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KENYA'S MARINE FISHERIES:
An Outline of Policy and Activities

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ABSTRACT

The general area of management of marine resources is one that has gained worldwide prominence since the beginning of the negotiations on the new Law of the Sea at the United Nations in 1968. The paper takes the premise that part of the reason for that concern has been to find a framework for general conservation and rational use of marine resources as natural resources. However, the central reason is that individual states want what they consider an access to equitable share of the resources for use by their nationals. Kenyan delegates have been particularly active at the international negotiations.

This paper takes the fisheries sector alone, and examines the range of activities in which Kenya nationals and companies are involved. A primary focus is on the amount of fishing done; where, along the coast, the fishing activities are done; and the contribution of that sector to employment especially to the coastal population. The role of relevant government departments in promoting the activities is appraised and the degree of intrusion of foreign long-distance fleets in Kenyan waters is examined.

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1. INTRODUCTION

This paper provides a general overview of the marine fisheries activities at Kenya's coast. The information in the paper was obtained through personal observations and interviews with individuals engaged in the activities. The author made three tours of the Coast: in August 1976, and in April and June 1978.

The purpose of the paper is to present basic information on marine fisheries in the hope of stimulating general research and promoting a dialogues among the people interested in this subject area. The general area of management of marine resources is one that has gained worldwide prominence especially since the beginning of the negotiations on the Law of the Sea at the United Nations in 1968. Part of the reason for the concern is the desire to ensure the conservation and rational use of marine resources as natural resources. However, the central reason is so that various states can have access to equitable shares of these resources for the use of their nationals. Among the developing countries, this is of particular significance as they endeavour to husband all available resources to meet their development goals. Fisheries has a special place in this context as it would contribute to nutritional as well as foreign exchange needs.

As a result most countries, developed and developing, have augmented their participation in the international negotiations by carefully planned strategies for national management of fishery resources at national level. Existing national legislations are scrutinized in dialogues within the ministries concerned and between the ministries and the public including commentators in academic community. The significance of the broad examination of the subject is that it makes the development of strategies for management of marine resources a multi-disciplinary affair, which is what it ought to be. While the Kenya delegation has been particularly active at the international conferences on Law of the Sea discussions at national level or articulation of national policy has remained minimal.

This paper is designed to contribute towards that kind of discussion. It is in fact a supplement to another set of papers presented at a Workshop on Management of Coastal and Offshore Resources in Eastern Africa which was organized at the Institute for Development Studies, University of Nairobi in 1977. That set of papers has been published as IDS Occasional Paper No. 28; it did not contain any paper on Kenya marine fisheries activities or policy.

At a different level, this kind of survey is useful to those who, like the present writer, are engaged in study and writing on contemporary issues on the law of the sea because it may show whether or not position taken at international negotiations has a relationship to national activities. Other articles which form part of the study are: "Legislative Development in Kenya: Territorial Sea and the Continental Shelf" IDS/WP 285 (1976); "Conservation and Development of Coastal and Offshore Resources in Eastern Africa: Agenda for Research" IDS/WP 268 (1976); and "The Kenya Draft Articles on the Exclusive Economic Zone: Analysis and Comments" IDS/WP 289 (1976)

The author is grateful to the Ford Foundation and UNESCO who financed the 1977 Workshop and the publication of its report, as well as the field research for the present paper.

2. VALUE OF MARINE FISHING INDUSTRY IN KENYA

In most countries fisheries resources, whether marine or fresh water, are considered a vital natural resource to be exploited for the promotion of the national economic and social welfare. In developing countries like Kenya, the goal of such activities should be the provision of basic developmental needs such as nutrition in the form of food proteins; employment in the industry; and foreign exchange earnings when there is enough fish for export. The presumption, of course, is that the foreign exchange so earned would be used not only to promote investment in the same industry, but also to meet other related development needs. It is with these factors and goals in mind that we look in greater detail at Kenya marine fishery activities in order to outline the quantity of fish landed in Kenya, the people involved in the activities, and the patterns of marketing.

It should be pointed out that relative to inland waters or fresh water fishing, Kenya has, till recently, given a low priority to marine fisheries, measured by the quantity of fish landed. This point is illustrated by the following figures (Table 1) comparing the quantity of marine fish landed, to the fresh water harvests (largely from Lakes Victoria, Turkana, Baringo and Naivasha) for the period 1967-1976.

TABLE 1: Quantity of Fish Landed in Kenya (in metric tons)

	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976
<u>Freshwater</u> <u>fish:</u>	21533	22355	25272	25851	21129	22086	24898	25165	22810	36872
<u>Marine</u> <u>fish:</u>	5850	5715	6396	7617	6562	7411	3546	3116	4220	3889

Source: Kenya Fisheries Project Reconnaissance Mission.
FAO/World Bank Cooperative Programme, Report No.
41/77 KEN 9 dated 17 October 1977 (Rome: FAO 1977)
Annex 1 page 1.

2.1 The Amount and Location of Fishing in Kenya

Kenyans and non-Kenyans land their marine fishery harvests in Kenya. Most of the fish is caught in Kenya's coastal waters; however only some of the fish caught in Kenya's water is landed in Kenya. Fishermen from Japan, Korea, Taiwan and the Soviet Union, among others, have harvested the Indian Ocean for over two decades.¹ Several of their vessels have been sighted close to Kenya's coast while other have come ashore and even landed their catches here. Kenyan authorities have not made much effort to ascertain the actual amount and species of the catch. They have been content with the figures obtained from adventitious arrival of Japanese and Korea vessels that come to Mombasa and use, for transit purposes, the cold storage facilities provided by Kenya Fishing Industries.

Table 2 below shows the quantity of marine fish landed in Kenya from 1967-1976. The figures are aggregate, for all species, including wet fish such as demersal and pelagic fish and sharks; and the crustacea such as lobsters, prawns and crabs.

TABLE 2: Quantity of Fish Landed in Kenya 1967-1976 (in metric tons)

	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976
Lamu	1,770	1,172	1,270	744	1,236	1,219	1,125	858	874	882
Malindi	1,279	1,204	1,200	442	928	1,547	372	391	371	561
Kilifi	N/A	104	117	118	310	172	113	142	240	417
Mtwapa	258	91	121	117	-	-	-	-	-	-
Mombasa	353	489	446	797	1,847	2,176	1,083	936	1,054	1,216
Shimoni	242	339	277	322	335	471	211	191	176	192
Vanga	176	189	202	237	435	419	321	307	319	310
Other South Coast Centres	650	1,017	1,008	955	1,369	1,299	235	203	236	200
Sports Fishing	125	99	125	82	102	108	86	88	67	111
All Other Centres	1,007	1,011	1,630	3,803	-	-	-	-	883	-
TOTAL	5,852	5,715	6,396	7,617	6,562	7,411	3,546	3,116	4,220	3,889

Source: Kenya Fisheries Project Reconnaissance Mission. FAO/World Bank Cooperative Programme, Report No. 41/77 KEN 9 dated 17 October 1977 (Rome: FAO 1977) Annex 1 P. 1

Note that these figures do not include landings by foreign long distance fleets brought to Mombasa for transit storage.

1. See discussions in R.R. Bell and T. Ochi, Report to the Government of Kenya on A Survey of Longline Fishing Resources in East African Waters (Rome: Food and Agricultural Organization of the U.N. 1966 UNDP Report TA 2191) pp. 10-12 and S. Hayasi, Stock Assessment (Rome: FAO March 1971 IOFC/DEV/71/3) pp. 2-8.

TABLE 3: MARINE AND COASTAL FISHERIES: FISH LANDINGS BY DISTRICTS - 1976 COAST PROVINCE

SPECIES	LAMU		TANA RIVER		KILIFI		MOMBASA		TAITA/TAVETA D.		KWALE		TOTAL
	M.TONS	SHS.	M.TONS	SHS.	M.TONS	SHS.	M.TONS	SHS.	M.TONS	SHS.	M.TONS	SHS.	
FRESH WATER FISH	13.8	27443	23.1	7879	-	-	-	-	775.1	1230863	-	-	812.0 1266185
WET FISH													
Demersal Fish	748.8	1329119	39.4	94900	350.9	1178552	608.8	2123447	-	-	-	-	550.1 1571171 2298.0 6297189
Pelagic Fish	57.3	78732	9.8	29467	281.8	1048557	189.0	885915	-	-	-	-	26.6 111937 584.5 2154608
Shark	72.6	91623	29.5	61738	149.5	266867	138.9	384954	-	-	-	-	55.6 82797 446.1 887979
Mixed Fish	3.7	4398	-	-	195.2	489956	279.6	584596	-	-	-	-	68.6 105934 547.1 1184884
Not Acc. for	241.6	916587	-	-	19.5	59475	146.2	489770	-	-	-	-	210.5 705175 617.8 2171007
TOTAL	1124.0	2420459	78.7	186105	996.9	3043407	1362.5	4468682	-	-	-	-	911.4 2577014 4473.5 12695667
CRUSTACEA													
Spiny Lobster	42.4	473095	3.7	25775	13.0	194917	10.8	121132	-	-	-	-	5.3 72600 75.2 887519
Prawns	9.1	23464	0.5	2510	17.2	144438	23.5	205532	-	-	-	-	9.7 55994 60.0 431938
Crabs	1.2	3245	-	132	7.1	36726	10.9	54963	-	-	-	-	9.1 26768 28.3 121834
Not Acc. for	21.2	177912	-	-	3.7	39505	37.4	313992	-	-	-	-	7.3 61320 69.6 592729
TOTAL	73.9	677716	4.2	28417	41.0	415586	82.6	695619	-	-	-	-	31.4 216682 233.1 2034020
MISCELLANEOUS													
Game Fish	-	-	-	-	66.9	300941	46.2	207816	-	-	-	-	29.8 134193 142.9 642950
Oysters	-	-	-	-	1.3	20069	1.6	24609	-	-	-	-	2.9 44678
Oyster Shell Grit	-	-	-	-	-	-	48.8	49300	-	-	-	-	48.8 49300
Beche-de-mar	-	-	-	-	-	-	50.1	1703932	-	-	-	-	50.1 1703932
Squid	1.1	2434	-	-	-	-	-	-	-	-	-	-	1.1 2434
TOTAL	1.1	2434	-	-	68.2	321010	146.7	1985657	-	-	-	-	29.8 134193 245.8 2443294
GRAND TOTAL	1212.8	3128052	106.0	222401	1106.1	3780003	1591.8	7149958	775.1	1230863	972.6	2927889	5764.4 18439166

Source: Annual Report 1976, Assistant Director of Fisheries (Marine) Fisheries Dept. Ministry of Tourism and Wildlife, Coast Province.

Landings at centres do not mean that the fish was caught off the coast of that particular district. It is not unusual for fishermen to catch large quantities from Ungwana Bay and to land their fish at Mombasa; or to fish south coast off Kwale District and to land their catch in Mombasa rather than at Vanga or Shimoni.

As will be evident from Table 2, there has not been any steady pattern in the quantity of landings during the past ten years. The 1967 landing was low, only 5,852 metric tons; but there was a yearly rise till 1970 when Kenya realized the highest quantity (7,617 metric tons) during that decade. Since 1970 the figures have been rather erratic but on the downward trend with the record low quantity of 3,116 metric tons in 1974.

National agencies concerned with planning for improvement of the annual landings, generally try to ascertain the available species either through research and surveys or through exploratory fishing. The species landed may give some indication of the stocks available. Table 3 below shows the variety of species landed in Kenya during the year 1976 by Kenyan citizens or registered companies.

Countries order their priorities for expansion of harvesting of various species differently according to their national perception of what kinds of supporting services should be provided first. Kenya has considered these options. There is no blue-print to be followed by all states. For example, certain projects which Kenya rate as very high priority are rated very low by Tanzania and vice versa.²

2. D.L. Alverson, A Programme to Develop the Marine Fisheries Potential of Kenya and Tanzania (Rome: FAO, March 1974 IOFC/DEV/74/33) symbolizing highest priority and 11 lowest priority as perceived by the country.

	Kenya Rating	Tanzania Rating
Shrimps & lobsters	1	1
Deep-water prawns	4	3
Shells and Corals	5	7
Inshore fisheries	6	4
Outer reef and slope	7	5
Jacks, Mackerel, etc	9	2
Offshore tunas	2	6
Sport fishery	10	10
Coastal mariculture	11	8
Data Centre	3	11
Merchandizing	8	9

It would appear that economic returns to given quantities of the species in the world market might have influenced the ordering of priorities by the two states. One considers, for instance, that shrimp and lobsters are definitely economically rewarding. But it is also important that they can be fished within inshore areas where developing countries with limited vessels and staff capabilities can easily operate. On the other hand, countries are often rather ambivalent about when they should invest in deep sea and offshore fishing even though the offshore species like tuna are economically lucrative. The basic problem is that the deep sea fishing requires larger, adaptable boats and much more skilled personnel.

The actual fishing areas for the landings outlined in Tables 2 and 3 are made along Kenya's 450 kilometres long coast.³ Sea-wards from that coastline is what may generally be called Kenya's coastal waters. Generally, the discussion of coastal waters with respect to location of fishing operations brings to mind two aspects of coastal state rights.

3. Different figures have been given for the length of Kenya's coast line. An FAO and World Bank report, for instance, was not consistent in its figures. See Kenya Fisheries Project Reconnaissance Mission: FAO/World Bank Cooperative Programme. Report No. 41/77 KEN 9 dated 17 October 1977. / A figure as low as 435 kilometers has often been mentioned by officers of the Fisheries Department_7.

The first aspect of the question relates to the actual locations and the second aspect relates to the area of the sea which is, by national and international law, considered as coastal state waters. Both aspects are discussed below in turns.

The bulk of Kenya's marine fishing is inshore, conducted within five miles offshore, and generally within the continental shelf and reef. This shelf is narrow with an average width of 100 fathoms contour, or about 10 nautical miles from the shoreline.⁴ At present, the largest share of the catch comes from the area north of Malindi, especially Ungwana Bay. This factor has made Ungwana Bay a particularly important fishing area for shrimp trawling and the result is the planned establishment of landing and refrigeration facilities at Ras Ngomeni as we shall discuss further below. Significant fishing is also carried out around the Lamu archipelago to the North of Ungwana Bay. Further north of the archipelago are the so-called North Kenya Banks where local fishermen have had fairly good fishing results.

In the south, the area between Shimoni and Vanga has been the most active fishing ground. The most active fishermen in that area have, upto mid-1977, been Tanzanians engaged in various degrees of purse seining for sardinella by light attraction at night and for mackarel in daylight. However, since the political moves which led to closure of the border with Tanzania, and exclusion of their fishermen, a marked drop in landings has been noticed. Observers there estimate that unless Kenyan fishermen increase their activity in this area the landings might drop by as much as one third. This remains to be verified by the 1977 and 1978 returns.

Kenya has very limited offshore fishing capability. Before the arrival of the MV. Kusi, a new vessel, measuring 124.5 ft in length bought from the Netherlands, there was only the Shakwe a ten-year-old, 72.3 ft boat. The latter vessel was largely used for research (and not commercial fishing) by the Fisheries Department. The Kusi on the other hand, has been on lease to Kenya Fishing Industries and engaged in commercial fishing. It is the only Kenyan vessel capable of doing any offshore fishing and in its few outings it has ventured to the waters off the coast of Seychelles. The offshore areas with "well-known fisheries potential (in) longlining for swimming tuna and billfishes such as marlin and sailfish...." will, in the

4. Ibid pp. 3-4.

meantime, be left to the long-distance fleets from Taiwan, Japan and Korea which are currently fishing there.⁵

Kenyan fishermen may not have capability for fishing beyond ten nautical miles away from the coast, but what is the legal outer limit of Kenya's coastal waters? The answer may be sought by examining Kenya laws regulating the water column and the continental shelf. In terms of the general jurisdiction, Kenya enacted the Territorial Waters Act in 1972 and according to Section 2 of that legislation, "the breadth of the territorial waters of the Republic of Kenya shall be twelve nautical miles".⁶ For purposes of marine fisheries, the Kenya Fish Industry Act⁷ makes reference only to regulation within the territorial waters. These references are brief: Section 9(1) of the Fish Industry Act states that ".....no person shall catch or assist in catching fish in territorial waters otherwise than under and in accordance with the terms of a license issued to him under regulations made under this Act.....". On the other hand, Section 12 empowers Kenyan officers authorized under the Act "to go on board any vessel within territorial waters or any registered fishing vessel outside territorial waters....." to investigate if an offence contrary to the Act has been committed.⁸

The third Kenya legislation which may provide guidance as to the limits of Kenya's coastal waters for purposes of fishing activities is The Continental Shelf Act of 1975.⁹ The legal delimitation of the continental shelf is provided in the definition which states that the "Continental Shelf means the sea-bed and sub-soil of the submarine areas adjacent to the coast of Kenya, but outside the territorial waters, to the depth of two hundred

5. Kenya Fisheries Project Reconnaissance Mission. op. cit. Annex 3 page 8. There is more discussion of intrusion by foreign fleets into Kenyan waters below.

6. Act No. 2 of 1972 entered into force on 16th May 1972. For a discussion of the Act see Okidi, Legislative Development on Kenya's Coastal and Offshore Affairs: Territorial Sea and the Continental Shelf(University of Nairobi, IDS/WP 285, October 1976)

7. The Fish Industry Act 1968, revised 1970, Chapter 378 Laws of Kenya.

8. The definition of "registered fishing vessel", according to Section 2(1) of the Act, is "a fishing vessel registered under regulations made under this Act". Registration of boats under Legal Notice No. 21 of 1966 deals only with boats registered in Kenya. These stipulations would therefore suggest that Section 12(1) regarding power of entry and seizure beyond the territorial waters only apply to Kenya registered vessels.

9. Act No. 3 of 1975 entered into force on 4th April 1975.

meters or, beyond that limit, to where the depth of the superjacent waters admits of the exploration and exploitation of the natural resources of the said areas."¹⁰ What interests us in connection with these areas are twofold: first, the kinds of "natural resources" relevant to fisheries, which exist in the continental shelf; and secondly, what in precise terms, is the outer limit of the shelf as understood from the above definition.

Natural resources are defined in the Act to include, apart from non-living resources, "all living organisms belonging to sedentary species which, at the harvestable stage, either are immobile on or under the sea-bed or are unable to move except in constant physical contact with the sea-bed or the subsoil." These sedentary species would include among others, oysters, lobsters and crabs. Fishing for these species on the continental shelf as defined above would constitute fishing in Kenya's coastal waters.

However, the above definition does not give the precise outer limit of the continental shelf. The measurement of two hundred meters may be sufficiently precise; however, the second part of the definition which is based on the criterion of exploitability is imprecise since it depends on the technology available at a particular time in history. At present available technology is capable of exploiting the resources at almost any depth. This has been the basis of the severe criticisms against this definition.¹¹

If this definition was to be adhered to strictly, Kenya could claim the fishing for sedentary species to be within its waters even if they were harvested near Seychelles coast - perhaps only limited by the "median" distance between Kenya and Seychelles. This kind of definition leads to some absurd conclusions which is why its complete revision is now being considered at the Third United Nations Conference on the Law of the

10. Section 2 (2)

11. The definition was adopted, verbatim, from the 1958 Geneva Convention on the Continental Shelf. For a critical appraisal of the definition, which includes a discussion of this Kenya Act see Okidi, supra note 6.

Sea.¹² At its widest points, the average breadth of Kenya's continental shelf does not exceed 30 miles from the shorelines. This introduces the notion that the extent of Kenya's coastal waters, viewed from the point of view of sedentary fishery resources, may extend beyond twelve miles, but the outer limits have not been clearly determined.

Since Kenya borrowed from the much-criticized definition from the 1958 Geneva Convention on the Continental Shelf for the 1975 Act authorities may be waiting to adopt the definition accepted by the current Third United Nations Conference on the Law of the Sea (UNCLOS III). After protracted negotiations, which started in 1968, the UNCLOS III has provisionally accepted the following improved definition:

"The continental shelf of a coastal State comprises the sea-bed and subsoil of the marine areas that extend beyond its territorial sea throughout the natural prolongation of its land territory to the outer edge of the continental margin, or to a distance of 200 nautical miles from the baseline from which the territorial sea is measured where the outer edge of the continental margin does not extend to that margin."¹³

This definition is part of a broad attempt to reach a clear but acceptable division between the areas of the sea within national jurisdiction and those that are left to the international community, res communis.

12. See some discussion in Okidi, Conservation and Development of Coastal and Offshore Resources in Eastern Africa: An Agenda for Research. (University of Nairobi IDS/WP 268 June 1976.), Stevenson & Oxman, "The Third United Nations Conference on the Law of the Sea: The 1977 New York Session" in 72 American Journal of International Law 57-82 (1978)

13. Article 76 of the Informal Composite Negotiating Text produced at the end of the Sixth Session of the Conference in July 1977. UN. Doc. A/CONF.62/WP. 10 July 15, 1977 The Seventh Session adjourned in May 1978 at Geneva and will resume in New York on August 21st 1978 and work towards a possible final draft treaty.

The delimitation relating to the epicontinental waters is referred to under the rubric of the exclusive economic zone which is a concept introduced into the debates by Kenya in 1971. This concept has become widely accepted by the international community and has been included in the Informal Composite Negotiating Text (ICNT) developed by UNCLOS III.¹⁴ According to Article 57 of the ICNT, "The exclusive economic zone shall not extend beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured." Within that zone the coastal state would, inter alia, have "sovereign rights for purposes of exploring and exploiting, conserving and managing the natural resources, whether living or non-living of the sea-bed and subsoil and the superjacent waters, and with regard to the other activities for the economic exploitation and exploration of the zone,"¹⁵

Although Kenyan delegates introduced this concept in the lexicon of UNCLOS III negotiations, Kenya has not adopted it as a national policy even though several countries (including those which were originally opposed to the idea) have now adopted legislations extending coastal jurisdiction, at least for management of fishery resource, to 200 miles.¹⁶ It is informally reported that an instrument is already prepared for a presidential proclamation establishing Kenya's intent to pass a legislation on exclusive economic zone. The complete legal regime would be complex and certainly needs a comprehensive legislation to enable its enforcement.

14. For a general discussion see Okidi, The Kenya Draft Africles on Exclusive Economic Zone Concept: Analysis and Comments (university of Nairobi IDS/WP 289 November 1976). The details of the legal regime of the exclusive economic zone as at the end of the Sixth Session of UNCLOS III are outlined in the Informal Composite Negotiating Text, UN. Doc. A/CONF. 62/WP 10 of 15 July 1977 Part V. Articles 55-75.

15. Article 56 (1) (a) of the ICNT.

16. The following are examples of such national and regional legislations and policy instruments which have been published in International Legal Materials (ILM): Iceland: "Regulation Concerning Limits off Iceland" July 15, 1975 in 14 ILM 1282 (1975); Mexico: "Decree on Institutional Change to Account for Exclusive Economic Zone Beyond the Limits of Territorial Sea" February 1976 in 15 ILM 380 (1976); USSR: "Edict on Provisional Measures for the Preservation of Living Resources and the Regulation of Fishing in Marine Areas" in 15 ILM 1381 (1976); USA: "Fishery Conservation and Management Act of 1976" in 16 ILM 418 (1977) Supplemented later by a Public Notice (no. 526) on "Limits of Fishery Conservation Zone", March 1, 1977 in 16 ILM 418 (1977); Canada: Proposed Fishing Zones, Nov. 1, 1976 in 15 ILM 1372 (1976); and European Communities: "Proposed Regulation on Community System for the Conservation and Management of Fishery Resources" in 15 ILM 1376 (1976) and the Council Resolution on External Aspects of Creation of a 200-mile Fishing Zone on Nov. 3, 1976 in 15 ILM 1425 (1976).

To completely remove any confusion and doubt about the legal meaning of Kenya's coastal waters, the Continental Shelf Act should also be amended or re-written, as this writer has suggested elsewhere,¹⁷ or, at least, the ICNT definition cited above should be adopted. At present, legal questions about the extent of Kenya's coastal waters for purposes of fishery resource management must meet with doubtful or imprecise answers. However, at the practical level Kenyan fishermen have confined their activities within the territorial waters with the bulk of the activities conducted within 5 miles.¹⁸

2.2. The Fishermen

Other than the amount of fish landed from Kenya's coastal waters. This study is also concerned with the degree to which the fishing activity provides employment to the coastal population since this is an important aspect of its development role. The operations are primarily artisanal. The boats are by and large traditionally built, and less than ten per cent are mechanized. This small number includes the few boats owned by the established commercial fishing companies. No comprehensive study has been done to ascertain the number of people engaged in the large share of fishing operations. Part of the problem of obtaining that kind of census is that the commitment is not steady. As will be emphasised later, the fishermen work according to the economic needs of the time; then they leave.

One way in which the number of people involved in fishing may be assessed is by the count of the boats registered at the different fishing centres. It is estimated that there is an average of two or three people working in each traditional fishing boats at the coast. Therefore, by counting the number of boats one has rough idea of the number of people engaged in fishing. We shall discuss the qualifications to this general guide shortly, but Table 4 below gives the list of the boats reported as registered in 1977 the major fishing centres.

In addition to these regular fishing boats, there are 287 sports fishing boats owned by private individuals or clubs. However, such boats are for tourist and pleasure activities and so are not considered under fishing activities as such.

17. See Okidi, supra note 6.

18. Marine and Coastal Fisheries: Annual Report 1975 (Ministry of Tourism and Wildlife, Fisheries Department - Assistant Director of Fisheries (Marine)) p.1.

TABLE 4

Mombasa	878
Lamu, Faza, Kizingitini & Kiunga	362
Vanga	90
Majoreni	24
Shimoni	72
Kilifi	55
Tiwi	16
Ukunda	11
Galu	40
Diani	41
Gazi	21
Kinondo Jeza	13
Bodo	21
Funzi	18
Shirazi	23
Anzuwani Kiwambale	23
Wasini Mkwiro	39
Munge	17
Malindi	187
Total	1949 (Tana River not included)

(Figures obtained from Provincial Fisheries Office, Mombasa.
See also Table 5 below).

From the estimated figures given above and at the estimated count of two persons per boat, there may be about 3,898 persons engaged in fishing at the coast. There are several qualifications however, to this kind of data. First, the figures change by years and depending on use or disuse of the boats. One has to take into account that boats which become unservisable are not always reported. Several boats in serious conditions of disrepair lie at the various fishing centres while they are included in the numbers of registered vessels. Second, the figure of two persons per boat is only a rough average; there are instances of as many as five persons per boat. These qualification render attempts at estimation rather treacherous. Third, there a fishermen who neither have nor regularly use boats. This group includes people who walk to the edge of the sea to dive for lobsters and octopuses, among other species.

In the same category are fishermen who use equipment like uzio (oseo) the fenced enclosure for trapping schools of fish. These people are registered as fishermen, but do not use boats. If on occasions they need the use of a boat, they borrow from neighbours. Fourth, many of the boats are owned and used on a family basis so that the number of fishermen per boat cannot be strictly estimated.

Fifth, the fishermen do not all work on a steady and regular basis. Many fishermen go to sea to get money just for a specific project. They are workers who accept the "employment" with specific target projects in mind. After they have fished and obtained, for example, three thousand shillings for the purchase of specific things they quit the work and will return to fishing when the amount is spent or when needs arise.

It is in this regard, among others, that the fishermen especially on the South Coast are markedly different from the Tanzania fishermen who used to fish and land catches at Vanga and Shimoni before July 1977. The Tanzanians were not necessarily more energetic, but they did nothing else but fish, by day light and by lamp lights at night for sardines. One notes for example, that since the Tanzanians stopped fishing there as a result of political changes, there is only one Vanga fisherman in the South coast who is doing the fishing in the form of purse seining for sardinella.

A great deal of research on the employment pattern needs to be done in the field of marine fisheries. Even if such studies were available for various years, the figures might vary with certain patterns for different months and districts or fishing centres emerging. One notes, for instance that a comparison of the 1977 figures for registered boats in Table 4 and information obtainable at Kwale District in June 1978 reveals different boat and fishermen statistics. These are shown in Table 5. These figures should be read of course, with the above five qualifications in mind.

The difference between the estimate based on the 2-persons-a-boat and the actual count where fishermen are registered is obvious from these data. The figures in Table 5 suggest that an estimate of three-persons-per-boat is more reliable. Thus, for the whole of the coast, and based on the 1977 figures in Table 4, there would be about 5,847 persons employed in fishing activities, rather than 3,898. The Kwale District statistics indicate that a detailed study should be done to ascertain the population engaged in fishing and the number and types of boats used.

TABLE 5

<u>Centre</u>	<u>No. of Boats</u>	<u>No. of Fishermen</u>
Vanga	106	440
Shimoni	168	446
Majoreni	90	380
Tiwi	50	363
Diani/Ukunda	189	450
Msambweni, Gazi & Bodo	258	466
	861	2545

The determination of the population engaged in fishing is important for any plan to improve the gainful character of employment and the strategies for increasing the amount of fish harvested in the country. We have seen earlier that relative to the fishing in inland waters the marine section has made a very small contribution in Kenya. One has to bear in mind, however, that increasing the volume of fish landed in the country depends also on the commitment of the fishermen themselves. It was pointed out above, for instance, that many of the fishermen operate on the basis of their own specific target projects. This factor is further complicated by attitudes of the fishermen, some of whom believe that the amount of fish they catch is what "providence" has determined they should catch. When this writer asked a fisherman at Vanga about his plans to improve his catches the answer was: "Hii ndiyo riziki yangu. Hii ndiyo mwenyezi mungu amenipa. Nitajaribu tena kesho. Akipenda nipate mengi nitapata tu." (What I have here is my fate. This is what God almighty gave to me. I will try again tomorrow. If he wills that I should catch more I will get it.) This kind of attitude, if widespread, can be a serious impediment to increasing the productivity of fishermen or the gainful nature of the employment. In this regard, the focus would be to harvest fish not only for consumption and occasional needs but also to earn enough for other basic and continuing development needs. Needless-to-say, such a move would have to be accompanied by better organization of marketing facilities and proper means of transportation to centres of consumption.

Apart from problems of attitude and initiatives on the part of the fishermen there are also factors external to these artisanal fishermen that may hinder their steady and profitable activities. Of these factors the operating relationship between the small-scale artisan fishermen

and the more commercialized fishermen and their boats is important. If the commercialized fleets intensify their activities, the traditional fishermen will be unable to compete. The former have better gears, boats and established incentives. It will be necessary to protect the traditional fishermen to get their harvests while efforts are being made to enhance their capacity. One notes that at present, in the absence of clear arrangements, these fishermen often lay their nets on the routes where other boats pass with the result that the nets are lost or destroyed.

As Kenya plans the expansion of marine fishing to include full utilization of the proposed exclusive economic zone, there will be obvious need for comprehensive government intervention to enhance the status of the traditional fishermen while encouraging the bigger commercial ventures. This might include setting aside some fishing grounds for the traditional fishermen; this protection can be done by season and ecological areas.

3. THE ROLE OF THE FISHERIES DEPARTMENT

The Fisheries Department responsible for the conservation and management of fisheries resources. Thus, the department's mandates are very broad including the subsistence, commercial and scientific questions. The present study will only briefly sketch its salient features particularly the extent to which the department promotes gainful employment.

The Director of Fisheries is the government's chief officer in charge of the department. For marine fisheries, there is an Assistant Director of Fisheries leading the department's Coast Province Office in Mombasa with specific responsibility for marine fisheries particularly. Fisheries officers are located at Shimoni for South Coast, Malindi for Malindi and Kilifi and one for Lamu. Junior officers are located at active fisheries centres such as Vanga and Kilifi but they are responsible to the fisheries officers at Shimoni and Malindi, respectively. There is also a marine fisheries research unit located at Mombasa, to which we shall turn later. In general terms, these teams are responsible, through research and development, for promotion of the capacity of the traditional (currently artisanal) fishermen as well as to build up the foundation for a commercial fishery fleet for Kenya.

While the traditional fishermen have always developed their boats and gears for inshore fishing independently of government support, the first sign of concern with commercial fishing for Kenya was expressed in 1962. In that year, under the United Nations Expanded Technical Assistance Programme,

the Food and Agricultural Organization initiated a study of the potentials for tuna longline and inshore fishing along Kenya's Coast. The report findings were issued in a report to the Government of Kenya¹⁹ in 1965 which made encouraging recommendations resulting in another commission study in 1966. The recommendations of the 1966 study found expression in the 1970 - 1974 Development Plan to the effect that it was viable for Kenya to introduce "12 longliners operating 20 - 200 miles from Mombasa, where there would be a fishing base with a 1,000 tons cold storage".²⁰

It was then evident that Kenya had a plan to establish its own nucleus of a commercial marine fishing fleet capable of operating beyond traditional capabilities. Thus, at the beginning of the 1970/74 Development Plan the Kenya Fishing Industries (KFI) was established as a joint venture between two Japanese firms, Ataka and Company Ltd. and Taiyo Fishing Co. Ltd., together with the Kenya Maritime Company and the para-statal agency-Industrial and Commercial Development Corporation (I.C.D.C.).²¹ Even though the Fisheries Department was not directly involved the para-statal nature of the ICDC and the fact that KFI was to be the nucleus of the Kenya's commercial marine fisheries meant that the Department would be the government's technical counsel on the appropriateness of the venture. Indeed, it was later found that the venture had to be dismantled. To this we shall return later. Suffice it here only to mention that Kenya was set for an exercise which necessitated expansion of infrastructure and staffing along the entire coast and also a basis for considering the concept of the 200 miles exclusive economic zone discussed earlier.

One finds that the question of strategies to improve the productivity of the traditional fishermen is glossed over in the national development plans. It is perhaps correctly pointed out in the 1974-1978 Development Plan²² that "inshore marine fisheries offer considerable promise for higher levels of production through improvements in equipment and techniques used by the local fishermen". And it adds that these "improvements will not compromise

19. Tuna Longline Fishing and Inshore Fishing: Report to the Government of Kenya (Rome: Food and Agriculture Organization of the United Nations, EPTA FAO. No. 2102, 1965)

20. Republic of Kenya, Development Plan 1970-1974 (Nairobi: Government Printers 1969) p. 294.

21. The East African Standard. June 27, 1970 p. 5. The ICDC is a para-statal corporation under the Ministry of Commerce and Industries.

22. Republic of Kenya, Development Plan 1974-1978 Part I (Nairobi: Government Printers 1974) p. 270.

the labour intensive nature of this activity". Within the Department it is agreed by many that nearly all the fishing methods used by the traditional fishermen have attained the upper limits of their efficiency. It is also recognized that the entire catching fleet of local fishermen is exclusively artisanal; using small and non-mechanized boats limited in fishing range, capture capacity, seaworthiness and adaptability to use of modern fishing gears. Other limitations are marketing problems and instability of fish prices.

What is the Department doing to enhance the transformation required to overcome the above limitations? As evident from the above statements, boats and gears are interdependent; that is, one needs modernized boats to work safely and productively with the modern gears. At present, the Department has considered a plan for improvement of the gear capabilities. Specific kinds of gears will be selected in phases: beginning with trammel nets and later lobster pots, bottom long lines, shark nets, bottom and mid-water trawls, dip-net attraction lamp fishery, fixed nets and ring nets. Field staff, using the Department's boats are expected to carry out experimental programmes to ascertain the productivity of gears by seasons, space, and coastal ecological zones. Fishermen would then be advised to buy the nets and to use them during the productive seasons. One should bear in mind, however, that the fishermen are generally unable to purchase the gears due to lack of capital.

The limitation is that of boats, and this is another area where they would need the aid of the government. But the Fisheries Department itself has a very small fleet and of limited capability. Its only sea-going vessel is the 124½ feet-long Mv. Kusi made in the Netherlands in 1977 which is currently leased to the Kenya Fishing Industries for commercial deep sea fishing. The would-be second one, the Mv. Shakwe which is a 73 footer recorded to have been built by African Marine Engineers at Mombasa in 1968 is at present in serious state of disrepair. There are also smaller vessels owned by the Department: Three 27 footers at Mombasa; One 28 footer at Shimoni; one 27 footer at Vanga; one 28 footer at Malindi and one 30 footer at Lamu. In addition, there are four small boats in the same general range under construction at the Department's workshop at Mombasa. That Workshop is designed to build up to 50 feet boats.

It is evident then that the Fisheries Department is not equipped to supply the fishermen with boats and the workshop is not designed for commercial production of boats. The remedy must therefore be sought elsewhere.

3.1. Fishermen Loan Scheme

To enable the artisanal fishermen to raise capital for purchase of gears and boats, the Department launched a fishermen loan scheme in 1966. Unfortunately, the scheme ran into management problems with loss of most of its funds and was discontinued in 1970. The government responded to the continued need for a loan scheme by commencing reorganization of its structure as from 1975. By late 1977 the government invited loan applications from the fishermen.

The purpose of the loan to enable fishermen to purchase equipment ranging from nets, an engine or a boat so as to improve catch capability. Neither the items of purchase or the loan amount is fixed although there is a ceiling of Shs. 20,000/=. Some fishermen apply for the maximum amount to purchase a boat, some apply for about Shs. 7,000/= for an engine, while others need smaller amounts for specified gears.

The interest rate on these loans is 6% per annum. The maturation period varies according to the amount of the loan with the maximum duration of five years. There is no clear provision for period of grace on the loans; officials of the Departments say that the board which decides on the loans also specified when the first payment should be made. It is also pointed out that there is an insurance element ranging up to Shs. 11,000/= on the loans which is paid by the loan holder.

A number of problems are associated with the loans scheme each of which requires a specific detailed study and appraisal. They are mentioned here in random order. The first one is the insurance element which is borne by the loan holder. The insurance scheme may well be necessary; however, it imposes a rather heavy burden on the fishermen who are on a rather juvenile enterprise and therefore is a built in discouragement to their efforts. Second, many of the fishermen do not have the kind of loan security accepted by the financial institutions. Property such as boats and gears are generally considered too precarious for loan security. Focus is being placed on land title, commercial plots or lands, and houses. This approach will only help people who are already making commercial headway and neglect those most in need. The kind of inequalities resulting from this approach requires serious study with a view to suggesting some more equitable formulae. Recently a mechanism affording some flexibility has been adopted by the Fisheries Department: on recommendation of the fisheries officer, fishermen who show genuine initiative and industry even if they do not possess standard of loan securities. This is definitely a positive move.

Some of the fishermen in Shimoni area have also pointed out that they feel that those who are given loans are the people favoured by the government officials. They feel that all needy people should be given help. They believe that those whose applications are rejected will not want to cooperate with the government officials in any way. The obvious question is: who would be the loser? On the other hand the government should be sensitive to sources of this kind alienation.

A third problem is that some of the fisheries officers who are supposed to assist the fishermen in preparing the loan applications did not fully understand the basic requirements. Their explanations may have misled some of the applicants. The result is that several of the applications received recently were returned for re-filing. Certainly, the delay so caused is not in the interest of the fishermen.

Yet a fourth problem with the loan is that the maximum amount provided includes the range for purchasing from boats to accessories such as gears and engines. Some people believe that the total loan would not buy even a twenty foot boat - smaller than any that the Department has at the stations listed above. However, officials differ as to adequacy of Shs. 20,000/- for purchase of a boat. The position of the Department is that the loan scheme is for the traditional fishermen who use small boats for which the amount would be sufficient and that once the loan is approved the officials will ensure that the fisherman gets to the proper boat-builder. They argue too that a proportionately small engine on the small boats increases their capacity a great deal. On the other hand, critics argue that the small boats are too hazardous in the face of the coastal waves and that every effort should be made to help fishermen purchase bigger boats (on Cooperative basis if need be) and progressively abandon the small traditional which perpetuate their subsistence and artisanal conditions.

Of course, this kind of transformation is related to and based on other factors in the strategy for improving the work of these fishermen. One recalls, for example, the attitude of the fishermen towards their trade that whatever they get is a predetermined gift of god (riziki yangu) needs to be replaced with a more resolved attitude if the loans are to be repayed and the boats used profitably. Another issue is the training of the fishermen to use the larger boats, engines and gears.

Such training would entail differentiation of roles to promote effectiveness. Recent recommendations made by the World Bank and FAO²³ suggest that every small size trawling boat averaging 30 - 32 feet length should have on board about seven or eight people, including skipper, an engine operator, four deck hands and a fisherman. This is based on the view that fishermen should move beyond subsistence to commercial fishing operation.

23. Kenya Fisheries Reconnaissance Mission op. cit. Annex 3 p. 4.

It may be in recognition of the inadequacy of current institutional and resource pool that the Fisheries Department has recently considered establishing Kenya Fisheries Development Authority (KFDC) as a commercially oriented corporate body. The precise details of institutional and functional framework of KFDC have not been made public. Therefore, we can pass very little judgement on the wisdom of such a move. We can however raise two basic questions about the role of such a new agency. First, would it go into actual freshwater and/or marine fishing? If so what would be its relationship with Kenya Fishing Industry which is a commercial para-statal body of I.C.D.C. So far KFI has operated only in marine fisheries but we do not know if there is anything that would prevent it from entering inland waters too. Our only reservation is that inland waters should best be left to the small scale local fishermen rather than the major commercial enterprises like KFI. Second, would the new KFDC be involved in a loan scheme? We have seen that the management by the Department of the scheme once failed but we do not know the scope of the new reorganization. It does not seem that the loan scheme alone should justify establishment of the KFDC. Perhaps if some of the loans were channelled to the fishermen's cooperatives through the Cooperative Bank there will be a very small proportion of the fund left for the Fisheries Department to manage.

One functional area in which the KFDC might be particularly useful is in development of marketing mechanisms. The fishermen's cooperatives, which we shall discuss below, may get involved in extensive fishing; so may the parastatal KFI. However, these bodies may not be particularly well-equipped for purposes of detailed marketing research and establishment of future demand areas. This may be a possible area of cooperation in which KFDC might perform a coordinating role.

3.2. Fishermen's Cooperatives

The fishermen's cooperative societies have been established to promote development of the traditional fisheries sector through two major strategies. First, they are to provide for systematic marketing and price stabilization by receiving the fish and choosing the market. Secondly, the cooperatives would be a vehicle for centralized cooperation for fisheries development.

The cooperatives are managed by two ministries of the Kenya Government. The aspects that relate to "cooperatives" structures and functioning are dealt with by the Ministry of Cooperatives while the aspects relating to

fisheries development: techniques and equipments for promoting fisheries, are dealt with by the Fisheries Department in the Ministry of Tourism and Wildlife.

Membership of the society is open to any fisherman, but the distribution of the societies are by the active fishing centres or by administrative districts. As in most cases of small-scale commercial activities, they are subject to the jurisdiction of the respective county councils. In July 1972 there were six fishermen's cooperative societies: (1) North Coast Fishermen's Cooperative Society caters for those around Malindi fishing centre; (2) Kipini Fishermen's Cooperative Society caters for those around Kipini fishing centre; (3) Malindi Fishermen's Cooperative Society for fishermen at Malindi; (4) Msambweni Fishermen's Cooperative Society is for the centres ranging from Gazi to Eodo; (5) South Coast Fishermen's Cooperatives Society is for Shimoni alone; and (6) Mwangugu Fishermen's Cooperative Society is for Vanga only.

The membership in the society is entirely optional and the continuing vitality of the societies will depend on how the two ministries can make the cooperatives profitable to the fishermen. At most centres only a small number of people have opted for membership. This is illustrated by the figures for centres in Kwale District where less than a quarter of the fishermen are reported to have joined. (Table 6).

Table 6: Recorded Numbers of Fishermen and those Who Have Joined Cooperative Societies.

<u>Centre</u>	<u>No. of Fishermen</u>	<u>Members of Coop.</u>
Vanga	440	161
Shimoni	440	113
Majereni	390	119
Mwi	363	(No branch)
Msambweni	469	86
Diani/Ukunda	450	40
	<u>2,452</u>	<u>499</u>

At present, the Cooperatives pattern of operation is fairly straight forward. On the question of fish marketing, the cooperatives receive the fish from members at the point of landing, and pay cash to the fishermen; there is a uniform price for every species of fish. The cooperatives then immediately sell to dealers. Note that at the present time the societies have neither cold storage facilities, ice plants nor transportation of their own. The dealers who usually travel from Mombasa are equipped with ice and refrigerated vehicles;

they buy and transport the fish to the markets in Mombasa or Nairobi. The cooperative keeps ten per cent of the proceeds on sales in form of a commission. The rest should be the equivalent of what is paid to the fishermen at time of landing. However, the fishermen gets this amount less the cess levied by the county councils. The pattern of payment is demonstrated by Table 7 for Malindi and Watamu. Note, too, that these prices are not controlled and differ with places and

Table 7.

	<u>Dealer Pays</u>	<u>Fishermen receive</u>	<u>County Council receives</u>	<u>Coop. Society receives</u>
Lobster Shs	27.50	22.50	2.50	2.50
Prawn Shs	19.20	16.00	1.60	1.60

Before the establishment of the cooperative societies the dealers got the lowest possible prices and realized large profits by selling at the highest possible prices. This writer once witnessed what was called a fish auction at Malindi where it was evident that four dealers had combined to keep the amount paid to fishermen extremely low in contrast to what the Mombasa based dealers paid. The so-called auctioneers sometimes received as much as three times the amount paid to the fishermen, when they bought the fish at the landing beaches and immediately sold to the in-coming Mombasa - based dealers. Needless-to-say, these were the interest groups which were fatally threatened by the formation of the cooperatives and resisted the moves vehemently. The Malindi Cooperative Society was not formed until 1977 due to resistance of the interest groups. A close study should be done of prices paid for fish at various points from the landing beaches through to dealers' sale rates in Mombasa and to the Nairobi consumer market to ensure that consumers are not exploited while fishermen also get a fair price from dealers.

Several dealers from Mombasa are ready to go to the various landing centres everyday. To avoid the struggle for the small quantities of fish (and to keep down the prices which would be raised by competition) each dealer has his day at a given fishing centre. At some centres a dealer may have two days a week but at other centres, such as Vanga each registered dealers has only one day a week, such schedules being supervised by the officials of Fisheries and Cooperative Departments.

Most of the societies have no facilities of their own at all because the range of their activities and income is still limited. There are a few instances where useful facilities have been acquired. For example the Lamu society has bought a fish carrier boat and have given some dividends to

members. The Vanga one recently bought a utility pick-up car. They ought to increase the range of their services in order to render the deductions they make on the proceeds from fish legitimate. ~~Conversation with fishermen~~ reveal that they have serious reservations ~~against the deductions made~~ on the proceeds from the sale of fish. This applied also to the county council cess which is effected under Local Government by-laws. The county councils argue that the fishermen's cooperative societies may well need encouragement, but then all cooperative societies pay the cess and the same should be imposed on all of them equally.

In addition to marketing and price stabilization, cooperatives have been considered suitable as conduits for development loans. In this regard, Kenya's Third Development Plan commented as follows:

Experience in recent years indicate that fishermen's cooperatives are not functioning as well as was expected when they were established. The major problem has been an inability to use the cooperatives as a vehicle for supplying credit to individual fishermen. Weaknesses in cooperative management have also tended to make cooperatives poor credit risks themselves. Loan facilities of the Fishermen's Loan Programme will continue to use the facility effectively, but, a special effort will be made to lend directly to enterprising fishermen.²⁴

The views expressed above are interesting for a number of reasons. First, it is expressed in the context of the Fishermen's Loan Programme discussed above. It will be recalled that the loan scheme, once started, was so mismanaged, and perhaps misappropriated, that it had to be discontinued in 1970. It is probably unfair that its demise should be blamed entirely on weakness of the cooperatives. If the cooperatives had proved inefficient for purposes of any other loan schemes then that is a different matter. Second, the establishment of the cooperatives is a relatively very recent practice. It has been pointed out that the Malindi Cooperative was started in July 1977 after overcoming many obstacles. In which case the concept of cooperatives itself may not have built-in weaknesses but they may need serious organizational support and maturation. The Departments of Fisheries and Cooperative Development may also have to give more attention to the concept, improve their operation and support to the fishermen and to correct the gap in membership shown in the case of Kwale District (Table 6) before the cooperatives concept can be dismissed as inefficient.

There is a basic policy weakness in opting as suggested in the development plan of loans support only to the "enterprising fishermen". Such a system is likely to give the aid only to those who are already "on their feet" and ignore those who most need help. The consequence is that socio-

24. Development Plan 1974-1978 op.cit. pp. 271-272.

economic gaps are widened by the working of the financial institutions. Serious studies need to be done as to the ways of promoting equitable development of the marine fisheries through the use of cooperatives.

3.3: The Kenya Marine Fisheries Research Unit.

Before the collapse of the East African Community in July 1977 the Unit now referred to as the Kenya Marine Fisheries Research Organization (KEMAFRO) was a branch office of the East African Marine Fisheries Research Organization (EAMFRO). The regional Organization had its main facilities in Zanzibar Island while the branch office for Kenya was located in Mombasa. The branch office functioned largely as a clearing house; it did ~~not~~ have any laboratory facilities. However, after the demise of the Community the Mombasa office was designated as the headquarters of KEMAFRO. Like other research agencies formerly under the Community which were taken over by the Kenya Ministries with relevant portfolio, KEMAFRO was placed directly in the Fisheries Department under the Ministry of Tourism and Wildlife.

Broadly stated, the function of the unit is to continue the task once done by EAMFRO except that it operates only within Kenyan waters. Its task is the identification of fish species and stocks, their biology, distribution and abundance. The research will also assess policy-related issues like the determination of levels of maximum and economically sustainable yield of the stocks given the current level of harvesting capabilities.

This work requires scientists, laboratories and research ships. The new Kenya unit is not fully equipped in any of these areas. Its establishment for scientists is thirteen, but at present there are only three. The long-range requirement is the training and recruitment of marine scientists of all kinds and this entails large financial investment which the Directorate of Personnel should act upon immediately. In fact, lack of personnel is at present the most severe weakness of this unit. A new laboratory building has been built in Nyali, near the old Nyali Bridge. Funds have been set aside for the purchase of laboratory and library equipments. It was anticipated that the laboratory would be ready for use in August 1978.

There are two sea-going research vessel and two canoes which cannot venture beyond one kilometer from the coast. We have already made reference to one of the sea-going research vessel, the M.V. Kusi. It is

equipped with research facilities, but it is also capable of engaging in commercial fishing activities. As a part of the purchase agreement, the ship came with Dutch officers who currently man it with Kenyan counterparts who should in the near future take over the control. At present, the Kusi is leased by the Fisheries Department to the Kenya Fishing Industries which uses it on commercial fishing activities, largely trawling. It is not a tuna boat. The second research vessel, also available to the unit is the M.V. Shakwe. It is manned by local officers and is mostly used by the Fisheries Department directly for coastal research. At the time of this survey the Shakwe was undergoing assessment at the Mombasa workshop and may be in need of major repairs if it is ever to go back to sea. The research activities will require more boats, especially as more staff is recruited for work here. At present the plan is that another small boat for inshore research will be purchased during the financial year 1978/79.

In general research activities, the unit is geared for significant cooperation with the relevant departments of the University of Nairobi. First, it is planned that researchers from the University can use the laboratory facilities free of charge provided that prior arrangements are made for availability of space and equipments. Secondly, there is a plan for a special fund to facilitate this collaboration.

A good deal of basic information on marine resources on Kenya's coast collected during the EAMFRO days is available at the Mombasa office. The information covers the crustaceans resources, Mollusc resources, fish resources and the status of the coral reefs. There is however, a great deal of ground left for future research off Kenya's coast. However, the ideal future status for the research unit is unclear. That is to say, should it be under the authority of the Assistant Director of Fisheries, Coast Province, as a provincial sub-unit or should it be an autonomous research institute directly responsible to the Director of Fisheries.

In the opinion of this writer, if placed under the provincial fisheries officer, the unit will suffer a number of limitations. First, its status as a provincial sub-unit gives research a low level administrative status and as a consequence, relatively limited discretion in formulating of its work plan. Secondly, the research unit for Kenya, newly awakening to the true economic value of marine resources, should be an independent collaborator with the office charged with development advisory role. The research unit should seek and make data available to the provincial fisheries administration as an input into its policy and development work. The unit

might also have the role of evaluating the scope of policy development. Thirdly, the autonomy of the unit would facilitate greater ease in possible research collaboration with foreign research expeditioners such as the recent joint research between the University of Kiev and University of Miami. Such opportunities may increase in the future, considering the place marine scientific research has assumed at the Third United Nations Conference on the Law of the Sea. It is therefore the opinion of this writer that the unit should be designated Kenya Marine Fisheries Research Institute directly under the Director of Fisheries and that it should be elevated in status and be headed by an Assistant Director of Fisheries with appropriate research staff.

3.4: Other Infrastructure.

The Department of Fisheries has recently planned and constructed some infrastructures of which the following deserve special mention. One such facility is a "modern cold storage capable of holding 2,000 tons of frozen fish at a time and a modern jetty equipped with conveyor belts for loading and off-loading of fish cargo" built with aid from Japan.²⁵ The facility was constructed, with Japanese assistance under a broadly based technical assistance scheme which includes fisheries personnel. Up to now, the facility had been largely used by long-distance fleets, especially Japanese and Korean, which need transit storage for their catch. It is also used to a small extent by the para-statal Kenya Fishing Industry. Since landings by the foreign fleets is declining very fast, from 7,184 metric tons in 1974 to only 613 in 1976,²⁶ KFI will have to increase their capacity and catch to prevent facility from becoming a "white elephant".

There are jetties and boat repair facilities at Malindi and Lamu. Another one is currently under construction at Shimoni and is expected to be complete by the end of September 1978. The purpose of the Shimoni facilities is to encourage fishing by commercial vessels in Kenya's southern waters. However, there seem to be some questions about the suitability of this facility which is being constructed by a private engineering company at a cost of about three million Kenya shillings. Some people consider the jetty too high for the small traditional boats and, therefore, alien to the fishermen for whom it really should be constructed. On the other hand, the water is considered too shallow for vessels the size of Kusi or Shakwe or even a schooner 30 feet long. The engineer found at work there agreed that the jetty

25. See statement by Minister of Tourism and Wildlife in the Region of the Fourth Session of the Indian Ocean Fishery Commission in Mombasa July 1975 in FAO Fisheries Report No. 166 (Rome: Food and Agricultural Organization of the United Nations Sept. 1975) p. 19.

26. Annual Report 1976. Ministry of Tourism and Wildlife, Fisheries Department, Coast Province.

may be too high for the small boats, but said that under certain circumstances they could use its outward side. He argues, however, that the vessels like Kusi and Shakwe can easily use the facilities at high tide. The construction specifications were approved by the Kenya Ministry of Works which is also responsible for inspection of the work and final acceptance of the completed facilities.

Well-considered jetty and landing facilities at Shimoni might have significant long-term utility. There is the possibility of increased fishing in Kenya's southern waters in the future. In the past Kenyan fishermen have showed considerable interest in these waters southwards to the Pemba Channel. It will be recalled that this fact led to arrest of Kenyan fishermen by Tanzanian authorities in 1970^{26a} and eventually resulted in the negotiation between the two countries as to the maritime boundaries. Besides, Kenya and Tanzania may in future come to some agreement for joint management of fishery resources; in which case, Shimoni might be the logical activity centre on the Kenya side. The same significance would apply, at a higher level, if Kenya Tanzania and the Seychelles were to adopt a joint fishery management agreement. Existing facilities, reasonable proximity to Mombasa and an existing road (relatively better than the road to Vanga) might give Shimoni an advantage over any other south coast fishing centre.

Construction of a major complex including cold storage, jetty and an engine workshop at Ras Ngomeni, Ungwana Bay, next to the Italian Satallite station is under consideration. This idea was emphasized in the FAO/World Bank study and recommendations for Kenya²⁷ and the precise details, including construction of access road to the location, are currently being studied by the Department of Fisheries. The FAO/World Bank study recommended that this complex be a major fishing centre to service the fertile Ungwana Bay trawling grounds and that the centre have a Manager or Supervisor whose duties would be, among others, to guide and encourage skippers and to encourage exchange of information and group work rather than individualistic fishing operations.

The KFI has also decided on the construction of a jetty and cold storage facilities at the same location. There is adequate land at the site. It seems important for both KFI and the Department to cooperate so that costs are not duplicated while individual functional autonomy in vital departmental areas is maintained.

26a. East African Standard September 19, 23 and 24; and October 5 and 6, 1970.

27. Kenya Fisheries Reconnaissance Mission. op.cit. Annex 3.

4. COMMERCIAL FISHING VENTURES

The artisanal or traditional fishermen undertake some amount of commercial activities. Nevertheless, their activities are so limited in scope and so sporadic that the commercial component must be considered minimal. On the other hand, there are companies involved in fishing and trade in fish on a more established basis. At present, there are four such companies in Kenya: The Kenya Fishing Industry, a para-statal body, and three private companies, Samaki Industries; Kenya Cold Storage; and Wananchi Marine Products.

The Kenya Fishing Industries is a public enterprise originally established in December 1970 as a joint venture between the Industrial and Commercial Development Corporation (a subsidiary of Kenya Ministry of Commerce and Industry) and two Japanese firms, Ataka and Co. Ltd; Taiyo Fishing Company Ltd; and the Maritime Company Ltd. The ICDC had a share of 68% in the venture,²⁸ giving the Government a controlling share in the business.

As it turned out, the Japanese companies had a stronger position in the partnerships because the vessels and the personnel manning them were exclusively Japanese. In effect, Kenya gave the Japanese companies the opportunity to promote their own fishing interests. Indeed, the Japanese companies did nothing to promote Kenyan interest. By 1977 it became clear to Kenyan authorities that the Japanese companies used internal affiliations to hold down and subvert the Kenya's fishing capabilities. Consequently, the ICDC took over the Ataka shares and with effect from February 16, 1978 the two Japanese companies were expelled. K.F.I. became a fully government owned (through ICDC) enterprise.²⁹ It may have been too long a time to realize the folly but it may be a learning experience to guide future efforts.

At present, the national plan makes the KFI the nucleus of the Kenya commercial fishing venture for in-shore as well as deep sea fisheries; this will include cold storage and processing under Kenyan management.

28. Ibid.

29. See announcement of the take-over in The Standard (Nairobi) 9th March 1978, p.7.

The present Board of Directors is chaired by Matu Wamae, the Managing Director of ICDC and includes; John Mvoyi, a Mombasa businessman; J. Gituma of Kenya Harbours Corporation; N. Odero, the Director of Fisheries; L.M. Kabetu, Permanent Secretary in Ministry of Commerce and Industry; Onyango Ayoki, the M.P. for Kisumu Rural. The Managing Director is Abdallah Mbwana.

On the new footing, the managing director of KFI has an ambitious three-stage programme of work for development of inshore fishing which started in 1978. The first stage involves a three million shillings investment. Part of that money will be used to purchase four boats thirty-eight foot vessels, all manufactured overseas. To set the stage for the operations of these boats (called Liwatonis) Liwatoni I is already engaged in prawn trawling on the Northern Kenya Banks and it is expected that the other two under order should be received during the last quarter of 1979 and go out to sea in 1980. The remaining two will be ordered during 1980 and will incorporate features found necessary through use of the first two. Their delivery will be arranged so that they can go to sea early 1982. The company will also purchase one fibre glass boat of similar size from a local builder. The latter acquisition may also be an ideal situation to test whether with similar construction materials, the boats can be more economically purchased locally than overseas. The final consideration for the first phase is the acquisition of land at Ras Ngomeni Ungwana Bay, next to the Italian Space Research facilities for the construction of an ice plant. KFI anticipates that local fishermen will benefit from these facilities. As pointed out earlier, KFI and the Fisheries Department have both surveyed the site to determine areas of cooperation.

In the second stage, commencing in 1979 and 1980 the first project will be deep sea fishing. Their goal, based on the breakeven for cold store, is a total catch of 4,800 tons per annum. The KFI would itself expect to catch the large share of that amount and for that reason they propose to purchase four tuna longline boats during the phase. The rest of the quater would be met by purchase of fish from artisan fishermen along the coast.

The third stage would begin in 1981 when, it is anticipated, the tuna boats and the inshore fishing will be fully operational. At that juncture KFI will commence processing, including canning and fish meal production. The first objective of this phase is to provide sufficient fish for local needs in Kenya.

The crucial consideration in the implementation of these plans is the question of personnel. In Kenya there is a dearth of manpower trained or experienced in fishing of the magnitude anticipated in these plans. Therefore, the plan of KFI is that the first two of the boats ordered will be operated by Korean crew under the company's employment. The company intends to recruit

these from Korea. This cadre of foreign crew will be expected to train local counterparts in the hope that by the time the second set of boats go to sea such boats can be manned by local and foreign crews on different tasks, and that in the near future sufficient local expertise can be developed.

This is a tricky design which would require very critical attention of the management to ascertain that the "training" scheme does not last forever, ensuring a permanent employment for the expatriates. To do this the local training under tutelage of the Koreans may need to be supplemented by some other training, and test schemes concentrated enough for quick and effective results. Certainly, at present the KFI will need to fully experienced personnel wherever they come from to ensure commercial viability of the investment. But the focus should be on the accelerated and effective training of Kenyas in the trade.

There are three private companies involved in marine fisheries in Kenya, namely: Samaki Industries; Wananchi Marine Products; and Kenya Cold Storage.

At the time of this survey (June 1978) Samaki Industries had a total of seven vessels. Only five of the vessels called: Samaki, Baruti, Khole Khole, Suli Suli and Mkizi were registered in Kenya; all these five are, incidentally, only fish carriers and not fishing vessels. They are used for carrying fish from various remote fishing centres to Mombasa. The other two vessels: Hasikin No. 10 and Hasikin No. 16 both of which are fishing were not registered in Kenya.

Wananchi Marine Products had two vessels: Kuvuna 818 and kuvuna 369. Both are fishing vessels and are registered in Kenya.

Kenya Cold Storage had three vessels: Alpha Commando, Georgia and Challenger all of which are fishing vessels. Of these three vessels only Alpha Commando had part of its information entered in the register; most of the information on the vessel is lacking. The other two are not registered in Kenya.*

The folly of the original Kenya Fishing Industries suggests the degree to which national authorities should be critical of the concept of joint ventures with foreigners in the fishing industry. What the Japanese did can be repeated in a developing country with the following outline: The foreigner, interested in fishing along Kenya coast, comes along with his fishing vessel, gears and crew.

*See a list of all Kenya registered vessels in Annex to this paper.

In the LDC they could pick up some people and form a joint venture in which the local persons have none or negligible capital input. Within such a context the local persons could enjoy the small pay-offs while the foreign owners enjoy the bulk of the proceeds of the fishing including repatriation of profits. After the foreigners' interests are satiated or after they have depleted the stocks of interest to them or fished to a level below the economic or maximum sustainable yield they can fold up and go. The point here is that fishing in the coastal waters within national jurisdiction of the coastal state should be subjected to control of the coastal state and have effective and profitable participation of the genuine local public and private enterprises.

5. FOREIGN FISHERMEN IN KENYAN COASTAL WATERS.

The question of whether or not there are foreign vessels fishing in Kenya's coastal waters made the news in Kenya on June 23, 1978 when Omar Cheka, the Member of Parliament for Lamu West constituency, asked the Minister for Tourism and Wildlife to tell Kenya Parliament "how many foreign boats were fishing in Kenya Waters."³⁰ The Minister replied that there were no foreign boats in Kenya Waters and added that the "boats used for fishing at the Kenya coast were jointly registered by Kenyan and foreign companies".³¹

Both, the question and answer, if they were correctly reported have several interesting aspects: some interesting in their vagueness; some in their inaccuracies. In the first place, we have seen in discussions above (p. 9 - 12) that the concept of "Kenyan Waters" or "Kenyan Coast" is manifestly vague. We noted that Kenya, as a state, could control fishing within her declared territorial sea of twelve miles and on the continental shelf. When the country finally adopts the 200 miles exclusive economic zone then that will be the outermost area of national jurisdiction. These may also be called the legal limits of "Kenya's Coastal Waters". In the absence of these kinds of specifications, the question asked by Mr. Cheka has very little meaning in law.

The Minister responded as if the question was clear in its context but his answer was much like one out of the seventeenth century when coastal waters would be determined by how far into the sea a coast-based canon could hit targets or the limits of the eye-view. Basing their reports on this criterion of delimitation some local fishermen have reported that they have seen several ships carrying flags unlike Kenyan, fishing close to the coast especially in

30. Reported in the Daily Nation (Nairobi) June 26 1978 p. 4.

31. ibid.

northern coast areas. One of the captains of the Kusi said he was aware of instances when Japanese and Korean flag carriers were fishing within ten miles of Kenya's coast. It seems that this is an issue over which Kenyan authorities could easily ascertain the facts.

On another score, the Minister is reported to have said that "there were no foreign boats hired by local companies to fish in Kenyan Waters".³² As a matter of fact, it seems that either the companies that are using the boats listed above as not registered in Kenya are not considered "local companies" or the answer was not entirely accurate.

Finally, the reported answer that "There are nine boats which have been registered jointly local and foreign companies" would be misleading because companies do not register boats. The act of registration of a boat is the legal one by which the state authorities confer nationality on the vessel. Only state authorities, and not companies, register boats. In Kenya the official agent charged with the responsibility registration of boats is the Merchant Shipping Superintendent whose office is at present located at Kilindini. The Annex to this paper presents the names, tonnage and make of all the vessels on the register in Kenya on June 21 1978.

The officials of Department of fisheries have said that the foreign registered boats used by companies in Kenya are authorized by that Department under a special licence. Certainly, this would be a concept very different from "registration". It simply means that the vessels are not violating the Kenya Fish Industry Act having been permitted by the Department. But the fact remains that they are not registered by Kenya's authorized agency.

Clearly, the question of fishing in Kenya's waters has its confused aspects. However, clear fact is that several foreign fleets land their catches at Mombasa and the magnitudes are generally known. Table 8 below gives a breakdown of the landings by species for the years 1973-1976.

These figures are obtained from the transit - landing records at the KFI cold storage facilities, and are landed almost entirely by Korean and Japanese fishermen. Precisely where the fishing is done is not certain to Kenyan authorities. Some of the fish may have been caught within 200 nautical miles of Kenya's coast and some beyond that zone. Some of the observations made on

32. ibid.

Table 8: DEEP SEA LANDING BY FOREIGN BOATS. 1973 - 1976 (in Metric tons)

<u>SPECIES</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>
Albacore	2172	1685	191	70
Big-eye-line	1060	1583	463	73
Blue-fin-tuna	6	7	9	-
Yellow-fin-tuna	2568	2301	512	364
Black Marlin	148	277	59	12
White Marlin	-	85	20	5
Blue Marlin	91	-	-	-
Stripped Marlin	-	-	-	-
Red Marlin	93	151	41	7
Sail Fish	119	230	54	18
Skip Jack	-	-	14	-
Sword Fish	166	222	61	16
Shark	111	27	33	-
Moro	155	212	30	23
Others	254	404	88	25
	<u> </u>	<u> </u>	<u> </u>	<u> </u>
TOTAL	<u>6942</u>	<u>7184</u>	<u>1555</u>	<u>613</u>

the deep sea fishing grounds suggest that western Indian Ocean grounds are fertile. One source states that "The best fishing grounds for yellow fin are in the western part of the Indian Ocean between 10°N and 10°S, i.e. relatively close to Mombasa and extending to south of Sri Lanka."³³ The source adds that "Since the drastic rise in oil prices, in 1974, longlining for canning fish is a declining fishery, except possibly for albacore which in the Indian Ocean is caught over 1,200 nautical miles south and east of Mombasa".³⁴ Kenyan authorities will probably be keen to know how much of the fish is caught within 200 miles exclusive economic zone before or after concept is incorporated into Kenyan laws.

One striking feature of the data in Table 8 is the steep drop in the landings since 1974. Part of the reason for the low figures may have been alluded to in the above comments about the consequences of the like in oil prices. On the other hand, some Japanese fishermen have reported that the stocks in Western Indian Ocean have been declining in their abundance. In any event the real

33. Kenya Fisheries Reconnaissance Mission op.cit. Annex 3 p. 9.

34. ibid. p. 10.

reason for declining use of the KFI cold storage facilities can only be varified by actual survey of stocks.

OTHER ISSUE AREAS.

There are a few other issue areas relating to marine fisheries in Kenya but which have not been dealt with in the preceding pages. They are commented upon here only briefly.

Pollution of coastal waters is one such issue area. Marine pollution can have serious deleterious effects on fishing and fishery resources. Evidently, the fact that Kenya's coast is exposed to the busiest oil tanker traffic in the world makes this a matter of concern. While a major spill like the Torrey Canyon of March 1967 or Amoco Cardiz of March 1978 would be disastrous to Kenya and its neighbours, small scale spills have been known to have far-reaching cumulative effects on fishery resources. Besides, land-based sources of pollution pose serious threat to these waters. In 1971, a report by FAO stated that "Oyster beds in coastal waters of Kenya are affected by bacteriological contamination from sewage; coffee-pulping and sisal producing wastes are strong organic pollutants which often cause oxygen depletion and fish kills in small rivers in Kenya and Tanzania."³⁵ Some observers have also reported that oily wastes discharged from the launching pads of the Italian Satellite facilities at Ras Ngomeni, are causing marked pollution in the fertile Ungwana Bay area.

Recently, Kenya formed a National Marine Anti-Pollution Committee with the following terms of reference:^{35a}

- (a) to formulate an oil spill contingency plan for application in event of a serious spill along Kenya's coast;
- (b) to institute measures for effective monitoring, discovery, reporting, cleaning and containing the spread of pollution;
- (c) to keep abreast of new technological advances for marine anti-pollution equipment and to review the related contingency plans accordingly;
- (d) to advise the proper Kenyan authorities on the acquisition of marine anti-pollution clean-up and containment equipment;
- (e) to institute measures to ensure the maintenance of such equipment as required;

35. See FAO, Pollution: An International Problem for Fisheries (Rome: FAO 1971) p. 55.

35a. See details in Makau, B.F. "Present and Future Perspectives on Marine Affairs in Kenya" in Okidi, et. al. (Ed) Management of Coastal and Offshore Resources in Eastern Africa (University of Nairobi, IDS/OP 28, 1978) pp. 30, 36-37.

- (f) to advise the shipping industry on implementation of various regional or international conventions concerning marine pollution; and
- (g) to stimulate and streamline cooperation and coordination between government, port authorities and shipping industry with regard to the protection of marine environment.

The Committee is composed of the representatives of the National Environment Secretariat, Police Airwing, Coast Provincial Commissioner's Office, Kenya Navy, Fisheries Department, Water Department, Merchant Shipping Superintendent, Oil Companies (one representative from all), East African Oil Refineries, Kenya Harbours Corporation, and Hotel Keepers Association. The contingency plans of this Committee have not been put to test nor its details made public. In case of a major spill the traditional fishermen whose operations are close to the coast and who depend on fish for food would be the most seriously affected class.

This writer has argued elsewhere³⁶ that marine pollution can be most effectively dealt with through regional arrangements rather than by unilateral state action. That is not to deny the significance of instate preparedness but the latter has very limited prospects for effective controls. To date, UNEP has undertaken to support regional pollution control programmes and already agreements have been signed for the Mediterranean Sea³⁷ and the Persian Gulf.³⁸ Plans³⁹ are also under way for Gulf of Guinea and the Caribbean Sea and another one under consideration for eastern Indian Ocean. No such consideration has commenced in the Western Indian Ocean and this is a serious omission which the coastal states and UNEP ought to correct.

Regional programmes for fisheries management is another issue area. It has been pointed out that there is no operational fisheries organization in the Indian Ocean. FAO's Indian Ocean Fisheries Commission is only a

36. Okidi, "Towards Regional Regulation of Marine Pollution: An Appraisal of Options". Ocean Development and International Law Journal Volume 4. 1977 pp. 1-25.

37. See Int'l Legal Materials Vol. 15 1976 pp. 285 and Int'l Legal Materials Vol. 16 1977 p. 958.

38. Text of Kuwait Regional Convention on the Protection of Marine Environment from Pollution in Int'l Legal Materials. Vol. 17, 1978 pp 501-525.

39. See Kaniaru, D. "Regional Perspectives to Combat Marine Pollution Around Africa" in Okidi et al Management of Coastal and Offshore Resources in Eastern Africa (University of Nairobi, IDS/OP 28 1978) pp. 213-229.

system for gathering and exchange of information; so is the Indo-Pacific Fisheries Council. Moreover, one suspects too that the countries in the Arab peninsula may want to have their own Arabian Sea agreement where the petrodollar can be used for their own development.

Kenya stands to gain from a regional programme of fisheries management. It would enable them to have access to the fertile fishing grounds off Tanzania and Somali coasts. At present Kenyan boats would probably be shot if they tried to fish in Somali waters without some sort of agreement. Tanzania would not welcome them, either. We would suggest that Kenya should go ahead and seek a series of bilateral agreements with its neighbouring states. This would pave the way for an eventual regional agreement. In the meantime the budding fishing fleets of the countries could venture into one another's waters according to a treaty. The Government of the Seychelles has declared its intention to apply stringent regulation over fisheries in the 200 miles exclusive economic zone it claims.^{39a} Kenya could immediately initiate bilateral negotiations with the Seychelles since the Kusi has made some fishing expeditions to those waters. An agreement, even for fishing for fees, might be to Kenya's advantage.

It is our opinion that the present unfriendly relations between Kenya and Tanzania or Somali would not completely block prospects of agreements if the parties see the need. Perhaps the fact that Cuba and the U.S.A. could sign and agreement⁴⁰ stipulating reciprocal fishing arrangements should be an encouragement for other countries because these two countries have no love whatsoever for one another.

Uniform claims to coastal jurisdiction is not necessary for regional arrangements; however, it would perhaps be meaningful if Kenya and her neighbours settled for uniform claims for purposes of mutual management strategies as well as reciprocal arrangements for access to fisheries in one another's waters. There is no clear reason why these states have not legislated for 200 miles economic zone at this stage. At one time it used to be believed that unilateral action of that kind would subvert the UNCLOS initiatives. But this has been overtaken by events as evidenced by the range of unilateral claims so far established and the number of bilateral or multilateral agreements which have

39a. The Standard (Nairobi) January 3, 1979 p. 4.

40. See Text of Cuba - United States Agreement Concerning Fisheries Off the Coast of the United States in Int'l Legal Materials Vol. 16 1977 p. 596.

41. See note 16 supra

arisen from those claims.⁴²

The point in the concern with pollution control or regional fishery arrangement or the extension of the coastal jurisdiction is to ensure the right to take conservation measures on the fishery resources. Pollution can do untold damage to fishery resources as the experience in northeastern Atlantic will have shown. Chile also had a special experience after the Metulla incident in 1974, and in the case of landbased sources of pollution Japan's experience with poisoning by industrial mercury known as the Minamata incident is a clear example. With these experience it would be foolhardy to ignore the possible consequences of pollution.

There is also the need for regulation to prevent depletion of the various stocks by reckless fishing especially by long-distance fleets. It is clear from discussions earlier on that Kenya's fishing capabilities are not sufficiently developed to compete with Japanese and Koreans for fish. But unless effective measures are taken the long-distance fleets can deplete the resources before they change fishing grounds. There are indications that the Fisheries Department and the ICDC have embarked on development programmes to enhance the gainful nature of employment of coastal populations in fishing and to build Kenya's commercial fishing capability. The plan should be both comprehensive as well as systematic.

42. Arising from the extension of coastal state claims over coastal waters the following regional or bilateral agreements have been concluded. Iceland extension resulted in agreement with Norway on July 10, 1973; with Britain on November 13, 1973; Belgium on November 28, 1975; West Germany on November 28, 1975; Norway on March 10 1976, Britain on June 1, 1976. Canada's extension resulted in agreement with USSR on May 19, 1976. United States action resulted in agreement with USSR on Nov. 26, 1976; with EEC on February 10, 1977; with Canada on February 24, 1977. Brazil's extension to 200 miles resulted in agreement on shrimp fishing with the U.S.A. on March 14 1975.

ANNEX

MARINE VESSELS REGISTERED IN KENYA

(As at 21st June 1978, from the Register of the Merchant Shipping Superintended Box 95076 Mombasa.)

Gross Tonnage: To arrive at the gross tonnage the capacities of all enclosed spaces above the tonnage deck available for the carriage of cargo or the accommodation of passengers and crew, - except for certain exempted spaces which are nevertheless measured and appear on the certificate of registry - are added to the under deck capacities, and the sums is divided by 100.

(Exempted spaces include wheel house, cook house toilet, shelters for deck passengers etc.)

Registered or Net Tonnage: This is the basis for the payment of a variety of dues and charges on shipping and for this reason it is important from the shipowners' point of view that it be kept as low as possible. It is equal to the Gross Tonnage less the exempt spaces. But no deduction may be allowed which is not included in the Gross Tonnage.

In classical shipping nomenclature 64 is the total number of shares signifying a ship's ownership. The individual holding 64 shares has full ownership of a vessel.

<u>Name of Vessel, Tonnage & Make</u>	<u>Ownership</u>
1. Harambee, GT 6168.81 RT 3775.76 Built in Germany 1953	East African National Shipping lines. 64 shares
2. Manihine GT 208.48 RT 113.33 Research Vessel. Built in England 1906	East African Community (Now at Zanzibar) 64 shares
3. Southern Dawn GT 1447. Built in Holland 1958	Southern Line 64 shares
4. Imbran GT 77.95 RT 29.16 Germany 1952	Mohsinali Tayebali Kudrati 64 shares
5. Samaki GT 46.22 RT 23.43 Scotland 1957 (53 ft. long) Timber on wooden frames	Samaki Industries (K) Ltd. 64 shares
6. Marigo GT 69.01 RT 34.78 India 1956	Mohsinali T. Kudrati 64 shares
7. Rafiki GT 109.00 RT 34.72 Germany 1952	Mohsinali T. Kudrati 64 shares

8. Southern Cross GT 758.79 RT 401.91 Germany 1969	Southern Lines Ltd. 64 shares
9. Mvita GT 47.79 RT 19.9 Where and when built unknown (64 feet long) rebuilt 1957.	Ampees Shipping and General Agencies 64 shares
10. Nabila GT 1168.01 RT 691.65 Holland 1962	Zaburwa Exporters Ltd 64 shares
11. Baruti GT 32.43 RT 16.56 Year and where made unknown Double planked wooden frames 53.05 feet long upto 7 knots	Samaki Industries (K) Ltd. 64 shares
12. Khole Khole GT 49.92 RT 29.46 Built at Lamu by Jammohamed Verjee. Timber on wooden frames 53 footer upto 7 knots.	Samaki Industries (K) Ltd. 64 shares
13. Shakwe GT 122.154 RT 35.526 Built by AMGECO Mombasa African Marine 1968/1969 72.3 feet upto 10 knots. Steel framework	Kenya Government Ministry of Tourism and Wildlife Fisheries Department 64 shares
14. Suli Suli GT 15.38 RT 8.2 When and where built unknown 39 footer upto 7 knots Timber on wooden frames	Samaki Industries (K) Ltd. 64 shares
15. Ikbalkher GT 47.05 RT 27.5 When and where built unknown 55 footer upto 7.5 knots Wood on wooden frames	Hadi Ahmed 64 shares
16. Sadal Rizak GT 119.40 RT 76.91 When and where built unknown 88ft. Wooden Dhow	Ampees Shipping and General Agencies 64 shares
17. Southern Lines GT 1982.52 RT 944.73 Steel body built at Oostende in 1963 (Tanker with water ballant of 56.75)	Southern Lines Ltd 64 shares
18. Impala GT 110.62 RT 51.97 West Germany 1952	Barkatali Mohamcedali 32 Pyarali Hashmani 32
19. Mkizi GT 15.30 RT 8.43 When and where built N/A 33.2 footer upto 8 knots Planking and timber frames	Samaki Industries (K) Ltd. 64 shares
20. Maria Filling GT 271.41 RT Nill England 1928 11 knots	EA Harbours (Tug boat)
21. Southern Venture GT 498.17 RT 309.30 Rendsburg 1963	Southern ILines Ltd. (64 Shares)

22.	Simba GT 358.71 RT Nil Glasgow 1951 12 knots	EA Harbours (Tug boat)
23.	Nyangumi GT 218.43 RT Nil Singapore 1976	EA Harbours (Tug boat)
24.	Ndovu GT 297.69 RT Nil Scotland 1969 12 knots Glasgow.	EA Harbours (Tug boat)
25.	Ngamia GT 297.69 RT Nil Scotland 1969 12 knots	EA Harbours Tug boat
26.	Tewa GT 217.48 RT Nil UK 1973	EA Harbours Tug boat
27.	Safina GT 381.68 RT 330.83 African Marine Engineers Mombasa 1975.	Kenya Bus Service (Mombasa) Ferry
28.	Spapool GT 672.14 RT 215.73 Bristol 1946	Steers Navigation Co. 64 shares
29.	Karibuni GT 17.26 RT 9.14 Brightling Sea 1975 35 footer	Elgor Enterprises 64 shares
30.	Kuvuna 818 GT 75.22 RT 49.66 (SteelBeam Trawler) 1966	Wananchi Marine Products 64 shares
31.	Aventura GT 290.57 RT 167.19 USA 1931	Mrs. Vimla Kundan Wason
32.	Kuvuna 369, GT 62.43 RT 22.46 53.97 footer Japan - 1970 Wooden and GRP lwanler 10 knots	Wananchi Marine Products 64 shares
33.	Alpha Commander - Not fully registered	Kenya Cold Storage
34.	Southern Reefer GT 496.72 RT 218.44 France 1964	Southern Lines 64 shares
35.	Kusi GT 352.72 RT 131.23 The Netherlands 1977 124.5 feet Steel body upto 12 knots	Fisheries Department, Govt. of Kenya 64 shares
36.	Jogoo GT 10,950.24 RT 6,287.29 Spain 1972	East African National Shipping Lines 64 shares