DANIDA

MOZAMBIQUE

ASSESSMENT OF NEEDS FOR COLD STORAGE CAPACITY

Rehabilitation of Pescom Cold Stores in Maputo

January 1989

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in Association with

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University of Copenhagen

and representatives from

The Ministry of Commerce, Mozambique
The Secretariate of State for Fisheries, Mozambique

Danida Ref. No. J.nr. 104 Moz. 16.

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Annexes

*) These notes were produced by the Ministry of Internal Commerce in 1982.

1. EXECUTIVE SUMMARY

The Task Force has come to the unanimous conclusion that there is no need for the requested rehabilitation of the additional 2,500 tons capacity at the Pescom National central cold storage complex in Maputo.

It is further concluded that, on the basis of the forecasts presented by the Ministry of Trade of future import of 7,000 tons of frozen fish, a maximum of additionally 900 tons capacity could be considered provided no alternative storage capacity could be made available to cater for the peak arrivals of imports.

If the cold stores at the Maputo Fishing Harbour, which are at present considerably under-utilized, could accommodate the peaks three times a year for a period below two weeks each time, the additional requirements could be reduced to well below 400 tons.

It is further noted that the effects of PRE and the introduction of conditioned prices for frozen fish may adversely affect the sale of frozen fish and consequently lead to actions to be taken in this respect.

2. INTRODUCTION: BACKGROUND OF MISSION

As an integral element of its overall development strategy for the 1980-90 decade (PPI), the Government of Mozambique pursued in the early 1980's donor support for the expansion of its food storage and security network. One of the key elements of this programme was the renovation of the Pescom Cold Stores in Maputo. In the late 1970's some 20 rooms had been installed, and DANIDA financing was obtained for the establishment of another 11 cold stores in a 1960 building, which had previously been used for storage of potatoes, etc. This project was conceived as Phase I of a continued support programme to Pescom.

Following the projections and rates of increase of consumption of frozen fish embodied in the PPI Mozambique expected at the time a 15% annual increase in the need for cold store capacity. However, basic assumptions behind the projections have been changing. Imports could not be maintained at the level of the early 1980's, and the recently initiated programme for economic rehabilitation (PRE) makes it impossible to produce and distribute past large quantities of frozen fish, which are costly to produce and to import. Increasing emphasis is being put on local production of fresh fish so as to achieve self-sufficiency in as short a time span as possible.

However, since the 20 cold stores established in the late 1970's were in need of repair, a project for their rehabilitation was agreed upon between the Government of Mozambique and Danida as a phase II of the above Pescom support programme.

This agreement came during 1988 under close scrutiny. In view of the changing circumstances and in line with the recommendations of a preliminary appraisal by an external consultant, the Government of Mozambique and Danida agreed to establish a joint task force to study the question in somewhat greater detail. The TOR of the task force is included as Annex 1. The Task Force members appointed by Danida and the Government of Mozambique were:

- Mr. Thomas Thomsen, Engineer, External Consultant to Danida, team leader
- Mr. Finn Tarp, Economist, External Consultant to Danida
- Mr. Raimundo Matule, Head of Section, Ministry of Commerce
- Ms. D. Dias, Head of Section, Secretariate of State for Fisheries (SEP)
- Mr. T. Moises, Technical Officer, International Cooperation, SEP

The Task Force was supported in its work by Mr. L. Macamo, whose services were provided through the Danida Mission in Maputo.

This study reports on the work of the Task Force. Findings and recommendations are presented in chapter 7.

3. THE FISHERIES SECTOR

At independence in 1975 Mozambique inherited a poorly developed fisheries sector. Unregistered artisanal fishing for local consumption was characterized by very low productivity and industrial fisheries was primarily geared towards prawn production for export. Until 1965 trawling in Mozambican waters was prohibited by the colonial authorities in line with the policy that the commercial supply of fish in Mozambique should be based on imports from Angola and Portugal. Some 15,000 tons of fisheries products were imported annually in the late 1960s and early 1970s, with the share of frozen fish ranging from one fourth in 1967 to half in 1973. After the issuance of the first trawling permissions in 1965, registered commercial catches grew to more than 15,000 tons in 1974, of which some 9,000 tons was fish.

Commercial fisheries activities collapsed at Independence with the massive exodus of the Portuguese who together with other foreign interests had managed this sector. The Mozambican reconstruction of the fisheries sector began in 1976 with the establishment of an incipient fisheries administration in the Ministry of Industry and Commerce. After various reorganizations a Secretariate of State for Fisheries (SEP) was established in 1979 with overall responsibility for the development of the fisheries sector. The distribution of fish remained, however, a responsibility of the Ministry of Internal Commerce (later on amalgamated with the Ministry of External Commerce to form the Ministry of Commerce).

In addition to directorates for economy, technical questions and human resources and an institute for fisheries research, SEP also has a department for direction and support of the small scale fisheries sector (UDPPE), created in 1981. The UDPPE plans and supports the development of commercially autonomous so-called fishing combinates (CPs), a concept of fairly recent origin and to begin with based on existing infrastructure and boats left by the Portuguese. The CPs which have now been established in some 10 locations along the coast and the principal inland waters will gradually become the main centres for support to the artisanal fisheries sector. It may finally be noted that SEP also oversees regional fishery services for the City of Maputo and the province of Sofala (which are the first of a series of such

intermediate authorities established in line with the policy of decentralization pursued after the Fourth Congress of Frelimo held in 1983).

Distribution of fish has as noted above remained a responsibility of the Ministry of Trade. For this purpose as well as to handle the import of fish and export of shrimp, a state company Pescom was established already in 1977. In 1978, however, the company was divided into two separate companies - Pescom International and Pescom National - responsible, respectively, for imports and exports and the national distribution of fish. Pescom National mainly purchases frozen fish from Mosopesca (local production) and Pescom International (imports), and operates a cold store network covering the main urban areas of the country.

At the beginning of the 1980s, the fisheries administration had managed to implement a basic reorganization of the sector reflected in steadily increasing catch figures. The share of commercial fishing of total manufactured output more than doubled from 1980 (4.1 %) to 1986 (10.3 %), and shrimps in 1987-88 accounted for one third of total exports as compared to less than 10% before 1980.

There are three main types of operations in the fisheries sector: (i) artisanal fishermen, fishing all year round along the 2,500 km long coastline for own consumption and supply of coastal regions; (ii) semi-industrial fisheries, comprising Sulpesca, a parastatal company based in Maputo, plus some boats belonging to the CPs in Beira, Sophino and Moma and several privately owned fishing vessels - mainly fishing prawns, although some handline caught fish and bycatch is landed; and (iii) industrial fisheries, comprising Emopesca (consisting of three autonomous state-owned shrimp enterprises with operational branches in Beira, Quelimane and Angoche), three joint ventures (Pescamar, Mosopesca and Efripel) of which only Mosopesca concentrates on fish catches, and several license agreements (with USSR, Spain, GDR and South Africa) for shrimp fishery. Artisanal and semi-industrial fisheries are classified as small scale fisheries and industrial vessels under large scale fisheries.

Although the fish resources of Mozambique are rather moderate there are still large resources to be exploited, e.g. pelagic species, and there are also large unexploited resources for

nearshore artisanal fisheries as well as for inland fisheries and aquaculture. The shrimp resources are by now fully exploited. Industrial fisheries will therefore have to focus more on, for instance the pelagic species and on retention of by-catches from the shrimp trawlers. In the case of the Maputo Bay region, there is ample potential for expansion of semi-industrial off-shore fisheries provided the necessary boats and other technology is made available. However, small scale artisanal fisheries within the Maputo Bay has reached its limit with an annual catch of some 3,000 tons and cannot therefore be expanded.

Supplying fish (protein) to the people at reasonable prices has been an important goal in the fisheries policies pursued after Independence, and frozen fish therefore soon entered into the annual plan for food supplies which is a component of the annual central plan (PEC).[1] The prawn catch, on the other hand, is intended to generate foreign exchange as a strategic export commodity. The Mozambican government therefore decided to maintain - and even increase - the high import levels for frozen fish after Independence and distribute it at low prices. This was facilitated by multi-year agreements with the USSR which supplies frozen fish caught along the Angolan coast at prices well below world market levels. Such imports reached a record level of more than 30,000 tons in 1980 but has since dropped to some 7-8,000 tons per year. At the same time industrial fisheries (i.e. mainly Mosopesca) has increased its landings from a level of some 7,000 tons in 1980 to more than 16,000 tons in 1988.

Although exact figures were not available to the Task Force, it can be assumed that imports are paid at a rate of approximately 500 US$/ton and that production costs of Mosopesca amount to about the double (of which a considerable part -including that of the foreign technical assistance onboard - is paid in foreign currency). At an exchange rate of 645 Mt/US$ and following the marketing margins approved in early

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1) The same does not account for fresh fish, which has never entered into the PEC. It follows that the Ministry of Commerce in its annual planning of quantities to be made available to consumers only considers local production and imports of frozen fish. Distributing (selling) the quantities planned has so far caused few if any difficulties as prices were kept very low until the economic rehabilitation programme was initiated in 1987.

January 1989, this implies that frozen fish (of grade 2[1]) from now on will cost in the order of 1,000 Mt/kg or around the double of the price announced in October 1988 (Mt 560), which again was almost triple the price announced in March of 1987 (Mt 200). Until 1986 the price of fish of grade 2 was less than 50 Mt/kg. The price will increase even further if additional devaluations are carried out.

As a consequence of the above rather dramatic increases in fish prices, it is at present very difficult to project the future demand for fish. There is little doubt, however, that demand will fall considerably and stocks may therefore build up unless adequate measures are taken. It is to be noted that Pescom already experienced difficulties in selling frozen fish on previous occasions.

Following the Fourth Congress of Frelimo in 1983 and the Economic Rehabilitation Programme (PRE) initiated in 1987 the focus of the fisheries sector strategy is clearly shifting towards the small scale fisheries sector. This sector operates at much lower costs than the industrial fleet, but its potential for increasing the supply of fish to the domestic market (and eventually make the country self sufficient in fish) is still to be developed. It is therefore planned that industrial fish catches will be maintained at a level slightly above that of 1987 despite its higher cost level, and also imports will be continued at least until 1992. As regards shrimp trawling it will be kept at the present maximum extraction level so as to ensure maximum foreign exchange earnings.

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[1] Fish is graded into three grades based on species rather than quality: first, second and third. The principal supply of frozen product is the second and third grade fish. The price of grade 3 fish has generally been half of that of grade 2 fish.

4. FISH SUPPLY AND CONSUMPTION

Information about the total national supply and consumption of fish is properly recorded only as regards the industrial fisheries and imports. For semi-industrial and artisanal fisheries only the marketed production data are recorded.

On the basis of information obtained from the Ministry of Commerce, The Secretariate of State for Fisheries and from Pescom National and presented in Annexes 4-6, the total marketed supply of fish has remained almost constant within a range of 20-25,000 tons per annum since 1981. The years 1979 and 1980 show significantly higher supply due to substantially higher import volumes of 30-33,000 tons, however, also reflecting a national production of less than 2,000 tons in 1979 and 7,500 tons in 1980. In general, a slight increase can be observed in the national production within the industrial fisheries sector, whereas the volume of import has almost halfed since 1981.

On the basis of past studies of the fisheries sector, it is estimated that the total national supply of fish from the small scale fisheries has increased from some 20,000 tons per annum in 1980 to around 40,000 tons at present.

The past and present national supply of fish is presented in table 4.1. It should be mentioned that the supply from inland fishery is excluded.

Table 4.1 Past and Present National Supply of Fish

Metric Tons

Sector	1981	1982	1983	1984	1985	1986	1987	1988
Import	13750	15060	15720	13970	11620	9510	8520	7640
Industrial	10660	10840	13150	9520	11330	14340	14630	12540
Small Scale	22350	25300	28200	31030	34000	36890	39650	40000
Total	46760	51200	57070	54520	56950	60740	62800	60180

With respect to the regional distribution of supply the Southern Region account for some 45%, the Central Region for 35%, and the Northern Region for 20%. The supply to the Maputo area alone constitutes 25% of the total national supply.

The national supply of frozen fish represented by imported fish and fish from the industrial sector is seen to have dropped from 52% in 1981 to 34% in 1988.

The national consumption of fish including imported fish and fish from the industrial, semi-industrial and artisanal fisheries but excluding inland fisheries is presented in Annex 6 and 7 and summarized in Table 4.2.

Table 4.2 Past and Present National Consumption of Fish

							Metric Tons	
Sector	1981	1982	1983	1984	1985	1986	1987	1988
Import	13290	15380	16000	11560	13000	10570	8080	7950
Industrial	11000	10170	14240	8500	9440	10970	11680	13030
Small Scale	22350	25300	28200	27700	29500	30300	34500	40000
Total	46640	50850	58440	51090	56440	58430	59410	60980

The corresponding consumption level for the city of Maputo and its outskirts is presented in Table 4.3.

Table 4.3 Past and Present Consumption of Fish in the Maputo Area

							Metric Tons	
Sector	1981	1982	1983	1984	1985	1986	1987	1988
Import	8300	8400	7800	7000	7400	6200	3800	2700
Industrial	6700	5700	8300	4300	5500	6900	7800	8100
Small Scale	1500	1700	2000	2200	2500	2700	3000	3000
Total	16500	15800	18100	13500	15400	15800	14600	13800

The per capita consumption clearly varies from region to region. In order to illustrate the variations in consumption and create a basis on which an assessment can be made of the need for fish and thus the decision on import volumes, an estimate has been made of the consumption by area, province and region as presented in Annex 8. The total consumption has been established as mentioned above but further increased by some arbitrarily set 5,000 tons of fish from inland fisheries. Table 4.4 below summarizes the results.

Table 4.4 Per Capita Fish Consumption - Kgs/Annum

Year	Urban Maputo	Southern Region	Central Region	Northern Region	Country Total
1981	21.7	7.7	3.1	2.8	4.3
1987	12.2	6.6	3.9	3.2	4.4

It should be mentioned that the substantial decrease in per capita consumption in Maputo between 1981 and 1987 is due to the assumption of an increase in population from 760 000 in 1981 to 1,200,000 in 1987.

In general, an increase in the national per capita consumption is observed, in spite of a substantial reduction in imports.

With respect to the future supply and consumption of fish the Ministry of Commerce anticipates an almost unchanged annual import of 7,000 tons of fish up to 1992, while the national production is expected to increase by approximately 10,000 tons.

According to the forecasts presented by the Secretariate of State for Fisheries an increase of some 10,000 tons is expected in the industrial fisheries sector between 1988 and 1994 and a similar increase in the small scale fisheries sector.

5. MARKETING, STORAGE AND DISTRIBUTION

There are three parallel systems for marketing of fish and shrimps in Mozambique:

(i) unregistered sales from artisanal and semi-industrial sectors directly to consumers or to private wholesalers and retailers;

(ii) Pescom National which operates as wholesaler and markets practically the entire industrial fish catch, the major part coming from Mosopesca, but including as well bycatch from the shrimp trawlers and some quantities from the CPs; and

(iii) Pescom International which handles exports of shrimps and imports of fish. Very little export of fish takes place. As the CPs are developed they will increasingly procure fish from the artisanal sector (selling either to Pescom National or directly to the consumer) so more and more sales become registered.

Principal landing sites for artisanal fishermen in the Maputo area are Muntanhana, Costa de Sol, Macaneta, Matola, Catembe, Inhaca and Machangulo where they sell directly off the beach to consumers, to middlemen who resell to stallholders at various markets close to the landing site, or to the CP collection centres. Before Independence a system of some 40 fish shops with a network of smaller cold stores existed along with a wholesaler network, supermarkets and bazars. This system broke down at Independence and consumers now have to get fresh fish either at the beach or at the bazars. Here defrosted frozen fish obtained from Pescom National in bulk can also be bought. A more recent development is the establishment of the Oceano, a retail outlet of Mosopesca, which has obtained Ministry of Commerce approval for the opening of two more similar outlets.

Pescom serves as wholesaler at national level. It has a network of cold stores over the country and a fleet of vehicles for distributing the fish. Pescom was originally supposed to buy from the CPs as well as from the industrial fleet, but purchases have so far been limited due to the relatively unfavourable prices paid by Pescom in comparison with the

other channels. Pescom's vehicle fleet is generally in poor condition due to lack of maintenance and spare parts, and transport of frozen fish in open trucks has become common with consequent deterioration in quality.

As may be seen from the above, the existing distribution network for frozen fish in Maputo is characterized by a large central facility and an almost complete absence of retail shops. It is a declared policy objective of the Government to revive such a network. Such a development could contribute much towards increasing efficiency in fish distribution and thereby diminish the need for centralized storage.

In addition to the Pescom cold stores in Maputo, which will be reviewed in detail in section 6 below, the fisheries port which was established in 1983 as a state enterprise has a cold store facility of some 1,160 tons distributed among 5 rooms (2 rooms with 400 tons capacity each and 3 rooms with 120 tons capacity each). The fisheries port in addition to storing fish also processes fish and provides services to fishermen and vessels. The cold store facilities are not very intensively used as can be seen from Annex 14.

Distribution of frozen fish has so far concentrated on urban areas. This concentration is unlikely to change as the high costs of producing frozen fish locally and related investments in transport and cold stores in the interior are prohibitive. It is clear that the Government must carefully assess these costs in comparison with costs of alternative sources of protein supply such as beans or dried/salted fish. It is furthermore to be noted that fresh fish can be widely distributed provided sufficient ice for cooling is made available together with transport facilities.

Detailed information on Pescom's national network of cold stores as well as the cold stores operated by the fisheries ports under the supervision of SEP are shown in Annexes 9 and 13 below. It would appear that the need for extra capacity in Nacala is the most pressing, and this was confirmed by references to the considerable problems encountered after offloading fish at Nacala en route to Nampula which is a major urban centre. The fish often arrives at Nampula totally defrosted. Negotiations are in course with the Italian Government on a future support programme of the fisheries sector and one of the possible projects could be the construction of

a cold store in Nacala. However, negotiations and project identification are in an initial phase only. There are presently no other plans for expanding the central cold storage network, but Government would as already mentioned like to pursue the establishment of retail networks for the distribution of fish including the rehabilitation/establishment of smaller cold stores in direct connection with these shops.

6. PESCOM COLD STORES

According to information obtained from Pescom National the cold stores presently operated constitute some 1,428 tons capacity in Maputo, 1115 tons capacity in the central region, mainly Beira, and 322 tons capacity in the northern region.

In retrospect the capacity in the Northern Region has been almost unchanged from 1980 to the present while the capacity in the Central Region has reduced from a capacity of 1,525 tons which was in operation up to 1985.

The most drastic change in the Pescom cold storage capacity is observed in Maputo where 4,327 tons capacity was in operation up to 1986. In 1984 additionally 1,160 tons capacity was introduced as a new installation. During 1987 and 1988 the majority of the old cold store, however, ceased operating.

Details of the history of events of Pescom National cold storage capacity are presented in Annex 9 and in Annex 10 is shown the lay out of the central cold storage complex in Maputo, indicating the 1,100 tons capacity (room 1-11) which started operation in 1984. The balance of 328 tons capacity is located outside the central complex.

The Pescom National cold storages in Maputo must be judged to have been fully utilized. The higher but more frequently arriving import volumes in the past may not require more storage capacity than the present, but the demand for security stock was previously higher and thus the overall demand for capacity.

It should be noticed that the central cold storage complex at the time of visit was full. The extent to which this is caused by reduced sales within the last two months or the imports within the months of November and December 1988 of more than 3,000 tons is unknown. The arrival of 3,000 tons of import during the time of visit certainly caused problems even in Beira where the store rooms are also close to full and where, it was claimed, space was being rented at other institutions (CFM).

It should also be mentioned that the use of the cold storage facilities, although definitely incorrect, lend some flexibility to the capacity. During peak periods (read arrivals of import) the store rooms are filled beyond capacity and thus preventing the free circulation of cold air. To alleviate the capacity requirements under these peaks, the fish is further distributed faster than would normally be the case.

In order to assess the requirements for cold storage capacity now and in the future, the monthly purchase and sale of frozen fish is of utmost importance. Annex 11 presents the corresponding arrivals split on national production and imports.

With a future national production of 13,000 tons, 8 fishing vessels (Mosopesca), of 180 tons capacity, 9 fishing trips per vessel per annum will be required, corresponding to a total average of 6 landings per month.

Although the sailings and thus the arrivals are planned it must be assumed that two vessels may arrive almost simultaneously, and the cold storage capacity requirements based on the national production is assessed to 300 tons capacity.

The planned future annual imports of 7,000 tons are assumed to arrive in three shipments of which 50-60% will be for Maputo, 25-30% for Beira and the rest for Nacala. Consequently Maputo will receive approximately 4,000 tons per annum or less then 1,500 tons per arrival. During 1987 and 1988 only two shipments reached 1,500 tons.

Under the requirements of the rationing system for Maputo City, Pescom had to keep a security stock of some 3 months supplies to ensure a stable monthly distribution of fish. Following PRE this practice is no longer pursued, and the future demand for security stock could be in the order of 500 tons, corresponding to about two weeks supplies.

The total capacity requirements on the basis of the above assumptions thus amount to 2,300 tons capacity, implying that a capacity of 900 tons in addition to the existing 1,428 tons capacity will be needed.

The above conclusion does not discuss to what extent other cold storage facilities are available and could be used at least during the three peak arrivals, neither is discussed whether the existing Pescom facilities with or without expansion could be used for other purposes.

With respect to the latter there is apparently no other use of the facilities for the possible storage of vegetables and/or meat. Capacity requirements for these commodities may be limited and already included for consideration in these other sectors.

The use of other storage facilities, however, appear to be a realistic possibility. Annex 13 presents the cold storage capacity by province within the fisheries sector, including the cold storage at Maputo fishing harbour.

The possibility of using the 1,160 tons capacity just to take 500 tons three times per annum for a period of less the two weeks becomes even more realistic when considering the present utilization of these facilities. Thus as shown in Annex 14 only around 2-3,000 tons passed through the storage rooms in 1986 and 1988 while 4,000 tons (including, extraordinarily, 1,200 tons of prawns) passed through in 1987. This would with an average storage period of two weeks correspond to a utilization rate of 15% only.

Finally should be mentioned that in the national context no problems are encountered in Beira with respect to the capacity while Nacala is repeatedly mentioned as a problem area. It is thus mentioned that Maputo may act as a buffer for Nacala. In the judgement of capacity requirements for Maputo these considerations have been disregarded as they should be solved by facilities in Nacala and not by an expansion of the Maputo facilities.

In relation to Pescom National management the Task Force found that improvements are necessary. However, it was also observed that the company operated with positive financial balances until 1987, probably due to the accounting principles and economic policies (including for instance an overvalued exchange rate). With the introduction of PRE Pescom will have to become more efficient than was previously acquired if it is to meet commercial standards.

7. FINDINGS AND RECOMMENDATIONS

Fish Resources

Fish resources within Maputo Bay are limited, so artisanal fisheries in this area cannot be expanded. Off shore fish resources do not, however, constitute a constraint to long term expansion.

Fish Supplies

The composition of Mozambique's fish supplies has since 1980 shifted away from imports. Industrial fisheries show a small increase, and small scale fisheries have increased considerably. The future trends will according to data provided by SEP and the Ministry of Commerce be similar. The total average monthly supply of frozen fish (industrial and imports) through Maputo has from 1980 onwards been appr. 1,200 tons per month. Supplies of fresh fish from the small scale fisheries sector in Maputo Bay cannot increase beyond 3,000 tons annually due to the fish resource constraints. However, provided investments are made in the semi-industrial small scale sector for off shore fishing, expansion is possible for fresh fish supplies.

Fish Consumption

Despite the lack of adequate data and nutritional surveys it would seem that the total fish consumption has increased marginally to about 4.4 kg/person per year for the country as a whole. In Maputo consumption (approximately 12 kg/person per year and mainly frozen fish) is higher than the national average.

Demand for Fish

It is at present very difficult to project the future demand for fish in Mozambique in general. The demand for frozen fish, however, is likely to decrease as a consequence of the considerable price increases and diminished purchasing power which will be a result of the Economic Rehabilitation Programme (PRE). Mozambique's industrial fisheries is very costly compared to world market levels, and even imported fish

will become expensive with the ongoing adjustments in the exchange rate.

Fish Distribution

Distribution of frozen fish has concentrated on urban areas. This concentration is unlikely to change due to the high costs of production and import of frozen fish and related expensive investments in transport and cold stores in the interior. These costs are to be compared with costs of alternative sources of protein supply and customary consumption patterns giving preference to dried/salted fish. The existing distribution system of frozen fish in Maputo is characterized by a central storage facility and an almost complete absence of retail shops. The future revival of a commercial retailer distribution network with small cold stores and the production of more fresh fish could eventually decrease the emphasis on centralized cold storage.

Pescom's Cold Stores

The existing Pescom cold store capacity for handling frozen fish is 1,428 tons (including 11 cold stores at the central complex and two stores in other parts of the city). Utilization has shown very considerable variations, affected in particular by import arrivals of large quantities of frozen fish (Mosopesca average 900 tons/month, and four imports per year averaging about 1,500 tons per reception). No alternative use of expanded Pescom facilities could be identified with the exception of very small quantities of prawns.

Cold Stores at the Fisheries Port

Cold store facilities at Maputo fisheries port (1,160 tons) were very little utilized over the past three years as less than 4,000 tons of fish and prawns were stored annually. With an average storage period of 2 weeks this corresponds to a utilization rate of 15%.

Pescom Cold Store Requirement

If frozen fish supplies came from industrial fisheries only, the need for cold stores in Maputo would be very limited. This may be exemplified by assuming that a total annual catch of 13,000 tons arrives evenly distributed over the year and

therefore corresponds to 6 arrivals per month with 180 tons each time. With a regular outflow from Pescom one Mosopesca landing would be distributed in less than 5 days, implying a theoretical minimum cold store requirement of 180 tons. However, a more realistic assessment of the needs to handle Mosopesca landings could be estimated at 300 tons. In any case, the need for cold store facilities basically reflects assumptions made as regards the arrival pattern and sizes of individual imports and security stocks.

Future planned imports amount to 7,000 tons annually arriving in three shipments, of which 50-60% will be for Maputo, 25-30% for Beira and the rest for Nacala. That corresponds to an annual import to Maputo of some 4,000 tons. It is therefore estimated that a cold store facility of some 1,500 tons would be sufficient to handle imports.

Under the requirements of the rationing system for Maputo City, Pescom had to keep a security stock of some 3 months supplies to ensure a stable monthly distribution of fish. Following PRE this practice is no longer pursued, and the future demand for security stock could be in the order of 500 tons, corresponding to about two weeks supplies.

Conclusion

Based on the above findings it is obvious that there is no need to rehabilitate all the 20 cold stores (corresponding to some 2,500 tons) as originally foreseen in phase II of the Pescom/Danida rehabilitation programme.

It can also be concluded that Pescom may need access to an additional capacity of less than 900 tons (300+1,500+500-1,428 tons).

Recommendations

The above conclusion is based on a number of assumptions, including that Pescom does not have access to other cold stores in Maputo. If for example Pescom could rent just 500 tons of storage capacity at the Fisheries Port three times a year for some 10 days (after import arrivals), the Pescom storage rehabilitation requirement would be reduced to less than 400 tons. It would therefore seem that this possibility should be pursued.

Furthermore, in view of the fact that retail prices for frozen fish from 6 January 1989 will be based on the principle of cost plus marketing margins (conditioned prices), the market may not easily absorb foreseen quantities. It is therefore recommended to monitor closely developments within the coming few months.

During the course of its work the Task Force was presented with a series of observations of deficiencies and bottlenecks in relation to existing systems for fish distribution and marketing. On several occasions it was pointed out by Government officials that the cold store situation in Nacala is critical. Furthermore, the need for restoring the commercial retailer network for fish distribution in Maputo was also pointed out as a priority for future development.

Both of these issues merit further attention in their own right; but could also be analysed as components of a more comprehensive study of the fisheries sector. The scope of such a study may vary, but could focus on requirements for post catch facilities and systems in the context of existing and future policies as pursued within the frame of PRE. The definition of TOR for such a study could take as starting point the notes included in Annex 16.

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Rehabilitation of Cold Stores in Maputo

TERMS OF REFERENCE

for

TASK FORCE

on

ASSESSMENT OF NEEDS FOR COLD STORAGE CAPACITY

1. Background

Pescom Nacional is a state enterprise under the Ministry of Commerce responsible for import, handling and marketing of frozen fish in Mozambique. Pescom owns and operates a large cold storage facility in Maputo. In 1983 and 1984 Danida financed a thorough renovation of 11 cold store rooms within this facility. The renovation was completed in April 1984.

In May 1986 the Government of Mozambique requested Danida to finance a further rehabilitation at the same premises of the remaining 20 cold storage rooms. Danida's appraisal of the request was limited to technical issues only and did not include questions regarding the justification of the project or the needs for cold storage capacity, as this was taken for granted.

The Government Agreement on rehabilitation of these 20 cold storage rooms was signed in June 1987 and the contract with the Danish supplyer was signed by Danida in September 1988. Preparatory civil works have been initiated by a local contractor employed by Pescom.

In September 1988 an evaluation team from Danida, concerned with the evaluation of industrial-scale fisheries projects in all countries receiving Danida support visited Maputo and Beira and had talks with a number of institutions actively involved in this kind of projects. Faced with the presented data including the plans for reduction of the import of frozen fish, the team questioned the need for the expanded cold storage capacity being rehabiliotated with Danida support. As a consequence, Danida suspended the works untill a clarification could be obtained.

In order to reach this clarification Pescom was requested to inform in writing on the past trends in landings and imports of frozen fish to Maputo and on the forecasts of the same in the near future together with any other documentation that might help clarifying the need for the project.

As this analysis remained inconclusive at the time of the Annual

Negociations between Mozambique and Danida in Maputo in late November 1988 it was agreed at the negociations to field a Task Force, which should analyse the situation. This should consist of representatives from The Ministry of Commerce (Pescom Nacional), the Secretariate of State for Fisheries and Danida. This Task Force should meet as soon as possible in Maputo and complete its work before the end of January 1989.

2. Objectives

The objectives of the Task Force is to:

- Assess the present and future need for increased cold storage capacity under Pescom Nacional,
- If possible and relevant, identify alternative possibilities for utilization of the cold storage rooms rehabilitated with support from Danida,
- Recommend on actions to be taken regarding the cold storage rooms under rehabilitation by the project.

3. Scope of work

The scope of work of the Task Force should include, but not necessarily be limited to the following:

1) An analysis of the quantities of frozen fish, imported or of national origin, received by Pescom during the last 4-5 years,

2) Description and assessment of plans and forecasts for the import or production of frozen fish in Mozambique in general and in Maputo in particular,

3) Plans and forecasts for marketing of frozen fish in Mozambique and to export markets for the next few years,

4) An assessment in the light of points 1 - 3 of the rate of utilization of the installed cold storage capacity for fish in the Maputo Area.

5) Comments on the financial performance of Pescom's operations with frozen fish storage and trade,

6) Identification of plans (if any) to increase the cold storage capacity for fish in Mozambique, and comment on the possible impact for importation, distribution and sale of frozen fish.

7) Identification of policy trends (if any) regarding the supply of fresh fish on ice, frozen fish and salted and dried fish for the domestic market,

8) Discussion of the impact which the ERP has had/is likely to have on the marketing and consumption of different fish products in Mozambique,

9) Identification of alternative uses of possible surplus cold storage capacity within the fisheries sector in other sectors.

The team should visit all relevant institutions in Maputo which may possess information regarding the above described issues.

All relevant available data, quantitative as well as qualitative which may help illustrating the past, present ant future development within the cold storage sector, including financial data on Pescom operations, should be taken into consideration.

Selected institutions within other sectors making use of cold storage capacity, e.g. the meat sector, should be visited for identification of the use of possible surplus capacity within the fisheries sector for other purposes.

If appropriate, the team should describe (preferably with draft Terms of Reference) further studies to be carried out.

4. Composition of the team

The team will consist of:

Mr. Thomas Thomsen,	Engineer, External Consultant to Danida. Team Leader.
Mr. Finn Tarp,	Economist, External Consultant to Danida.

Representatives of the Ministry of Commerce (Pescom Nacional),

Representatives of the Secretariate of State for Fisheries.

5. Reporting

The team is expected to draft a joint report at the end of the mission based on the information made available during the mission. Main findings and conclusions will be presented for discussion to the Ministry of Commerce, the Secretariate of State for Fisheries and the Danida Mission in Maputo before the end of the mission. It is the responsibility of the Team Leader to edit the report in English. A final report in English will be submitted to Danida not later than 26 January 1989. Danida will take care of translating the report into Portuguese.

In matters, where consensus may not be reached by the team, it is the responsibility of the Team Leader to clearly indicate the different opinions in the report and name the persons advocating them. The Team Leader may allow a limited number of pages to be included as an annex, clarifying some separate differing opinion by the individual team members.

6. Timing

The mission shall be carried out as soon as possible, and preferably before the end of January 1989. An important condition for the success of the mission is that key persons of the institutions involved are accessible for the team, and that key data are made readily available to the team before drafting the report.

DB.IV. 28.12.88

Jørgen G. Jensen

ITINERARY AND MISSION PROGRAMME

January 9:		Arrival Maputo
	11.30	Meeting at DANIDA Mission
	14.30	Meeting at the Ministry of Commerce
	16.30	Visit to Pescom Cold Stores
January 10:	8.00	Meeting at UDPPE
	10.20	Meeting at Sulpesca
	14.30	Meeting at MOSOPESCA
	15.50	Meeting at the Fishing Harbour & visit to the Cold Stores & Ice Factory
	17.15	Visit to the Retail Fish Shop "Oceania"
January 11:	8.00	Meeting at Pescom Internacional (Transferred to January 12, 10.00)
	9.00	Meeting at Secretariate of State for Fisheries (SEP) Department of Quality Control & Technical Department
	10.30	Meeting at the Ministry of Commerce
	14.00	Meeting at Combinado Pesqueiro de Maputo (CPM)
	16.00	Meeting at Propesca
January 12:	8.00	Meeting at Fish Research Institute
	10.00	Meeting at Pescom Internacional
	14.00	Meeting at Pescom Nacional
January 13:	9.00	Meeting at SEP
	11.00	Meeting at Maputo Fishing Services
	13.15	Airtrip to Inhaca
	13.30	Arrival at Inhaca
	13.50	Meeting at CPM, Inhaca
	16.20	Return trip to Maputo
	16.55	Visit to the Costa do Sol PAC of the CPM
	17.30	Visit to a Fish Market Place
January 14:	7.30	Meeting at Ministry of Health
January 15:	9.25	Departure to Beira
January 16:	8.00	Meeting at Sofala Services for Fisheries
	9.50	Meeting at Beira Fishing Harbour
	11.00	Meeting at Emopesca
	14.00	Meeting at Pescom Nacional
	17.30	Meeting at Beira Fish Factories
	20.30	Departure to Maputo
January 17:	8.00	Polana Hotel, Report preparation
	17.30	Task Force Meeting at Polana Hotel
January 18	8.00	Polana Hotel, Report writing
January 19	8.00	Report writing
	14.00	Final Meeting at Ministry of Commerce
January 20	7.00	Departure Maputo

LIST OF OFFICIALS MET

January 9

- Mr. Stig Barlyng, Danida Representative, Maputo.
- Mr. Raimundo Matule (Task Force Member), Head of the Planning & Statistics Department, Directorate for Economy, Ministry of Commerce.
- Mr. J. Francisco Malunga, Commercial Director, Pescom Nacional.
- H.E. Antonio Munguambe, Vice-Minister (designate) of Commerce, Ministry of Commerce.
- Mr. Joao Dezanove, National Director, Directorate for Commercialization, Ministry of Commerce
- Mr. Mamade Sulemane, Director, Section for International Cooperation, Directorate for Economy, Secretariate of State for Fisheries (SEP).
- Mr. Rui Figueredo, Head of the Section for Entreprise Management, Directorate of Economy, SEP.
- Mr. Antonio Rufino - South Region Director, Pescom Nacional
- Mr. Vitorino Tivane, Head of the Department of Commercial Operations, Pescom Nacional

January 10

- Mr. Manuel Goncalves, Director, Unit of Direction for Small Scale Fisheries (UDPPE).
- Mr. L. Fabri, Head of the Planning Department, UDPPE.
- Mr. Stanislaw Machalski, Head of the Tecnical Department, UDPPE.
- Mr. George Potevin, Head of the Technical Department, SEP.
- Mr. Tamimo Moises, Technical Officer, Section for International Cooperation, SEP. (Task Force Member).
- Ms. D. Dias, Technical Officer, Section for Supplies and Marketing, SEP.
- Mr. Samuel Panguana, Director, Sulpesca.

	- Mr. José Carlos L. Pereira, Director General, MOSOPESCA.
	- Mr. Caetano Megue, Director General, Fishing Harbour (Porto de Pesca).
	- Mr. Francisco Candido, Deputy Director, Fishing Harbour.
	- Mr. Dinis Guambe, Head of the Fish Retail Shop "Oceania".
January 11	- Mr. Constantino Mapere, Technician of Quality Control, Department of Quality Control (DQC), SEP.
	- Mrs. Terieza Chissaque, Technician of Quality Control, DQC, SEP.
	- Mr. George Potevin, Head of the Technical Department, SEP.
	- Mr. Joao Dezanove, National Director, National Directorate of Commercialization (DNC), Ministry of Commerce.
	- Mr. Armando Lifanica, Head of Department of Organization & Control, DNC, Ministry of Trade.
	- Mr. José Egidio Paulo, Head of the Prices Section, Directorate of Economy, SEP.
	- Mr. Catula Chirindza, Director General, Combinado Pesqueiro de Mabuto.
	- Mrs. Helena Mota, Director General, Propesca.
	- Mr. Manuel Chavane, Factory Director, Propesca.
January 12	- Mr. Rui Rambe Silva, Specialist in Biology, Fish Research Institute.
	- Mr. Salvador Ganhane, Commercial Director, Pescom Internacional.
	- Mr. J. Francisco Malurga, Commercial Director, Pescom Nacional.
	- Mr. Antonio Rofino, South Region Director, Pescom Nacional.
January 13	- Mr. Rui Figueredo, Head of the Section for Enterprises Management, SEP.
	- Mr. J. Russo de Sa, Director, Maputo Fisheries Services.
	- Mr. Catula Chirindza, Director General, Combinado Pesqueiro de Mabuto (CPM).

	- Mr. Cassimo Marofo, Director of the CPM at Inhaca.
	- Mr. Carlos Taruma - Fish Technologist, CPM, Inhaca.
	- Mr. Joaquim Sousa, Mechanic, CPM, Inhaca.
	- Mr. Enric Antunucci, Boat Captain, Fishing Cooperatives 1º de Maio, Inhaca
January 14	- Mrs. Kerry Selvester, Nutritionist, Department of Nutrition, Ministry of Health.
January 16	- Mr. Anadeto Fernandes, Director of Pescamar, representing the Director of the Sofala Services for Fisheries.
	- Mr. Francisco Laice, Head of the Division of Harbour Operations, representing the Director of the Beira Fishing Harbour.
	- Mr. Arlindo Welemo, Head of Maintenance, Beira Fishing Harbour.
	- Mr. Francisco Lacarias, Chief Accountant, representing the Director of Emopesca.
	- Mr. Jorge Fafetine, Director of the Pescom branch in Beira.
	- Mr. Alberto Laurenco, Head of Economy and Finance, Pescom branch in Beira.
	- Mr. Ernesto Salvador, Head of the Cold Stores Department, Pescom branch in Beira.
	- Mr. George Hansen, Danida Technician, Pescom branch in Beira.
	- Mr. Dulio de Braganca, General Manager, Beira Fish Factory.
	- Mr. Costa Pereira, Deputy Director, Beira Fish Factory.
	- Mr. K. Kelleher, Economist, Directorate for Economy, SEP.
	- Mr. R. Pontes, Head Department of Economy and Finances, UDPPE.
January 19	- H.E. Daniel Gabriel, Minister (designate) of Commerce.
	- H.E.M. Prehn, Chargé d'Affaires, Danish Embassy.

- Mr. S. Barlyng, Danida Representative, Maputo.
- Ms. J. Grenados, Aid Attaché, Danida, Maputo.
- Mr. M. Sulemane, Director, International Cooperation, SEP.
- Mr. J. Dezanove, National Director, DNC, Ministry of Commerce.

EVOLUCAO DO PESCADO NACIONAL E IMPORTADO EM T O N .

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
1 - IMPORTACOES GLOBAIS	33 462.2	13 288.5	15 386.3	15 999.0	14 296.0	11 606.0	9 728.0	10 373.0	5 500.0	8 000.0	8 000.0	7 000.0	7 000.0
2 - CONSUMO TOTAL	39 500.0	28 700.0	25 552.8	30 232.0	20 060.0	22 440.0	21 546.6	19 755.2	22 054.0	24 000.0	26 500.0	29 000.0	32 000.0
IMPORTACAO	32 346.1	17 690.4	15 386.3	15 999.0	11 556.7	12 999.8	10 575.6	8 074.3	5 600.0	7 000.0	7 000.0	6 500.0	6 000.0
PRODUCAO NACIONAL	7 153.9	11 009.6	10 166.5	14 233.0	8 503.3	9 440.2	10 971.0	11 680.9	16 454.0	17 000.0	19 500.0	22 500.0	26 000.0
3 - PESCOM NACIONAL													
3.1 COMPRAS	38 127.0	24 409.0	25 898.0	28 870.0	23 496.0	22 945.4	23 846.4	23 155.2	23 000.0	24 600.0	27 000.0	29 500.0	33 000.0
PROD. NACIONAL	7 509.0	10 660.0	10 836.0	13 146.0	9 522.0	11 325.4	14 335.0	14 632.1	16 500.0	17 800.0	20 300.0	23 000.0	26 500.0
IMPORTACAO	30 618.0	13 749.0	15 062.0	15 724.0	13 974.0	11 620.0	9 511.4	8 523.1	6 500.0	6 800.0	6 700.0	6 500.0	6 500.0
3.2 VENDAS	39 500.0	28 700.0	25 552.8	30 232.0	20 060.0	22 440.0	21 546.6	19 755.2	22 054.0	24 000.0	26 500.0	29 000.0	32 000.0
IMPORTACAO	32 346.1	17 690.4	15 386.3	15 999.0	11 556.7	12 999.8	10 575.6	8 074.3	5 600.0	7 000.0	7 000.0	6 500.0	6 000.0
PROD. NACIONAL	7 153.9	11 009.6	10 166.5	14 233.0	8 503.3	9 440.2	10 971.0	11 680.9	16 454.0	17 000.0	19 500.0	22 500.0	26 000.0
4 - DISTRIB. VENDAS	39 500.0	28 700.0	25 552.8	30 232.0	20 060.0	22 440.0	21 546.6	19 755.2	22 054.0	24 000.0	26 500.0	29 000.0	32 000.0
NACIONAL	7 153.9	11 009.6	10 166.5	14 233.0	8 503.3	9 440.2	10 971.0	11 680.9	16 454.0	17 000.0	19 500.0	22 500.0	26 000.0
IMPORTADO	32 346.1	17 690.4	15 386.3	15 999.0	11 556.7	12 999.8	10 575.6	8 074.3	5 600.0	7 000.0	7 000.0	6 500.0	6 000.0
CID. MAPUTO	0.0	15 685.2	13 216.1	15 852.2	10 991.0	12 446.8	11 733.0	11 249.1	0.0	0.0	0.0	0.0	0.0
NACIONAL		5 636.3	5 378.1	8 516.8	4 238.2	5 762.1	6 575.0	7 910.0					
IMPORTADO		10 048.9	7 838.0	7 335.4	6 752.8	6 684.7	5 158.0	3 339.1					
MAPUTO	20 088.1	1 444.0	759.0	789.4	596.3	867.6	987.0	585.0	0.0	0.0	0.0	0.0	0.0
NACIONAL	4 129.6	611.4	443.7	549.4	292.3	164.4	442.0	370.7					
IMPORTADO	15 958.5	832.6	315.3	240.0	304.0	703.2	545.0	214.3					
GAZA	2 107.8	1 429.7	1 082.6	918.1	603.9	847.5	1 467.3	531.6	0.0	0.0	0.0	0.0	0.0
NACIONAL	1 019.7	680.7	301.4	104.6	112.2	48.3	543.4	198.4					
IMPORTADO	1 088.1	749.0	781.2	813.5	491.7	799.2	923.9	333.2					
INHAMBANE	1 182.9	1 176.0	646.1	405.8	266.9	179.3	338.1	461.9	0.0	0.0	0.0	0.0	0.0
NACIONAL	201.8	565.0	228.8	94.8	76.7	104.9	110.4	142.3					
IMPORTADO	981.1	611.0	417.3	311.0	190.2	74.4	227.7	319.6					
SOFALA	6 287.4	3 709.6	4 601.4	5 871.6	3 208.0	4 095.9	3 390.4	3 741.9	0.0	0.0	0.0	0.0	0.0
NACIONAL	239.9	1 701.4	2 247.1	2 941.5	2 140.0	2 338.7	2 318.3	2 278.2					
IMPORTADO	6 047.5	2 008.2	2 354.3	2 930.1	1 068.0	1 757.2	1 072.1	1 463.7					
MANICA	1 629.5	604.1	573.1	772.5	389.1	514.2	350.0	468.3	0.0	0.0	0.0	0.0	0.0
NACIONAL	92.4	85.7	62.4	56.8	103.6	9.9	7.5	51.8					
IMPORTADO	1 537.1	518.4	510.7	715.7	285.5	504.3	342.5	416.5					
TETE	657.9	436.4	338.5	711.4	374.3	337.8	391.0	208.2	0.0	0.0	0.0	0.0	0.0
NACIONAL	21.1	110.8	83.6	55.5	76.6	0.4	0.2	0.6					
IMPORTADO	636.8	325.6	254.9	655.9	297.7	337.4	390.8	207.6					
ZAMBEZIA	1 335.4	1 222.0	1 401.0	1 902.3	1 487.0	1 353.6	1 052.6	842.8	0.0	0.0	0.0	0.0	0.0
NACIONAL	382.6	834.2	1 067.1	1 501.6	1 142.6	907.8	907.1	674.0					
IMPORTADO	952.8	387.8	333.9	400.7	344.4	445.8	145.5	168.8					
NAMPULA	4 962.9	2 205.7	2 120.1	2 314.0	1 658.5	1 494.7	1 478.0	1 407.7	0.0	0.0	0.0	0.0	0.0
NACIONAL	749.1	496.1	216.0	295.2	243.7	57.6	14.8	11.2					
IMPORTADO	4 213.8	1 709.6	1 904.1	2 018.8	1 414.8	1 437.1	1 463.2	1 396.5					
NIASSA	162.5	242.1	341.7	262.9	171.1	39.4	16.5	6.9	0.0	0.0	0.0	0.0	0.0
NACIONAL	50.3	74.4	0.0	0.3	0.0	0.0	0.0	0.2					
IMPORTADO	112.2	167.7	341.7	262.6	171.1	39.4	16.5	6.7					
C. DELGADO	1 085.6	545.2	473.2	431.8	313.9	263.2	342.7	251.8	0.0	0.0	0.0	0.0	0.0
NACIONAL	267.4	213.6	138.3	116.5	77.4	46.1	52.3	43.5					
IMPORTADO	818.2	331.6	334.9	315.3	236.5	217.1	290.4	208.3					

Source: Ministry of Commerce, Pescom traded fish only.

ANNUAL FISH PRODUCTION 1984 - 1994

Province Sector		1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
Maputo	Ind.	5794	7287	10221	11690	11000	10000	12000	13000	13000	13000	13000
	S.Sc.	1158	837	595	753	500	720	1000	1500	2000	3000	3000
Inhambane	Ind.											
	S.Sc.					70	250	350	1000	2000	2000	2000
Gaza	Ind.											
	S.Sc.								200	350	500	1000
DRS	Ind.	5794	7287	10221	11690	11000	12000	12000	13000	13000	13000	13000
	S.Sc.	1158	837	595	753	570	970	1350	2700	4350	5500	6000
Sofala	Ind.	968	1447	1917	1333	1800	2450	2750	3500	5000	5500	7000
	S.Sc.	1118	2538	4734	3029	2730	2800	2800	2900	3000	3000	3000
Tete	Ind.											
	S.Sc.	264	212	283	191	240	250	500	750	1000	1000	1000
Zambezia	Ind.	1330	1112	1029	1093	765	1100	1500	1800	2000	2500	2500
	S.Sc.			78	109	36	100	250	300	450	500	500
DRC	Ind.	2298	2559	2946	2426	2565	3550	4250	5300	7000	8000	9500
	S.Sc.	1382	2750	5095	3329	3006	3150	3550	3950	4450	4500	4500
Nampula	Ind.	289	113	74	33	5	100	200	350	500	1000	1500
	S.Sc.	481	633	623	851	120	600	650	700	1000	1500	1500
Cabo Delgado	Ind.											
	S.Sc.	197	218	210	142	80	230	250	500	600	700	750
Niassa	Ind.											
	S.Sc.	109	61	59	76	40	100	100	150	300	500	500
DRN	Ind.	289	113	74	33	5	100	200	350	500	1000	1500
	S.Sc.	787	912	892	1069	240	930	1000	1350	1900	2700	2750
Country	Ind.	8381	9959	13241	14149	13570	13650	16450	18650	20500	22000	24000
	S.Sc.	3327	4499	6582	5151	3816	5050	5900	8000	10700	12700	13250
Total		11708	14458	19823	19300	17386	18700	22350	26650	31200	34700	37250

Source: Secretariate of State for Fisheries

PESCOM NATIONAL ANNUAL PURCHASE AND SALE OF FISH

	Purchase			Sale		
	National	Import	Total	National	Import	Total
1978	1692	15182	16874			16718
1979	1728	33047	34775			31216
1980	7509	30618	38127	7153	33463	40616
1981	10660	13749	24409	11009	13289	24298
1982	10836	15062	25898	10167	15386	25553
1983	13146	15724	28870	14071	15999	30070
1984	9522	13974	23496	9375	11557	20932
1985	11325	11620	22945	10605	13000	23605
1986	14335	9511	23846	13033	10200	23233
1987	14632	8523	23155	11681	8074	19755
1988	12537	7642	20179			20976

Source: Pescom National

FISH CONSUMPTION

Region	Source	1980	1981	1982	1983	1984	1985	1986	1987
Maputo (DRS)	Imported	18030	9200	9350	8700	7740	8260	6850	4210
	Industrial	5350	7490	6350	9270	4720	6080	7670	8620
	Small Scale[1)]	-	-	-	-	1160	840	600	750
	Small Scale[2)]	7400	8250	9100	9900	9500	10600	11700	12300
	Total	30780	24940	24800	27870	23120	25780	26820	25880
Beira (DRC)	Imported	9170	2430	3450	4700	2000	3050	1950	2260
	Industrial	740	2730	3460	4560	3460	3260	3230	3000
	Small Scale[1)]	-	-	-	-	1380	2750	5100	3330
	Small Scale[2)]	6300	7600	8900	10200	10100	10100	9000	12000
	Total	16210	12760	15810	19460	16940	19160	19280	20590
Nacala (DRN)	Imported	5140	1660	2580	2600	1820	1690	1770	1610
	Industrial	1070	780	360	410	320	100	70	60
	Small Scale[1)]	-	-	-	-	790	910	890	1070
	Small Scale[2)]	5700	6500	7300	8100	8100	8800	9600	10200
	Total	11910	8940	10240	11110	11030	11500	12330	12940
Mozam-bique Total	Imported	32340	13290	15380	16000	11560	13000	10570	8080
	Industrial	7160	11000	10170	14240	8500	9440	10970	11680
	Small Scale[1)]	-	-	-	-	3330	4500	6590	5150
	Small Scale[2)]	19400	22350	25300	28200	27700	29500	30300	34500
	Total	58900	46640	50850	58440	51090	56440	58430	59410
Maputo Urban 3)	Imported	16200	8300	8400	7800	7000	7400	6200	3800
	Industrial	4800	6700	5700	8300	4300	5500	6900	7800
	Small Scale[1)]	-	-	-	-	1000	800	500	700
	Small Scale[2)]	1300	1500	1700	2000	1200	1700	2200	2300
	Total	22300	16500	15800	18100	13500	15400	15800	14600

Source: Min of Trade/SEP/Königson et al. 1985 through "Nordic Support to the Fisheries in Mozambique" June 1986 (excluding inland fishery)

1) Small Scale, marketed
2) Small Scale, direct sale. Consultants Estimate, partly.
3) Estimate 90% to Maputo urban population of imported and industrial catch (consumption) in DRS.

CONSUMPTION OF FROZEN FISH DISTRIBUTED FROM BEIRA

Province	1985 Nat.	1985 Imp.	1985 Total	1986 Nat.	1986 Imp.	1986 Total	1987 Nat.	1987 Imp.	1987 Total
Sofala	2339	1757	4096	2318	1072	3390	2316	1463	3779
Manica	10	504	514	8	342	350	57	408	465
Tete	-	337	337	-	391	391	7	208	215
Zambezia	908	446	1354	907	146	1053	436	100	536
Total	3257	3044	6301	3233	1951	5184	2816	2179	4995

Source: Pescom National, Beira

FISH COMSUMPTION PATTERN

	Population ('000)		Total Consumption Frozen Fish Local and Import		Fresh Fish etc.		Per Capita Consumption (Kgs/Year/Pers)	
	1981	1987	1981	1987	1981	1987	1981	1987
Maputo Urb	760	1200	15000	11600	1500	3000	21.7	12.2
Maputo Prov	490	300	200	100	50	100	0.5	0.7
Gaza	990	1200	1000	750	750	1100	1.8	1.5
Inhambane	990	1200	500	350	6000	8800	6.6	7.6
Southern	3230	3900	16700	12800	8300	13000	7.7	6.6
Manica	640	750	530	490	100	200	1.0	0.9
Tete	830	1000	380	230	3000	3000	4.1	3.2
Sofala	1070	1300	3230	4010	4500	9100	7.2	10.1
Zambezia	2490	3050	1060	570	3000	6000	1.6	2.2
Central	5030	6100	5200	5300	10600	18300	3.1	3.9
Nampula	2400	2950	1800	1300	3500	6300	2.2	2.6
Cabo Delgado	940	1150	600	400	3000	5000	3.8	4.7
Niassa	500	600	0	0	2000	2000	4.0	3.3
Northern	3840	4700	2400	1700	8500	13300	2.8	3.2
Country	12100	14700	24300	19800	27400	44600	4.3	4.4

Source: Pescom National, Nordic Support to the Fisheries in Mozambique, June 1986 and Consultants Estimate. Note: Inland fisheries estimated and included (Tete 3000 tons, Niassa 2000 tons)

PESCOM COLD STORAGE CAPACITY

YEAR	Southern Region		Central Region		Northern Region	
	Operating	Inoper.	Operating	Inoper.	Operating	Inoper.
1980	4327		1525		269	
1981	4327		1525		354[1]	
1982	4327		1525		354	
1983	4327		1525		354	
1984	5427[2]		1525		322	32[3]
1985	5427		1161	364[4]	322	
1986	5427		1161		322	
1987	4015	1412[5]	1161		322	
1988	1428	2587[6]	1115	46[7]	322	

Source: Pescom National, Maputo

1) New installation of 85 tons capacity in Nampula
2) New installation of 1100 tons capacity in Maputo
3) Break down of 32 tons capacity
4) Break down of 364 tons capacity in Beira
5) Of which 600 tons became operational again during 1987, but stopped again in 1988
6) Excluding the 600 tons referred to under point 5
7) Break down of 46 tons capacity in Beira

PESCOM COLD STORAGE CAPACITY, BEIRA

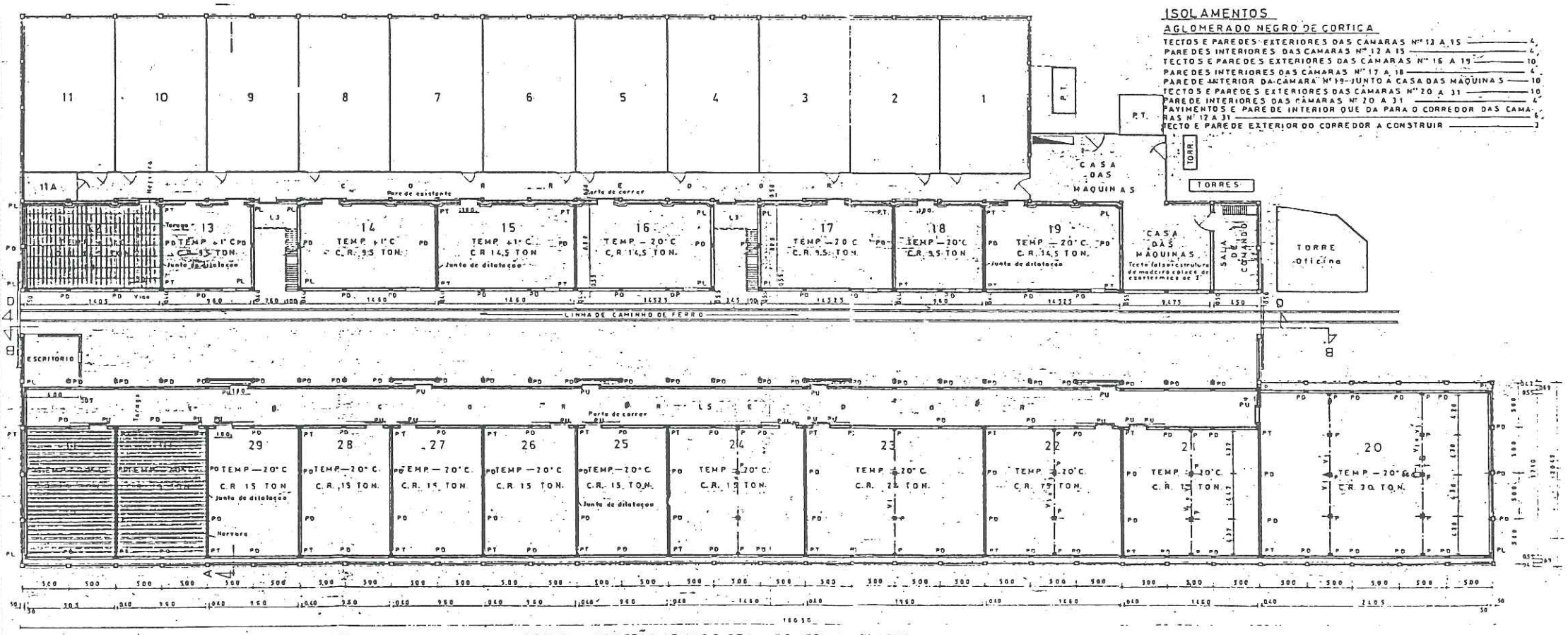
Operational, 1988	New:	502	Old: 243	745
Inoperational, 1988			Old: 606	606
Total		502	849	1351

Source: Pescom National, Beira

D. P. S. C.

TRANSFORMAÇÃO DO ARMAZEM 1 EM

CÂMARAS FRIGORIFICAS



Annex 10

PESCOM NATIONAL, MONTHLY PURCHASE AND SALE OF FISH -
Import and National Production

Metric Tons - 1983

Month	Southern Region Purch.	Sale	Central Region Purch.	Sale	Northern Region Purch.	Sale	Country Total Purch.	Sale
Jan	1356	1341	956	758	501	368	2813	2467
Feb	2156	1444	885	789	584	511	3625	2744
Mar	1407	1605	956	854	34	166	2397	2625
Apr	656	1551	1158	951	534	452	2348	2954
May	1416	1556	939	1127	34	131	2389	2814
June	1315	1469	406	729	384	254	2105	2452
July	1374	1373	734	514	34	303	2142	2190
Aug	656	1470	406	538	34	38	1096	2046
Sept	656	1158	406	332	34	63	1096	1553
Oct	1829	915	1056	361	34	80	2919	1356
Nov	2735	1558	806	918	34	59	3575	2535
Dec	656	2364	928	1389	785	583	2369	4336
Total	16212	17804	9636	9260	3026	3008	28874	30072

Metric Tons - 1987

Month	Southern Region Purch.	Sale	Central Region Purch.	Sale	Northern Region Purch.	Sale	Country Total Purch.	Sale
Jan	1270	1191	1189	532	-	193	2459	1916
Feb	893	1052	310	404	2	102	1205	1558
Mar	1665	1089	292	392	401	131	2358	1612
Apr	1142	1223	240	435	3	138	1385	1796
May	931	1144	210	365	1	124	1142	1633
June	1054	1383	265	401	3	76	1322	1860
July	889	1074	338	362	16	76	1243	1512
Aug	2816	605	1103	303	614	23	4533	931
Sept	1085	750	328	441	3	151	1416	1342
Oct	1119	932	1531	410	173	196	2823	1538
Nov	1674	1030	156	511	1	222	1831	1763
Dec	666	1355	323	705	450	237	1439	2297
Total	15204	12828	6285	5261	1667	1669	23156	19758

Metric Tons - 1988

Month	Southern Region Purch.	Sale	Central Region Purch.	Sale	Northern Region Purch.	Sale	Country Total Purch.	Sale
Jan	1273	1197	1021	525	192	128	2486	1850
Feb	454	1673	178	418	38	161	670	2252
Mar	709	1082	211	449	3	96	923	1627
Apr	1044	1182	55	499	144	131	1243	1812
May	1063	1259	239	311	185	137	1487	1707
June	1087	957	56	370	2	103	1145	1430
July	2118	1475	1158	319	452	85	3728	1879
Aug	1205	1328	70	514	3	211	1278	1053
Sept	603	1376	238	386	2	137	843	1899
Oct	695	741	113	245	157	138	965	1124
Nov	2346	713	153	182	2	48	2501	943
Dec[1]	650	1530	1800	650	460	220	2910	2400
Total	13247	14513	5292	4868	1640	1595	20179	20976

Source : Pescom National, Maputo. 1) Consultants Estimate

FISH ARRIVALS - MAPUTO

Month	1983 Nat	1983 Imp	1983 Total	1987 Nat	1987 Imp	1987 Total	1988 Nat	1988 Imp	1988 Total
Jan			1356	725	545	1270	623	650	1273
Feb		3005	2156	893		893	454		454
Mar		———	1407	764	901	1665	709		709
Apr			656	1142		1142	1044		1044
May		1436	1416	931		931	1063		1063
June		———	1315	54	1000*	1054	1087		1087
July			1374	889		889	878	1240	2118
Aug		669	656	1295	1521	2816	1205		1205
Sept		———	656	1085		1085	603		603
Oct			1829	1119		1119	695		695
Nov		3230	2735	679	995	1674	845	1501	2346
Dec			656	666		666	650		650
Total	7872	8340	16212	10242	4962	15204	9856	3391	13247

*Donation (USSR)

FISH ARRIVALS - BEIRA

	1983 Nat	1983 Imp	1983 Total	1987 Nat	1987 Imp	1987 Total	1988 Nat	1988 Imp	1988 Total
Jan			956	439	750	1189	171	850	1021
Feb		1521	885	310		310	178		178
Mar		———	956	292		292	211		211
Apr			1158	240		240	55		55
May		1195	939	210		210	239		239
June		———	406	265		265	56		56
July			734	338		338	258	900	1158
Aug		378	406	341	762	1103	70		70
Sept		———	406	328		328	238		238
Oct			1056	200	1431	1531	113		113
Nov		1672	806	156		156	153		153
Dec			928	323		323	200	1600	1800
Total	4870	4766	9636	3342	2943	6285	1942	3350	5292

FISH ARRIVALS - NACALA

	1983 Nat	1983 Imp	1983 Total	1987 Nat	1987 Imp	1987 Total	1988 Nat	1988 Imp	1988 Total
Jan			501	-		-	192		192
Feb		1021	584	2		2	38		38
Mar		———	34	4	397	401	3		3
Apr			534	3		3	144		144
May		924	34	1		1	185		185
June		———	384	3		3	2		2
July			34	16		16	1	451	452
Aug		-	34	12	602	614	3		3
Sept		———	34	3		3	2		2
Oct			34	3	170	173	157		157
Nov		673	34	1		1	2		2
Dec			785	0	450	450	10	450	460
	408	2618	3026	48	1619	1667	739	901	1640

Source : Pescom National. Note: 3000 tons fish import landed Jan 1989

REDE DE FRIO - Secretariate of State for Fisheries

LOCALIZAÇAO	CAPACIDADE ton./m3	CONSERVAÇÃO ton.	GELO ton.	C.CHOQUE ton.
MAPUTO				
C.P. Inhaca	15 TONS	15 TONS		
Porto de Pesca	1.100 TONS	800 TONS	300	
P. Pesca F. gelo	50 TONS/24 H			
Sulpesca C. Sol.	12 TONS	12 TONS		
Propesca F. Conservas	15 TONS	15 TONS		
Propesca F. secagem	12 TONS	12 TONS		
SOFALA				
Emopesca Beira	1.125 TONS	1.000 TONS	125 T	45 T/24 H
C.P. Beira(Chiloane)	30 M3	30 M3		
ZAMBEZIA				
Efripel-Quelimane	500 TONS	500 TONS		
Emopesca-Quelimane	1.050 TONS	1.000 TONS	50 T	45 T/24 H
C.P. Sopinho	30 M3			2 T/24 H
PORTO DE PESCA	20 M3	20 M3		
" " " F. GELO	8 TON/24 H			
NAMPULA				
Emopesca-Angoche	150 TONS	150 TONS		
C.P. Moma	450 M3	450 M3		3 TON/24 H
C.P. I. Mocambique	60 M3	60 M3		
C. DELGADO				
E. IBO	225 M3	225 M3 (IBO, ARIMBA, QUIRIMBA E MACALOE).		
NIASSA				
C.P. Metangula	180 M3	180 M3		

MAPUTO FISHING HARBOUR COLD STORAGE
Cold Storage Utilization

Metric Tons

		1986	1987	1988
Fish	(Industrial)	2253	2780	2430
Prawns		40	1241	198
Tubarao	(Artisenal/Semi-ind.)	36	-	-
Raia	(Artisenal/Semi-ind.)	8	-	-
Other		4	24	201
Total		2341	4045	2829

Source: Maputo Fishing Harbour

VISIT TO INHACA

Inhaca is a small island off the Mozambican coast close to Maputo. The total permanent population, primarily fishermen, is estimated to 6,000 fishermen. Presently an estimated additional 3,000 persons occupy the island to some extend engaged in agriculture, however, with only a poor result due in part to the salinity of the soil.

The number of fishermen engaged in artisanal fishery is unknown, but the number of vessels was mentioned to have been around 84 in 1986, including 22 powered vessels. The present number should still be less than 100. Usually one owner may possess two or more vessels, but the previously CP-owned and operated vessels were transferred to up to ten fishermen per vessel.

The mainly small vessels may catch a minimum of 100 kg per trip, the hand-line fishing as much as 150 kgs while the bigger vessels may obtain 1.5-2 tons per trip. A proper recording of operations and catch vehicle was initiated 4 January 1989 for four big vessels (1 powered only) indicates catches of 900-2,500 kgs per day.

The catch is presently landed at Inhaca and either sold directly or through the local CCPE. Previously, before the inst allation of the Inhaca Cold Store, the catch may have been landed in Maputo. The production purchased by CP at Inhaca is brought to Maputo regularly (daily) at a rate of 3,5 tons per shipment. It was mentioned that a total of 250 tons was taken to Maputo in 1988. The CP has cleared a piece of land for the drying of lower grade fish, and is further in the process of expanding the area.

The Cold Store at Inhaca was said to have been inaugurated in the 1960's, but the equipment and machinery presently in use are from a later date.

The cold store consists of one room with a capacity of 5 tons and a smaller room with a capacity of 2 tons. The cooling aggregate for the 5 tons room is from the 1980's and that for the 2 tons room from the 1970's. None of the rooms are operated at the required temperatures and break down is all too frequent (in fact, a break down was experienced during the visit).

In addition to the cold store, an ice factory (125 kg/h) was installed in December 1988, however, still not operating satisfactorily, and possibly with insufficient production capacity. The main problems are the poor water quality (salt and sand) and the fact that the generator (50 KWH catarpillar) cannot operate the ice factory and the cold stores simultaneously (the spare 5 KWH and 15 KWH generators are of only insignificant importance).

The latter problem is expected to be solved by a 90 KWH generator claimed provided with the assistance from Danida/Norad (a statement which could not be confirmed), and the ice production problem should be solved with a deeper well. In the meantime ice is brought by boat from Maputo.

In compliance with the ordinary practice of CP , they run a small store from which the fishermen can purchase equipment, fishing gear and supplies, however, the supplies are very limited and consequently producing only little encouragement to production.

It was mentioned that better supplies and incentives, sufficient supplies of ice paired with fishing at a farther distance from the island could increase the production considerably, and to the extent that the existing cold storage capacity should double.

VISIT TO BEIRA

According to the Provincial Fisheries Authority of Sofala the fisheries infrastructure of that province is the best developed in Mozambique. The main emphasis has been put on prawn fishery as a major foreign exchange earner and the fleet of vessels has been completely rehabilitated and now operates above 50% of capacity. Fish production also constitutes an important activity (local supply and limited export) and is presently undergoing organizational improvements.

The daily catches of fish, which is claimed still to cover only 20% of the demand, is mainly consumed in Beira. The catch composition is 75% 3rd grade, 20% 2nd grade and 5% 1st grade (export). The production could easily and fast be expanded considerably provided the supply of equipment, etc. was improved and as a result of PRE providing for higher prices of the catch. It still takes time for fishermen to anticipate and react to PRE.

The main market for fish is as mentioned Beira, which takes two thirds of the Sofala sales. As in Maputo the daily sales are relatively uniform, and also the consumers of institutions and private resembles the situation in Maputo. The newly completed fish factory is designed to process around 6,000 tons of fish annually. The operation has just started recently but still far below capacity mainly due to insufficient supply of fish.

The war situation constitutes a severe hinderance for the development of the fisheries sector, also adversely affected by the condition of the distribution system, and lack of trucks. This situation paired with the introduction of PRE, the reduced buying power affecting the sales makes it difficult to predict and plan for the future. The importance of transport is illustrated by the provision of a vessel from EEC used for supply, etc. to the southern Sofala area having increased the fish production considerably.

Pescom National operates a fleet of 5 trucks (2 x 20 tons and 3 x 10 tons), which are all in a very delapidated state and consequently a bottleneck in the distribution of fish in particular to the provinces of Tete and Manica and rural Sofala.

The importance of by-catch production, etc. is noticed but forecasts are not produced, as such depend on where donor agencies like Danida place their emphasis.

According to Emopesca their fish production is solely by-catch, which is sold mainly through the CP. It is not in the plans of Emopesca to increase the extraction from by-catch, the product has low value and an increase in fish extraction is regarded as a waste of time which could be used better for prawn catches. The production of prawns from Emopesca (500 tons in 1987) is sold to Pescom International for further export.

The rehabilitation of the vessels and gear has improved the performance considerably, and Pescom International now only rejects 2-5% of the prawn catches. Emopesca does not have their own cold stores, but rent 1 cold store room and a chill room at the fisheries port also used for the storage of provision for the vessels (20-30 tons per quarter).

The Provincial Fisheries Authorities keep records on catches established on the basis of information obtained form the different enterprises engaged in fisheries (sample from attached).

Pescom National supplied some data on imports to and national production at Beira. The information received is in general a confirmation of data obtained in Maputo. Data on the cold storage facilities, on the other hand, deviate somewhat from those received in Maputo. It was mentioned that 745 tons capacity (502 tons new and 243 tons old) out of 1,351 tons capacity was operational.

To the question about action taken during peak reception, on how to store volumes apparently exceeding the capacity substantially, the solution, which is also valid for Maputo, is a packing of the store room way above the capacity (1,000 tons in 745 tons capacity), increase of deliveries to customers including Tete and Manica and rental of space for instance at CFM facilities as is planned for the January 1989 imports (capacity of CFM facilities unknown).

Apparently, Pescom National never uses the storage facilities at the fisheries port. Deviating information about the capacity of the cold stores at the fisheries port indicates either 1,250 tons or five cold stores of 160 tons each and one room

of 125 tons or 1,000 tons cold store rooms and 125 tons chill room.

The entire complex has Pescamar, Emopesca and Pescom International as the only users and only for prawns (4,000 tons per annum). Fish, local as well as import, never passes the complex except for few occasions for emergency and low volume fish exports (8 tons). The three companies occupy the premises (which could not be inspected during the visit) and pay 96,000 MT/cold store room (120,000 MT/room if own generator used) and 24,000 MT/chill room (30,000 MT/room). The utilization is claimed to be 71% due to seasonality of prawn catches which are exported every third month. During Dec-April the utilization may reach 90%.

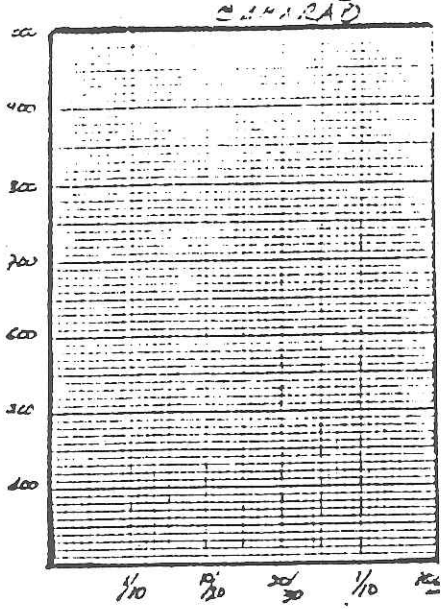
SPS

3º TRIMESTRE

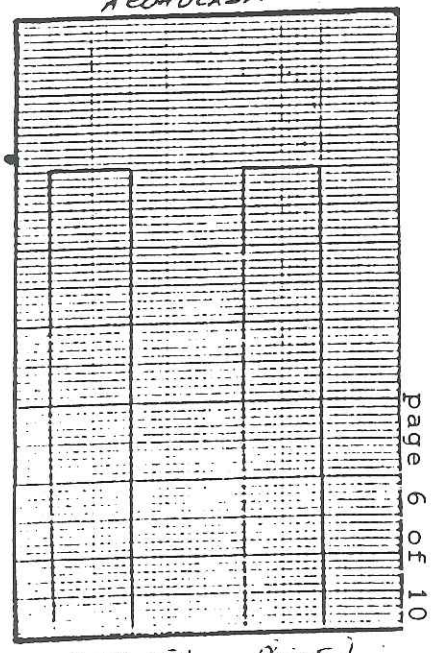
PERÍODO 1 / 11 / 88 @ 31/3 / 89

EMPRESAS		CAPTURAS			DIAS DE PESCA		RMD			COMPRAS		TOTAL	
		CAMARÃO	PEIXE	FAUNA ACOMPAN.	FROTA CAMARÃO	FROTA PEIXE	CAMARÃO	PEIXE	FAUNA ACOMPAN	CAMARÃO-GIRIÃO	PEIXE	CAMARÃO	PEIXE
EMOPESCA BEIRA	P	140	–	40	300	–	467	–	133	–	–	140	40
	R	127	–	25	279	–	455	–	90	–	–	127	25
	%	91	–	63	93	–	97	–	68	–	–	91	63
PESCAMAR	P	598	–	51	912	–	656	–	56	–	–	598	51
	R	759	–	16	946	–	802	–	17	–	–	759	16
	%	127	–	31	104	–	122	–	30	–	–	127	31
TRICOPEIXE	P	27	450	–	–	165	–	–	–	–	–	27	450
	R	–	–	–	–	–	–	–	–	–	–	–	–
	%	–	–	–	–	–	–	–	–	–	–	–	–
COMBINADO PESQUEIRO	P	–	–	–	–	–	–	–	–	9	359	–	359
	R	–	–	–	–	–	–	–	–	2	230	–	230
	%	–	–	–	–	–	–	–	–	22	64	–	64
PROJECTO R.D.X.	P	–	405	–	–	135	–	3 000	–	–	–	–	405
	R	–	425	–	–	138	–	3080	–	–	–	–	425
	%	–	105	–	–	102	–	103	–	–	–	–	105
SUB-TOTAL	P												
	R												
	%												
INDUSTRIAIS PRIVADOS	P	55	–	138	36	–	104	–	104	–	–	55	138
	R	51	–	146	–	–	–	–	–	–	–	51	146
	%	93	–	106	–	–	–	–	–	–	–	93	106
SEMI-INDUSTRIAIS PRIVADOS	P	28	–	237	144	9	191	–	169	–	–	28	238
	R	5	–	95	12	–	–	–	–	–	–	5	95
	%												
ARTESANAIS E PEQUENA ESCALA	P	6	–	215	–	–	–	–	–	–	–	6	215
	R	10	–	300	–	–	–	–	–	–	–	10	300
	%	167	–	140	–	–	–	–	–	–	–	167	140
SUB-TOTAL	P	89	–	592	170	9						89	592
	R	66	–	541	12	–	–	–	–			66	541
	%	74		91	–	–						74	91
TOTAL	P												
	R												
	%												

RENDIMENTO DE CAMARÃO



PRODUÇÃO ACUMULADA

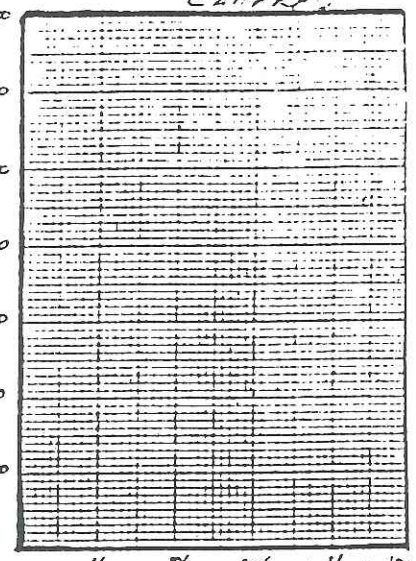


SPS

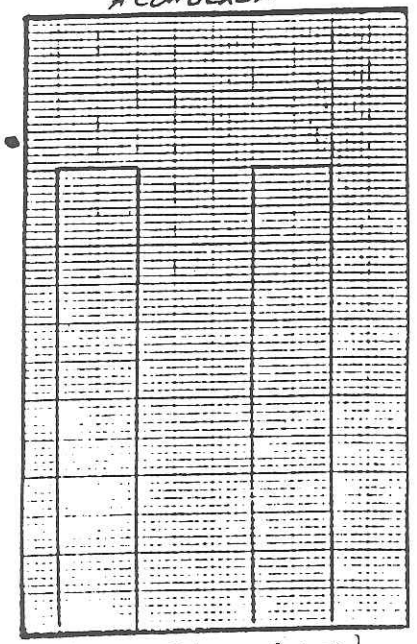
ANO 1988
MÊS ABRIL - MAIO
PERÍODO 1/4/88 @ 30/6/88

EMPRESAS		CAPTURAS			DIAS DE PESCA		R.M.D			COMARAS		TOTAL	
		CAMARÃO	PEIXE	FAUNA ACOMPAN.	FROTA CAMARÃO	FROTA PEIXE	CAMARÃO	PEIXE	FAUNA ACOMPAN.	CARANGUEJO	PEIXE	CAMARÃO	PEIXE
EMOPESCA BEIRA	P	213	-	50	366	-	582	-	137	-	-	213	50
	R	176	-	45	351	-	501	-	1278	-	-	176	45
	%	83	-	90	97	-	86	-	91	-	-	83	90
PESCAMAR	P	785	-	51	912	-	861	-	56	-	-	785	51
	R	752	-	63	987	-	762	-	69	-	-	752	63
	%	96	-	124	108	-	89	-	114	-	-	96	124
TRICOPEIXE	P	45	585	-	-	184	224	3129	-	-	-	45	585
	R	-	-	-	-	-	-	-	-	-	-	-	-
	%	-	-	-	-	-	-	-	-	-	-	-	-
COMBINADO PESQUEIRO	P	-	-	-	-	-	-	-	-	9	309	-	309
	R	-	-	-	-	-	-	-	-	-	70	-	70
	%	-	-	-	-	-	-	-	-	-	23	-	23
PROJECTO R-DX-	P	-	405	-	-	135	-	3000	-	-	-	-	405
	R	-	340	-	-	94	-	3617	-	-	-	-	340
	%	-	84	-	-	70	-	121	-	-	-	-	84
SUB-TOTAL	P												
	R												
	%												
INDUSTRIAIS PRIVADOS	P	115	-	301	302	-	381	-	993	-	-	115	301
	R	77	-	46	115	-	669	-	400	-	-	77	46
	%	67	-	15	38	-	176	-	40	-	-	67	15
SEMI. INDUST. PRIVADOS	P	58	9	498	303	27	191	383	1649	-	-	58	507
	R	26	1	88	244	19	107	53	361	-	-	26	89
	%	45	11	18	81	70	56	16	22	-	-	45	18
ARTESANAIS E PEQUENA ESCALA	P	9	300	-	-	-	-	-	-	-	-	9	300
	R	17	201	-	-	-	-	-	-	-	-	17	201
	%	189	67	-	-	-	-	-	-	-	-	189	67
SUB-TOTAL	P	182	309	900	605	27	301	-	1488	-	-	182	1209
	R	120	202	134	359	19	334	-	323	-	-	120	336
	%	66	65	15	59	70	111	-	25	-	-	66	28
TOTAL	P												
	R												
	%												

RENDIMENTOS DE CAMARÃO



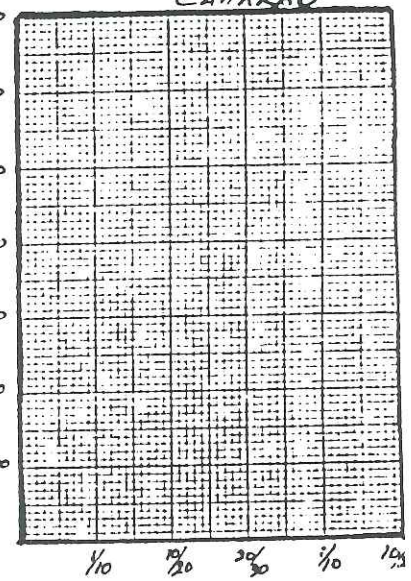
PRODUÇÃO ACUMULADA



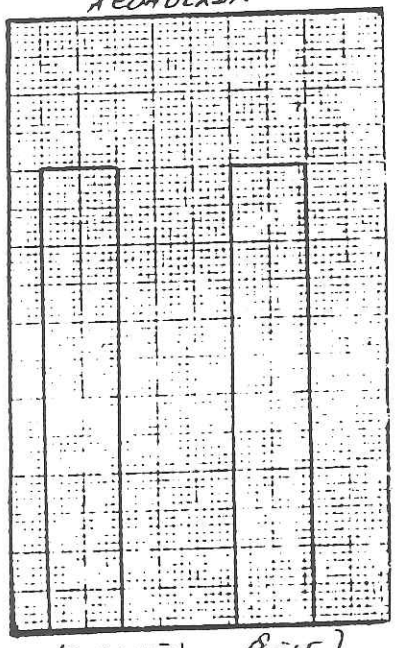
ANO 1988
MÊS 3º TRIMESTRE
PERÍODO 1/07/88 A 30/9/88

EMPRESAS		CAPTURAS			DIAS DE PESCA		R.M.D			COMPRAS		TOTAL	
		CAMARÃO	PEIXE	FAUNA ACOMPAN.	FROTA CAMARÃO	FROTA PEIXE	CAMARÃO	PEIXE	FAUNA ACOMPAN.	CARANGUEJO	PEIXE	CAMARÃO	PEIXE
EMOPESCA BEIRA	P	130	-	84	310	-	419	-	271	-	-	130	84
	R	123	-	72	313	-	353	-	230	-	-	123	72
	%	95	-	86	101	-	94	-	85	-	-	95	86
PESCAMAR	P	538	-	108	872	-	617	-	124	-	-	538	108
	R	475	-	51	893	-	532	-	57	-	-	475	51
	%	88	-	47	102	-	86	-	46	-	-	88	47
TRICOPEIXE	P	18	630	-	-	204	88	3088	-	-	-	18	630
	R	-	-	-	-	-	-	-	-	-	-	-	-
	%	-	-	-	-	-	-	-	-	-	-	-	-
COMBINADO PESQUEIRO	P	-	-	-	-	-	-	-	-	9	255	-	255
	R	-	-	-	-	-	-	-	-	3	94	-	94
	%	-	-	-	-	-	-	-	-	33	37	-	37
PROJECTO R.D.X.	P	-	540	-	-	180	-	3000	-	-	-	-	540
	R	-	589	-	-	151	-	3900	-	-	-	-	589
	%		109	-	-	84	-	130	-	-	-	-	109
SUB-TOTAL	P												
	R												
	%												
INDUSTRIAIS PRIVADOS	P	110	-	317	313	-	347	-	1000	-	-	110	317
	R	54	-	40	128	-	423	-	313	-	-	54	40
	%	49	-	13	40	-	123	-	31	-	-	49	13
SEMI. INDUST. PRIVADOS	P	54	9	162	284	27	190	333	1636	-	-	54	471
	R	38	3	113	314	49	121	61	360	-	-	38	116
	%	70	33	24	111	181	64	18	22	-	-	70	25
ARTESANAIS E PEQUENA ESCALA	P	9	300	-	-	-	-	-	-	-	-	9	300
	R	14	289	-	-	-	-	-	-	-	-	14	289
	%	156	96	-	-	-	-	-	-	-	-	156	96
SUB-TOTAL	P	173	309	779	601	27	273	741	1296	-	-	173	1088
	R	106	292	153	442	49	240	61	346	-	-	106	445
	%	61	94	20	74	181	88	8	26	-	-	61	41
TOTAL	P												
	R												
	%												

RENDIMENTOS DE CAMARÃO



PRODUÇÃO ACUMULADA

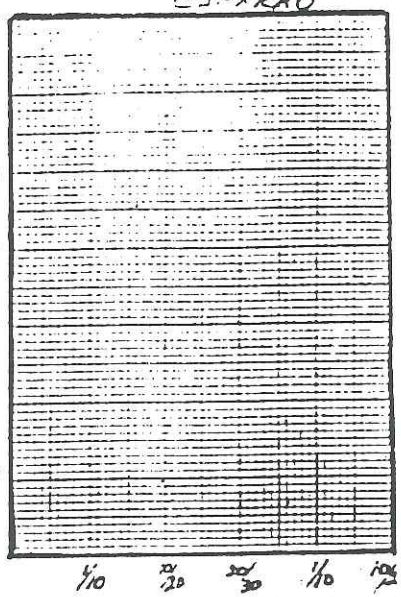


SPS

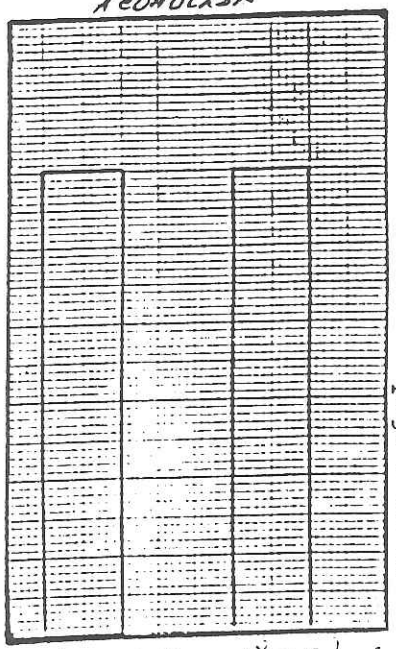
ANO 1988
MÊS 1º TRIMESTRE
PERÍODO 1/10/88 @ 31/12/88

EMPRESAS		CAPTURAS			DIAS DE PESCA		RMD			COMPRAS		TOTAL	
		CAMARÃO	PEIXE	FAUNA ACOMPAN.	FROTA CAMARÃO	FROTA PEIXE	CAMARÃO	PEIXE	FAUNA ACOMPAN.	CARANGUEJO	PEIXE	CAMARÃO	PEIXE
EMOPESCA BEIRA	P	128	–	100	324	–	367	–	306	–	–	128	100
	R	70	–	43	198	–	354	–	217	–	–	70	43
	%	58	–	43	61	–	96	–	71	–	–		43
PESCAMAR	P	435	–	139	816	–	533	–	170	–	–	435	139
	R	475	–	78	856	–	555	–	91	–	–	475	78
	%	109	–	56	105	–	104	–	54	–	–	109	56
TRICOPEIXE	P	12	510	–	–	176	68	2898	–	–	–	12	510
	R	–	–	–	–	–	–	–	–	–	–	–	–
	%	–	–	–	–	–	–	–	–	–	–	–	–
COMBINADO PESQUEIRO	P	–	–	–	–	–	–	–	–	11	277	–	277
	R	–	–	–	–	–	–	–	–	1	155	–	155
	%	–	–	–	–	–	–	–	–	9	56	–	56
PROJECTO R-DX-	P	–	540	–	–	180	–	3000	–	–	–	–	540
	R	–	485	–	–	131	–	2702	–	–	–	–	480
	%	–	90	–	–	73	–	123	–	–	–	–	
SUB-TOTAL	P												
	R												
	%												
INDUSTRIAIS PRIVADOS	P	70	–	224	326	–	310	–	991	–	–	70	224
	R	35	–	16	118	–	297	–	136	–	–	35	16
	%	50	–	7	32	–	96	–	14	–	–	50	7
SEMI-INDUSTRIAIS PRIVADOS	P	28	9	236	138	27	203	333	1710	–	–	28	9
	R	21	2	64	260	29	81	69	246	–	–	21	2
	%	75	22	27	188	107	40	21	14	–	–	75	22
ARTESANAIS E PEQUENA ESCALA	P	6	230	–	–	–	–	–	–	–	–	6	230
	R	8	84	–	–	–	–	–	–	–	–	8	84
	%	133	37	–	–	–	–	–	–	–	–	133	37
SUB-TOTAL	P	104	239	460	364	27	269	333	1264	–	–	104	699
	R	64	86	80	378	29	148	69	212	–	–	64	166
	%	62	36	17	103	107	55	21	17	–	–	62	36
TOTAL	P												
	R												
	%												

RENDIMENTO DE CAMARÃO



PRODUÇÃO ACUMULADA



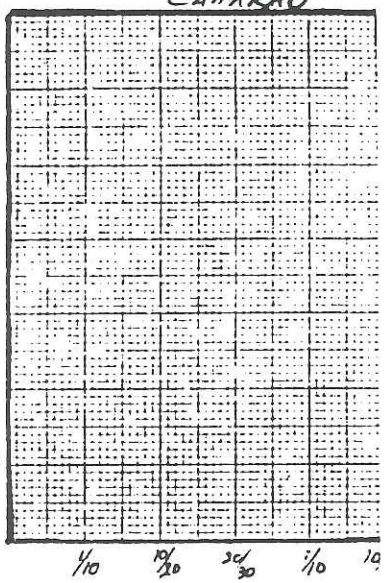
(CAMARÃO) (PEIXE)

SPS

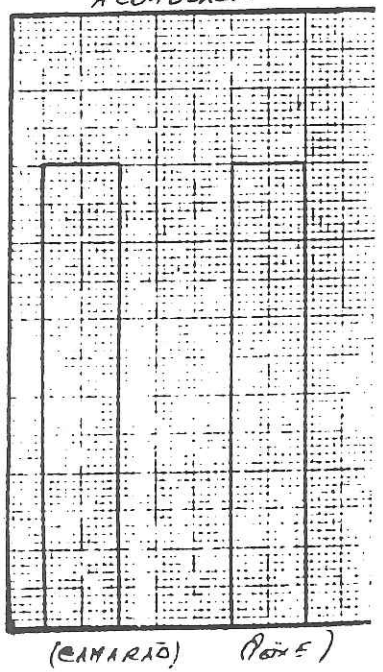
ANO 1988
MÊS JANEIRO/DEZEMBRO
PERÍODO 1.1-31.12 @ 1

EMPRESAS		CAPTURAS			DIAS DE PESCA		R.M.D			COMPRAS		TOTAL	
		CAMARÃO	PEIXE	FAUNA ACOMPAN.	FROTA CAMARÃO	FROTA PEIXE	CAMARÃO	PEIXE	FAUNA ACOMPAN.	CARANGUEJO	PEIXE	CAMARÃO	PEIXE
EMOPESCA BEIRA	P	603	–	274	1303	–	463	–	210	–	–	603	274
	R	496	–	180	1146	–	435	–	162	–	–	496	180
	%	82	–	68		–	94	–	77	–	–	82	68
PESCAMAR	P	3141	–	400	4424	–	710	–	90	–	–	3141	400
	R	3213	–	271	4665	–	688	–	58	–	–	3213	271
	%	102	–	68	106	–	97	–	64	–	–	102	68
TRICOPEIXE	P	147	2760	–	–	913	161	3023	–	–	–	147	2760
	R	–	–	–	–	–	–	–	–	–	–	–	–
	%	–	–	–	–	–	–	–	–	–	–	–	–
COMBINADO PESQUEIRO	P	–	–	–	–	–	–	–	–	47	1510	–	1510
	R	–	–	–	–	–	–	–	–	6	619	–	619
	%	–	–	–	–	–	–	–	–	13	41	–	41
PROJECTO R.D.A.	P	–	1890	–	–	630	–	3000	–	–	–	–	1890
	R	–	1839	–	–	514	–	3578	–	–	–	–	1839
	%		197	–	–	82	–	119	–	–	–	–	97
SUB-TOTAL	P												
	R												
	%												
INDUSTRIAIS PRIVADOS	P	465	–	1281	1173	–	396	–	1092	–	–	465	1281
	R	294	–	294	361	–	459	–	283	–	–	294	294
	%	63	–	23	31	–	116	–	26	–	–	63	23
SEMI. INDUSTRIAIS PRIVADOS	P	226	36	1933	1172	117	193	308	1649	–	–	226	1569
	R	116	7	448	1074	116	108	60	417	–	–	116	455
	%	51	19	23	92	99	56	19	25	–	–	51	23
ARTESANAIS E PEQUENA ESCALA	P												
	R												
	%												
SUB-TOTAL	P												
	R												
	%												
TOTAL	P												
	R												
	%												

RENDIMENTOS DE CAMARÃO



PRODUÇÃO ACUMULADA



REPÚBLICA POPULAR DE MOÇAMBIQUE

MINISTÉRIO DO COMÉRCIO INTERNO

DIRECÇÃO DE ECONOMIA

TERMS OF REFERENCE FOR A STUDY OF THE NECESSITIES IN COLD-STORAGE FACILITIES FOR FISH AND SHELLFISH

INTRODUCTION

The present study will be carried out as a basis for the elaboration of a global development plan for cold stores network for reception, storage and distribution of fish and shellfish, and in particular an investment programme including time schedule and geographical location.

This long term investment programme will be integrated into the prospective Investiment Plan of the MCI - in the field of fish distribution - and will be integrated with a similar plan of the State Secretariat for Fishing, SEP, in the field of development projects for fishing ports.

The study will include the capture and consuption of fish and shellfish, and will cover the territory of the People's Republic of Mozambique.

Contents of the study

1. - Collection of data

a) - Production

Present quantities, produced considering - 1) classification of fish and Shellfish, 2) classification of the fishing fleet used for this fishing - - industrial fishing and small scale fishing, divided into semi-industrial and artisanal - and specified by sector - state, joint venture, private and cooperative, 3) geographical location of fishing areas and for inland sea area, and 4) seasonality of production studies previously carried out, on fishing potential, by classification of fish and shellfish, and geographical location.

.../...

Development plans in the field of production, including fishery fleet, fishery ports, new áreas to be developed, etc.

b) - Consuption

Quantities consumed of each product, covering

- Domestic consuption ("Abastecimento do Povo") Specified by geographical location - include direct and indirect consuption of population and other consuption - considering fresh and frozen fish.
- Industry, considering all kind of processing - cannary, drying, etc.
- Export
- When analising the consuption Structure, the origin of product namely local production or import should be included.
- Perspectives for the evolution of consuption according to food policies, development of food industy and the international market.

c) - Storage

An inventory of the existing cold store network, belonging to the MCI and the SEP, as well as other entities, whenever these coldstore have capacity conditions to be used for distribution / Storage of fish and / or shellfish.

Quantities of product handled, indicating stock, rotation and operational costs, actual utilization of installed capacity, specialized staff appointed and necessities, and own capacity to maintain the plants.

Projects being implemented, contracts under negociation or to be signed shortly.

d) - Transport

Quantities handled by road-, railway-and sea including reception of import and inter-regional transfers, as well as specialized transport means that are able to be adapted for this kind of use.

.../...

Inventory of the costomary routes, and points for eventaal transfer of products.

Development plans for the specialized fleet and now points for unloading and transfer.

2. - Study of flows

a) - Present flows

Identification of flows, considering tha quantitativess aspect as well as origin/destination and the structures involved: producers, intermediaries and consumers.

Distribution flows from production/unloading ports and inter-regional flows (e.c. from Beira to Nacala, and others)

b) Future flows

To take into consideration

- In the field of production: estimation of Production quantities for shel - lfish, by group of producer and geographical location of production.

The relationship between the amount of necessary investments and the expected r-s l's should be included in the analysis, as well as consideration of the different hypothesis of investment and production according to the perspec- tive of development of the Mozambique economy and the potential of the fishing sector.

- In the field of consuption: estimation of quantities for: domestic consup- tion, processing industry, and export. Geographical location of population consuption taking into account the demographic development, the agro-indus- trial projects, and the necessity to guarantee a minimum consumption of pro- proteins.

For industry the location of new projects should be considered estimation of inputs in quantities and kinds of fish / Shellfish, as like as quantities and kinds of finished products.

Estimates of future flows, in the different periods, including origin/destination, quantities and classification, as well as producers/intermediaries/consumers.

3. - Study of transport

Analysis of the development of cargo flows according to the routes and quantities, as result of the study of future flows, and their programming by periods and kind of transport.

a) - Sea transport

Quantities to be unloaded in every port from the industrial, and likely movement between meritime ports of small scale fishery.

Periodization of landings.

b) - Railway transport

Quantities to be transported in each period. Calculation of necessities in especialized transport means, and alternative systems of lower cost investment (e.g. thermic containers, and other).

The proposed solution should serve as a starting point for a joint-project which the Ministery of Ports and Surface Transport, MPTS, in order to elaborate a programme of investments.

c) - Road Transport

Quantities to be handled in every period, distinguishing between short and long journeys, Calculation of the necessities for specialized transport, and alternative lower cost systems of investments.

For the short journey transport, a preliminary plan should be established in order to define the capacity of the fleet, to analyse the operating costs, to apply maintenance programmes and to include some proposal on other alternatives.

For the long journey transport global solution should be outlined to be analysed together with the MPTS.

MINISTÉRIO DO COMÉRCIO INTERNO

(CONTINUAÇÃO)

DATA .....

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4. - Study of the network of cold-storage facilities

Elaborate a global plan for the construction of cold-storage facilities all over the country, taking into consideration: the existing cold stores and the improvements to be introduced: projects being implemented or under negotiation: and necessities in new cold stores, covering the following fields/ /types:

* Port cold stores: facilities in the big harbours (Maputo, Beira and Nacala) as well as in the fishing ports along the coast, specially in the areas with highest potential (Chinde, Quelimane, Pemba, Moma, Angoche, Ibo, etc).

* Cold stores for distribution: facilities oriented to domestic distribution of zonal character which deliver not only to the network of fish distribution but also to other cold stores of smaller dimensions.

* Cold-Storage facilities of the fishing development projects in the hinterland(e.e. Niassa, Cahora Bassa e Massingir).

When estimating the total and individual capacity of the cold-storage facilities, the following should be taken into account:

- The reception of fish from the national production has a certain regularity throughout the year, nevertheless the port cold stores should be planned in order to absorb the sharp points of intake that normally take place.
- The fish distribution to the population should be regular, therefore the cold-stores for distribution as much as the cold stores in the hinterland should be interlinked in order to operate as regulators of fish distribution.
- The cold stores for distribution will receive the fishing fleet production, directly or through port cold stores, according to the most rational distribution and will ensure the continuity of the whole circuit.
- A certain cold-storage capacity for storage of prawns should always exist either in the ports or in the cold stores for distri-

MINISTÉRIO DO COMÉRCIO INTERNO

DIRECÇÃO DE ECONOMIA

(CONTINUAÇÃO)

DATA .....

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bution.

Elaboration of standard preliminary plans, with the generaly characteristics that should be accomplished diffrent kinds of cold stores.

Elaboration of time schedules of necessary investments in the form of cold--storage facilities, with specifications, for the MCI and the SEP, that will follow harmoniously the development of production and consuption of fish and shellfish.

5. - Economic and Financial Study.

Economic and financial calculation and elaboration of investment and operating budgets.

The Implementation of the Study.

The implamentation in stages and the presentation of preliminary reports at every stage, should be planned in order to allow the permanent follow-up of the study by the local staff.

These preliminary reports should be analysed and discussed to facilitate the introduction of any modifications.

The MCI will appoint a universitary graduate for the coordibation of the work, while technicians of diffrent organizations related to the study will be involved in every field.

PRESENTATION OF THE PROPOSAL

When elaborating the proposal, the methodology to be used to carry out the study, the time schedule of work, and the technicians employed (with specifications of type and qualifications as well as period of participation in the study) should be included. Preferably "curriculum vitae" will be included or a technical profile and a record of minimum experence.

For the budget elaboration, it should take into consideration that the People's Republic of Mozambique could pay directly the expenses of accomodation and transport, within the country. The proposal should identify the costs to be

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MINISTÉRIO DO COMÉRCIO INTERNO

DIRECÇÃO DE ECONOMIA

(CONTINUAÇÃO)

DATA .....

PAG. 7

paid local currency and foreign exchange.

A proposal for the financing of expenses incurred int the implementation of the study, should be also be included.

The global proposal should be adressed to the MCI, and by the 31st December 1982.

Annex: Flow Diagram of production, storage, and distribution of fish and shellfish (preliminary).

Preliminary Plan of Main Flows
of Fish and Shellfish