,814.7	136,448.2
LINDI REGION	9,802.1	275,097.6
MTWARA REGION	7,510.0	329,004.3
COMMERCIAL FISHERY	1,080.6	33,098.6
TOTAL MARINE PRODUCTION	40,890.1	1,149,553.4
GRAND TOTAL OF ALL FISHERIES	278,093.2	3,835,232.2

Table 2 (c)

GRAND SUMMARY OF ALL FRESH WATER FISHERY STATISTICS FOR THE YEAR 1985

TOTAL NUMBER OF FISHERMEN:	43,822
TOTAL NUMBER OF FISHING VESSELS:	18,100
WEIGHT OF FISH CAUGHT IN METRIC TONS:	237,203.1
VALUE OF FISH CAUGHT IN 000'S TSHS:	2,685,678.8

GEAR IN USE BY TYPE AND SIZE:

GILL NETS:-	10"	280
	9"	368
	8	829
	7	6028
	6 1/2	613
	6	619
	5 1/2	8181
	5	3037
	4 1/2	14358
	4	10313
	3 3/4	92
	3 1/2	15105
	3	13843
	2 1/2	25424
	2 1/4	3386
	2	4938
	1 7/8	6916
	1 3/4	648
	1 1/2	2206
	1	456
	7/8	182
	UNSPECIFIED	46079
	TOTAL GILL NETS	163919

NUMBER OF BEACH SEINES		1780
NUMBER OF PURSE SEINES		366
NUMBER OF DAGAA NETS		518
NUMBER OF SCOOP NETS		4869
NUMBER OF LIFT NETS		360
NUMBER OF TRAWL NETS		17
NUMBER OF HOOKS		623820
NUMBER OF TRAPS		3265
NUMBER OF CAST NETS		5
ENGINES:-	NUMBER OF OUTBOARD ENGINES	225
	NUMBER OF INBOARD ENGINES	66

Table 3 (a)

GRAND SUMMARY OF FISHERY STATISTICS FROM ALL FISHERIES OF TANZANIA MAINLAND FOR THE YEAR 1985.

ITEM	FRESH WATERS	MARINE WATERS	TOTALS
NUMBER OF FISHERMEN	48.390	11392	59,782
NUMBER OF VESSELS	17.924	3.045	20.969
WEIGHT OF FISH (M.TONS)	257.904.3	42.847.3	300.751.6
VALUE OF FISH(000'T.Shs.)	4.342.151.2	1.676.269.2	6.018,420.4
GEARS IN USE :-			
GILL NETS	124856	4942	129.798
SHARK NETS	-	3.093	3.093
SEINE NETS	2.769	1.288	4.057
SCOOP NETS	3.979	-	3.979
CAST NETS	70	580	650
LIFT NETS	451	-	451
DAGAA NETS	-	-	-
TRAWL NETS	7	17	24
PURSE SEINES	6	2	8
HOOKS	486.003	12.357	498.360
LONG LINES	39	159	198
BASKET TRAPS	1.637	6,418	8.055
FIXED TRAPS	3	250	253
UNSPECIFIED GEARS	-	116	116
ENGINES :-			
OUTBOARD ENGINES	341	177	518
INBOARD ENGINES	33	39	72

Table 3 (b)

TABLE B:- TOTAL PRODUCTION AND VALUES OF ALL FISHERIES OF TANZANIA MAINLAND FOR 1985.

FISHERY	WEIGHT IN M.TONNES	VALUE IN 000'S T.Shs.
MAJOR FRESH WATERS :-		
LAKE VICTORIA	100.786.6	1.245.883.6
LAKE TANGANYIKA	115,206.6	2.689.836.6
LAKE NYASA	26.958.5	191.387.7
LAKE RUKWA	4.635.8	84.662.9
NYUMBA YA MUNGU DAM **	1.765.1	17.683.5
MTERA DAM	2.396.9	62.738.4
SUB TOTAL =	251.749.5	4.292.192.7
MINOR FRESH WATERS :-		
ARUSHA MINOR WATERS	1.819.5	22.122.8
DODOMA MINOR WATERS	251.7	3.067.8
SHINYANGA MINOR WATERS	29.5	815.5
SHINGIDA MINOR WATERS	776.2	5.790.6
TABORA MINOR WATERS	1.041.2	5.031.5
MOROGORO MINOR WATERS	21.7	195.0
COAST REGION RUFIJI RIVER	2.015.0	12.935.3
SUB TOTAL =	6.154.8	59.958.5
TOTAL FOR FRESH WATERS =	257.904.3	4,342,151.2
MARINE WATERS :-		
TANGA REGION	4.547.3	145.147.6
COAST REGION	10.739.6	194.753.4
DAR-ES-SALAAM REGION	6.833.9	299.325.0
LINDI REGION	11.589.4	610.011.1
MTWARA REGION	7.963.2	383.351.2
COMMERCIAL FISHERY	900.1	26.161.8
TOTAL MARINE FISH PRODUCTION	42.573.5	1.658.750.1
SEA SHELLS	141.1	10.604.7
SEA WEEDS	-	-
BECHE-DER-MER *	132.7	6.914.4
SUB TOTAL	273.8	17.519.1
TOTAL MARINE PRODUCTION	42.847.3	1.676.269.2
GRAND TOTAL OF ALL FISHERIES	300.751.6	6.018.419.8

NB:- * Weights are in dry weight.
** No production figures for 1985 was obtained from Nyumba ya Mungu. The 1984 figures are used.

Table 3 (c)

GRAND SUMMARY OF ALL FRESH WATER FISHERY STATISTICS FOR THE YEAR 1985.

TOTAL NUMBER OF FISHERMEN :	48,390
TOTAL NUMBER OF FISHING VESSELS:	17,924
WEIGHT OF FISH CAUGHT IN METRIC TONS:	257,904.3
VALUE OF FISH CAUGHT IN 000'S T.Shs:	4,342,151.2

GEAR IN USE BY TYPE AND SIZE:

GILL NETS:-	
12"	88
11"	7
10"	531
9"	1,001
8"	3,498
7"	5,923
6 1/2"	537
6"	1,974
5 1/2"	4,215
5"	6,632
4 1/2"	12,957
4"	15,454
3 3/4"	93
3 1/2"	15,225
3"	22,540
2 1/2"	19,243
2 1/4"	272
2"	7,729
1 7/8"	2,147
1 3/4"	2,603
1 1/2"	754
1.1/4"	386
1 1/8"	543
UNSPECIFIED	504
TOTAL GILL NETS	124,856
NUMBER OF BEACH SEINES	2,769
NUMBER OF PURSE SEINES	6
NUMBER OF SCOOP NETS	3,979
NUMBER OF LIFT NETS	451
NUMBER OF TRAWL NETS	17
NUMBER OF HOOKS	486,003
NUMBER OF TRAPS	1,940
NUMBER OF CAST NETS	70
NUMBER OF LONG LINES	39
ENGINES:-	
NUMBER OF OUTBOARD ENGINES	341
NUMBER OF INBOARD ENGINES	33

Table 3 (d)

GRAND SUMMARY OF FISHERY STATISTICS FROM THE TERRITORIAL MARINE WATERS OF TANZANIA MAINLAND FOR 1985.

TOTAL NUMBER OF FISHERMEN :	11,392
TOTAL NUMBER OF FISHING VESSELS :	3,045
NUMBER OF OUTBOARD ENGINES :	177
NUMBER OF INBOARD ENGINES :	39
WEIGHT OF FISH CAUGHT IN METRIC TONS:	42847.3
VALUE OF FISH CAUGHT IN 000'S T.SHS.:	1676269.2

NUMBER OF GEARS IN USE BY TYPE :-

NUMBER OF GILL NETS	4,942
NUMBER OF SHARK NETS	3,093
NUMBER OF BEACH SEINES	1,288
NUMBER OF CAST NETS	580
NUMBER OF HANDLINES/HOOKS ..	12,357
NUMBER OF LONG LINES	159
NUMBER OF BASKET TRAPS	6,418
NUMBER OF FIXED TRAPS	250
NUMBER OF SCOOP NETS	-
UNSPECIFIED GEARS	116

NUMBER OF FISHING VESSELS BY TYPE:

NGALAWA:	1170
MITUMBWI:	954
DAU:	468
MASHUA:	309
BOTI:	144
TOTAL:	3045

Table 4 (a)

GRAND SUMMARY OF FISHERY STATISTICS FROM ALL FISHERIES OF TANZANIA

MAINLAND FOR THE YEAR 1986.

ITEM	FRESH WATERS	MARINE WATERS	TOTALS
NUMBER OF FISHERMEN	52.771	12.619	65.390
NUMBER OF VESSELS	18.712	3.690	22.402
WEIGHT OF FISH (M.TONS)	339.106.9	46.984.7	386.091.6
VALUE OF FISH(000'T.Shs.)	6.076.908.4	1.672.741.8	7.749.650.2
GEARS IN USE :-			
GILL NETS	191.659	8.842	200.501
SHARK NETS	-	3.590	3.590
SEINE NETS	2.726	1.013	3.739
SCOOP NETS	4.110	-	4.110
CAST NETS	93	216	309
LIFT NETS	1.203	-	1.203
DAGAA NETS	878	-	878
PURSE SEINES	307	-	307
HOOKS	514.091	13.478	527.569
LONG LINES	-	121	121
BASKET TRAPS	4.137	9.159	13.296
FIXED TRAPS	-	3.159	3.159
UNSPECIFIED GEARS	-	459	459
ENGINES :-			
OUTBOARD ENGINES	410	228	638
INBOARD ENGINES	59	49	108
COMMERCIAL TRAWLER	4	7	11
COMMERCIAL PURSESEINER	7	3	10

Table 4 (b)

TOTAL PRODUCTION AND VALUES OF ALL FISHERIES OF TANZANIA MAINLAND FOR 1986.

FISHERY	WEIGHT IN M.TONNES	VALUE IN 000'S T.Shs.
MAJOR FRESH WATERS :-		
LAKE VICTORIA	217.162.4	3.628.165.2
LAKE TANGANYIKA	70.026.7	1.532.073.7
LAKE NYASA	35.937.9	570.467.0
LAKE RUKWA	5.989.7	190.224.4
NYUMBA YA MUNGU DAM **	1.964.8	18.213.3
MTERA DAM	3.253.6	80.229.6
SUB TOTAL =	334.335.1	6.019.373.2
MINOR FRESH WATERS :-		
ARUSHA MINOR WATERS	105.5	1.573.5
DODOMA MINOR WATERS	654.6	9.753.0
SHINYANGA MINOR WATERS	17.8	483.5
SHINGIDA MINOR WATERS	2.183.7	15.122.4
TABORA MINOR WATERS	354.9	3.935.5
MOROGORO MINOR WATERS	550.2	15.778.6
COAST REGION RUFIJI RIVER	905.1	13.555.9
SUB TOTAL =	4.771.8	60.202.4
TOTAL FOR FRESH WATERS =	339.106.9	6.079.575.6
MARINE WATERS :-		
TANGA REGION	4.402.1	171.193.0
COAST REGION	10.745.4	198.202.0
DAR-ES-SALAAM REGION	10.656.4	384.008.0
LINDI REGION	14.050.9	602.725.0
MTWARA REGION	5.326.9	250.810.0
COMMERCIAL FISHERY	1.483.2	49.621.5
TOTAL MARINE FISH PRODUCTION	46.664.9	1.656.559.5
SEA SHELLS	157.2	6,901.0
SEA WEEDS	-	-
BECHE-DER-MER *	162.6	9.281.3
SUB TOTAL	319.8	16.182.3
TOTAL MARINE PRODUCTION	46.984.7	1.672.741.8
GRAND TOTAL OF ALL FISHERIES	386.091.6	7.752.317.4

NB:- * Weights are in dry weight.
** Nodata was recieved from Kilimanjaro Region for 1986. Previous years' data was uesd.

Table 4 (c)

GRAND SUMMARY OF ALL FRESH WATER FISHERY STATISTICS FOR THE YEAR 1986.

a) ARTISANAL FISHERY.

TOTAL NUMBER OF FISHERMEN :	52,771
TOTAL NUMBER OF FISHING VESSELS:	18,712
WEIGHT OF FISH CAUGHT IN METRIC TONS:	338,031.5
VALUE OF FISH CAUGHT IN 000'S T.Shs:	6,066,687.6

GEAR IN USE BY TYPE AND SIZE:

GILL NETS:-	12"	139
	11"	0
	10"	6,673
	9"	2,612
	8"	16,014
	7"	9,317
	6 1/2"	0
	6"	10,941
	5 1/2"	247
	5"	11,306
	4 1/2"	16,738
	4"	19,275
	3 3/4"	0
	3 1/2"	19,467
	3"	37,917
	2 1/2"	14,962
	2 1/4"	4,002
	2"	15,126
	1 7/8"	2,696
	1 3/4"	36
	1 1/2"	887
	1 1/4"	0
	1 1/8"	0
	UNSPECIFIED	3,304
	TOTAL GILL NETS	191,659
NUMBER OF BEACH SEINES		2,726
NUMBER OF DAGAA SEINES		878
NUMBER OF PURSE SEINES		307
NUMBER OF SCOOP NETS		4,110
NUMBER OF LIFT NETS		1,203
NUMBER OF HOOKS		514,091
NUMBER OF TRAPS		4,137
NUMBER OF CAST NETS		93
NUMBER OF LONG LINES		0
ENGINES:- NUMBER OF OUTBOARD ENGINES		410
NUMBER OF INBOARD ENGINES		59

Table 4 (d)

GRAND SUMMARY OF FISHERY STATISTICS FROM THE TERRITORIAL MARINE WATERS OF TANZANIA MAINLAND FOR 1986.

TOTAL NUMBER OF FISHERMEN :	12,619
TOTAL NUMBER OF FISHING VESSELS :	3,690
NUMBER OF OUTBOARD ENGINES :	228
NUMBER OF INBOARD ENGINES :	49
WEIGHT OF FISH CAUGHT IN METRIC TONS:	45,501.5
VALUE OF FISH CAUGHT IN 000'S T.SHS.:	1,623,120.3

NUMBER OF GEARS IN USE BY TYPE :-

NUMBER OF GILL NETS	8,842
NUMBER OF SHARK NETS	3,590
NUMBER OF BEACH SEINES	1,013
NUMBER OF CAST NETS	216
NUMBER OF HANDLINES/HOOKS ..	13,478
NUMBER OF LONG LINES	121
NUMBER OF BASKET TRAPS	9,159
NUMBER OF FIXED TRAPS	3,159
NUMBER OF SCOOP NETS	-
UNSPECIFIED GEARS	459

NUMBER OF FISHING VESSELS BY TYPE:

NGALAWA:	382
MITUMBWI:	1,247
DAU:	508
MASHUA:	390
BOTI:	163
TOTAL:	3,690

Table 5 (a)

GRAND SUMMARY OF FISHERY STATISTICS FROM ALL FISHERIES OF TANZANIA

MAINLAND FOR THE YEAR 1987

ITEM	FRESH WATERS	MARINE WATERS	TOTALS
NUMBER OF FISHERMEN	51502	12739	64241
NUMBER OF VESSELS	17988	3595	21583
WEIGHT OF FISH (M.TONS)	303433.1	39094.7	342527.8
VALUE OF FISH(000'T.Shs.)	6095966.8	1561307.1	7657273.9
GEARS IN USE :-			
GILL NETS	118039	9549	127588
SHARK NETS	-	3193	3193
SEINE NETS	1632	1087	2719
SCOOP NETS	3660	-	3660
CAST NETS	88	510	598
LIFT NETS	540	-	540
DAGAA NETS	1194	34	1228
PURSE SEINES	491	-	491
HOOKS	631256	10708	641964
LONG LINES	45161	135	45296
BASKET TRAPS	64	7888	7952
FIXED TRAPS	2936	3052	5988
UNSPECIFIED GEARS	-	198	198
ENGINES :-			
OUTBOARD ENGINES	415	245	660
INBOARD ENGINES	48	65	113
COMMERCIAL TRAWLER	8	11	19
COMMERCIAL PURSESEINER	7	3	10

Table 5 (b)

TOTAL PRODUCTION AND VALUES OF ALL FISHERIES OF TANZANIA MAINLAND

FOR 1987.

FISHERY	WEIGHT IN M.TONNES	VALUE IN 000'S T.Shs.
MAJOR FRESH WATERS :-		
LAKE VICTORIA	159,915.21	3,117,913.80
LAKE TANGANYIKA	93,728.50	2,592,029.40
LAKE NYASA	30,006.80	34,104.90
LAKE RUKWA	8,119.90	142,165.50
NYUMBA YA MUNGU DAM **	2,178.60	22,401.10
MTERA DAM	3,361.30	86,093.10
INDUSTRIAL FISHERY *	182.90	6,427.10
SUB TOTAL	297,495.10	6,001,215.00
MINOR FRESH WATERS :-		
ARUSHA MINOR WATERS	1,017.8	14,329.40
DODOMA MINOR WATERS	1,311.3	21,838.80
IRINGA MINOR WATERS	56.7	951.50
SHINYANGA MINOR WATERS	27.0	119.60
SHINGIDA MINOR WATERS	2,135.6	17,645.00
TABORA MINOR WATERS	354.9	3,935.50
MOROGORO MINOR WATERS	684.7	28,414.10
COAST REGION RUFIJI RIVER	350.0	6,972.00
SUB TOTAL *	5,938.0	94,751.80
TOTAL FOR FRESH WATERS *	303,433.1	6,095,966.80
MARINE WATERS :-		
TANGA REGION	4,864.7	227,364.00
COAST REGION	11,402.3	269,180.00
DAR-ES-SALAAM REGION	6,352.1	246,992.00
LINDI REGION	7,046.9	277,507.00
MTWARA REGION	7,325.2	289,544.00
TOTAL ALL REGIONS	36,991.2	1,410,587.00
COMMERCIAL FISHERY	1,798.9	123,766.30
TOTAL MARINE FISH PRODUCTION	38,790.1	1,534,348.30
OTHER MARINE PRODUCTS:-		
SEA SHELLS	159.9	6,323.60
SEA WEEDS *	17.0	333.90
BECHE-DE-MER *	129.7	20,301.30
SUB TOTAL	304.6	26,958.80
TOTAL MARINE PRODUCTION	39,094.7	1,561,307.10
GRAND TOTAL OF ALL FISHERIES	342,527.8	7,657,273.90

NB:- * Weights are in dry weight.
** No data was recieved from Kilimanjaro Region for 1987. Previous years' data was used.

Table 5 (c)

GRAND SUMMARY OF ALL FRESH WATER FISHERY STATISTICS FOR THE YEAR 1987.

a) ARTISANAL FISHERY.

TOTAL NUMBER OF FISHERMEN :	51,502
TOTAL NUMBER OF FISHING VESSELS:	17,988
WEIGHT OF FISH CAUGHT IN METRIC TONS:	303,432.9
VALUE OF FISH CAUGHT IN 000'S T.Shs:	6,095,966.8

GEAR IN USE BY TYPE AND SIZE:	
GILL NETS:-	
12"	2
11"	0
10"	4,566
9"	38632
8"	9,919
7"	10,703
6 1/2"	23
6"	8,396
5 1/2"	302
5"	6,424
4 1/2"	9,667
4"	11,818
3 3/4"	0
3 1/2"	11,934
3"	20,036
2 1/2"	10,434
2 1/4"	4,545
2"	4,211
1 7/8"	10
1 3/4"	0
1 1/2"	1,186
1 1/4"	0
1 1/8"	0
UNSPECIFIED	3,304
TOTAL GILL NETS	127,598

NUMBER OF BEACH SEINES	2,719
NUMBER OF DAGAA SEINES	1,228
NUMBER OF PURSE SEINES	491
NUMBER OF SCOOP NETS	3,660
NUMBER OF LIFT NETS	540
NUMBER OF HOOKS	641,904
NUMBER OF TRAPS	5,988
NUMBER OF CAST NETS	598
NUMBER OF LONG LINES	45,296

ENGINES:- NUMBER OF OUTBOARD ENGINES	660
NUMBER OF INBOARD ENGINES	113

Table 5 (d)

GRAND SUMMARY OF ARTISANAL FISHERY STATISTICS FROM THE TERRITORIAL MARINE WATERS OF TANZANIA MAINLAND FOR 1987.

TOTAL NUMBER OF FISHERMEN :	12,739
TOTAL NUMBER OF FISHING VESSELS :	3,595
NUMBER OF OUTBOARD ENGINES :	245
NUMBER OF INBOARD ENGINES :	65
WEIGHT OF FISH CAUGHT IN METRIC TONS:	37295.8
VALUE OF FISH CAUGHT IN 000'S T.SHS.:	1,437,545.8

NUMBER OF GEARS IN USE BY TYPE :-

NUMBER OF GILL NETS	9,549
NUMBER OF SHARK NETS	3,193
NUMBER OF BEACH SEINES	1,087
NUMBER OF CAST NETS	510
NUMBER OF HANDLINES/HOOKS	10,708
NUMBER OF LONG LINES	135
NUMBER OF BASKET TRAPS	7868
NUMBER OF FIXED TRAPS	3,052
NUMBER OF RING NETS	34
UNSPECIFIED GEARS	198

NUMBER OF FISHING VESSELS BY TYPE:

NGALAWA:	1,234
MITUMBWI:	1,337
DAU:	436
MASHUA:	551
BOTI:	37
TOTAL:	3,595

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