INDONESIAN FISHERIES - A STATUS REPORT

Prepared by

Tapan Banerjee, Ph.D.

Fisheries Project Coordinator

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PREFACE

This report was prepared at the request of Foreign Commercial Service (FCS) Officers of the U.S. Mission, Jakarta. It supersides a previous report "The Fishing Industry of Indonesia" prepared by the American Embassy, Jakarta, in 1979. Most of the information presented here was compiled from several published and unpublished papers in either English or Bahasa Indonesia which are available at the Director General of Fisheries (DGF) and the Agency for Agricultural Research and Development (AARD).

I am very thankful to Mr. Lubis, Director, Office of Fisheries Production and his staff; Mr. Soewito, Director, Office of Fisheries Management and his staff; Mr. Sunyoto, Director, Office of Planning and Program and his staff; Mr. Tambunan, Director, Office of Fisheries Industry Development and his staff of the DGF. A very special appreciation to Mr. Untung, Chief, Division of Planning of Mr. Lubis's Office and Ms. Sutopo, Chief, International Fisheries of Mr. Sunyoto's Office, for their assistance in guiding me through vast amounts of information dealing with the subjects of this paper.

Tapan Banerjee

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1.0. INTRODUCTION

1.1. Indonesia is the world's largest archipelago. It is comprised of 13,667 islands, large and small, and has a coastline about 1.5 times the length of the equator. The total area of the Republic of Indonesia is 7.3 million km2 (2,774,000 sq. miles) of which 5.4 million km2 (2,052,000 sq. miles) are waters, exluding the 200 mile Economic Exclusive Zones (EEZ) which were promulgated on March 21, 1980. Hence, Indonesia carries out jurisdiction over the natural resources in approximately 7.9 million km2 (3,002,000 sq. miles) of waters.

The potential yield of fish from the archipelagic waters and the territorial sea is 2,937,000 tons annually, consisting of demersal fish (1,252,000 tons) and pelagic fish (1,685,000 tons). The potential annual yield of fish from the EEZ of Indonesia is estimated to be approximately 1.8 million tons, of which demersal fish is 0.6 million tons and pelagic 1.2 million tons.

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* Prepared by Tapan Banerjee, Ph.D., Project Coordinator, USAID, Jakarta, Indonesia, August 1982

2.0 DEVELOPMENT OBJECTIVES

2.1. The objectives of the fisheries development in the GOI are:

- to foster growth in the fisheries sub-sector;
- to improve equitable distribution of the development and its results;
- to create a favourable climate for the artisanal fisheries and private sector participation in fisheries development.

2.2. To accomplish growth in the fisheries sub-sector, the GOI has implemented programs (1) to modernize fishing techniques used by private sector and artisanal fisheries; (2) to intensify fish culture in fresh and brackish water ponds.

It is hoped that by having a more equitable distribution of development, its results could accomplish (1) cheap fish to support higher nutritional levels for the low income population; (2) equitable income distribution; (3) spread fishing operations from over-exploited areas to under-expoloited areas.

2.3. To create a favorable business climate in fisheries, the GOI proposes (1) private sector participation in fish culture, especially in areas not yet utilized by fish farmers; (2) incentives for new, privately owned deep-sea fishing enterprises to use State-owned infrastructure facilities.

2.4. During PELITA III (3rd Five Year Plan, 1978-1983), the objectives for fisheries development were stated as:

1. to increase fish poduction to meet the demands of the domestic and export markets;
2. to improve the standard of living of fishermen and fish farmers by increasing their income;
3. to extend employment opportunities through diversification and development of supporting industries;
4. to improve conservation and management measures of fishery resources.

3.0. FISH CONSUMPTION

3.1. Fish constitute a still insignificant portion of the common peoples' diet in Indonesia. The study made during PELITA I revealed that daily protein consumption averaged only 55 grams of animal protein, including fish. During PELITA II, the rate of increase in fish consumption reached 2.4% per capita. Based on this trend, it is estimated that during PELITA III, the rate of consumption will increase 3.3% (see Table 1).

3.2. It was also identified by GOI that Java, Bali, and Nusa Tenggara Barat have the lowest rates of fish consumption per capita; hence, special emphasis is given during the PELITA III to increase fish consumption in these regions.

Table 1

Projected Fish Consumption
1979-1983 (PELITA III)

Consumption	1979	1980	1981	1982	1983	% Increase
Total Consumption (thousand tons)	1,703	1,795	1,891	1,993	2,101	5.4
Total capita consumption (kg.)	11.79	12.19	12.59	13.01	13.44	3.3

4.0. MARINE FISHERIES

4.1. As many as 200 varieties of fish are found in Indonesia's waters. The principal varieties being fished at present are sardine, mackerel, tuna, coral fish, sea bream, shark, ray, and crustaceans. The waters of Indonesia can be roughly divided into four major fishing areas, each with its district characteristics. For all areas, the general pattern of water circulation varies seasonally under the influence of the monsoons. The continental shelf of western Indonesia is characterized by its shallow waters and South China Sea fauna. The area is exploited mostly by traditional fishermen and intensive exploitation is found along the north coast of Java and the islands surrounding Singapore. Traditional fishing gear designed to catch small pelagic fish such as scad and Indian mackerel is used although trawlers, which have recently been banned, catch demersal fish. The deep waters and

coral reef areas of eastern Indonesia contain fauna of the Pacific Ocean, including yellow fin and skipjack tuna. Traditional fishermen fish mostly around the coral reefs with lines, traps, or lift nets. The continental shelf of West Irian is considered the best fishing ground for shrimp, although it also contains important demersal fish resources. The waters of the Indian Ocean along the Nusa Tenggara islands, Java, and Sumatera have virtually no continental shelf and instead, are enriched with nutrients from upwellings off the Australian coast and by western currents. The main fish resources are pelagic and include skipjack, little tuny, frigate mackerel, and kingfish along the coast of Sumatra, the sardine Sardinos melanostrict in Bali, and the yellow fin tuna.

4.2. During the period from 1974 to 1979, fisheries production increased from 1,336 thousand metric tons to 1,748 metric tons, with an average increase of 5.5% per year. The increase in fisheries production was mainly supported by an increase in marine production which occupied 75.4% of the total fisheries production and increased from 948 thousand metric tons in 1974 to 1.318 thousand metric tons in 1979, with an average increase of 6.8% per year.

4.3. The increase in marine fisheries production was due to the development of motorized fishing boats and the use of more productive fishing gear such as purse seines and gill nets. During the period from 1974 to 1979, the total number of powered fishing boats increased from 13,205 to 32,101, showing an average increase of 19.4% per year.

4.4. The production of tuna and skipjack is still relatively low. Of the total catch of 1,336 thousand metric tons in 1974, 39.1 thousand metric tons were skipjack and tuna, increasing to 60.6 thousand metric tons in 1979. The potential total catch of skipjack and tuna has been estimated by GOI to be 207 thousand metric tons (skipjack - 157 thousand metric tons and tuna - 50 thousand metric tons). Within the 200 mile EEZ, it is estimated that the potential of pelagic resources is 1,172 thousand metric tons per year, in large part consisting of skipjact and tuna.

5.0. INLAND FISHERIES

5.1. Indonesian inland fisheries activities are comprised of fishing in inland waters (rivers, lakes, and rice fields), and brackish or fresh water pond culture. The total area of water surface (net area) cultured includes 265,208 ha, out of which brackish water ponds comprise 152,039 ha, fresh water ponds comprise 33,739 ha, paddy fields, 79,419 ha, and cage culture in open water, 11 ha. Brackish water pond culture is mostly for milkfish (Chanis chanos). Brackish water shrimp culture takes place in milkfish ponds which are genrally within 1 km of the coast where water salinity is sufficient for shrimp requirements. Shrimp fry are generally not introduced into the ponds by pond operators but enter the ponds with the inflow of water from the sea. For most pond operators, the production of shrimp is, in effect, a by-product of milkfish culture (see para 5.5.).

5.2. The bulk of the ponds are located along the north coast of Java and South Sulawesi with East Java accounting for 34%, West Java 16%, Central Java 14%, and South Sulawesi 21% of the total pond area. This is because these provinces have extensive esturine swamp areas suitable for pond development, an abundance of milkfish fry, and proximity to large population concentrations which provide market outlets for milkfish. Most ponds are within 1 to 3 km of the sea except in East Java where they may be up to 20 km away. With a few exceptions, ponds vary in size from less than 1 ha up to 7 ha, with the average ranging from about 1 ha in Central and West Java to 4-5 ha in East Java and South Sulawesi. Most are operator owned. The ponds do not have a more productive alternative use.

5.3. Brackish water culture in Indonesia has a long tradition. It was initiated at least 600 years ago as a mangrove swamp fishery using traps. Gradually, the mangrove was removed, dykes were constructed, ponds built, and finally, the custom of stocking ponds with milkfish fry caught at sea prevailed. Ponds were built simply by bunding the perimeter and leveling the bottom. Technical development has not advanced much beyond this stage.

5.4. The traditional methods of milkfish and shrimp culture practiced by most Indonesian pond operators are still in existence. Under these methods, ponds are left under natural conditions with little control over salinity levels and water depths. Fertilizers, including organic manure, are rarely used. There is virtually no control of natural predators and pests (snails and worms) which

compete with the milkfish and shrimp for food. Furthermore, fry stocking management to make effective use of the available feed is generally absent. As a result, production is low, averaging about 330 kg per ha annually, with milkfish accounting for less than half (40%-50%) the output. Crabs, shrimp, mullet, tilapia, and other fish, usually brought into the ponds by the inflow of water and not intentionally introduced, account for the remaining output. Most ponds are able to produce only a single harvest. The disproportionately small share of milkfish is indicative of the low level of technology applied.

5.5. Some pond operators have begun to adopt better practices. Improved control of salinity and water depths in ponds has been achieved through simple means such as raising secondary dykes and ditches, deepening pond bottoms and canals, and adding more sluice gates. With some degree of water regulation and the use of small amounts of fertilizers (about 100-150 kg per ha) and in some instances pesticides, these operators have been getting substantially higher yields as well as two harvests of between 500-600 kg of milkfish and 100-150 kg of shrimp per year, or about 4 times more than the average for all ponds. Near the coast, with higher salinity levels, progressive pond operators are giving an increased emphasis to shrimp production. Shrimp thrive better in such ponds than in those away from the coast. Improved ponds near the coast have been yielding about 300 kg of milkfish and between 250-350 kg of shrimp per ha annually compared with about 150 kg and 20-60 kg respectively for unimproved ponds.

5.6. Improved ponds are still few and are concentrated in areas close to the main urban centres in South Sulawesi and Java. This is because many substantial increases in production can be obtained through simple improvements such as better water control to improve pond water conditions and the use of fertilizers and pesticides. The lack of technical advice is another problem. Finally, a shortage of credit on suitable terms is an important constraint.

5.7. In comparison with marine fisheries production, production in inland fisheries as a whole during 1974-1979 increased slowly. The total inland fisheries production in 1974 was 338 thousand metric tons which increased to 431 thousand metric tons in 1979, with an average increase of 2.1% per year. During 1974-1979, inland open water fisheries production was relatively stagnant, i.e. 241 thosand metric tons in 1974 and 248 thousand metric tons in 1979, with an average increase of 0.6% per year. However, fish culture production increased from 147 thousand metric tons in 1974 to 182 thousand metric tons in 1979, with an average increase of 4.4% per year.

6.0. MARKETING

Sharp regional imbalances exist between fish production and consumption. For example, the island of Java which accounts for about two-thirds of the Indonesian population, consumes almost one-third but produces only about one-fifth of the national fish

production. An active inter-island fish trade thus exists between the other islands and Java. While fish from ponds are generally sold fresh or alive, most marine fish are sold dried and salted, given the long distances involved, the high cost of ice, and refrigerated transport. The marketing system is inefficient and involves several intermediaries in the producing areas as well as in the consuming centers. Margins between producer and retail prices are 50% or more.

7.0. FISHERIES CREDIT

Although most fishermen and fish pond operators depend on traders for financing, reliable data on the quantities and terms of such financing are not available. The Bank Rakyat Indonesia (BRI) is the main source of institutional credit for fisheries. Some of the other State-owned banks also finance this activity, mainly in the fields of marketing and processing. The interest rate on fisheries loans is 1%-2% per month.

8.0. FISHERIES COOPERATIVES

The National Federation of Indonesian Fishermen's Cooperative Societies is the apex body of 12 Provincial Unions of Fishermen's Cooperatives Societies comprising 352 Primary Fishermen's Cooperative Assosciations with a membership of about 62,000 fishermen (6% of the fishermen population). The principal activity

of the cooperatives has been the provision of fishing gear, particularly nets. They buy from the National Federation or, in the case of locally available items, make bulk purchases for resale to members. No credit is provided. The cooperatives also auction fish at the landing site on behalf of the fishermen and collect fees. In addition, several cooperatives are engaged in wholesale fish marketing and in catching bait fish.

9.0. FISHERIES ADMINISTRATION

The Directorate General of Fisheries (DGF) in the Ministry of Agriculture is responsible for the administration of the fisheries sector. It handles all fisheries matters: administration, development policies, research, training, extension, and control of the State Fisheries Enterprises. DGF's provincial and district offices are primarily responsible for providing extension services for inland and marine fisheries (see Fig. 7 and Appendix XVIII).

10.0. EDUCATION AND TRAINING

Trained manpower for substantial expansion in fishing operations is available. There are nine institutions concerned with fisheries training at various levels : a fisheries academy, three senior fisheries high schools, three junior fisheries high schools, two adult training centers, and fisheries departments within the faculties of agriculture in five universities.

UNDP/FAO is funding a fisheries training center at one of the senior fisheries high schools (Tegal) to provide practical training in fishing techniques, fishing gear assembly, net making and mending, and navigation. DGF plans to set up similar centers elsewhere. Indonesian fishermen are also currently being trained on many of the foreign fishing vessels operating under joint venture agreements.

11.0. RESEARCH

During 1976-1980, fisheries research programs in Indonsia were aimed at making more effective use of the fishery resources of the nation. Exploratory surveys were conducted to learn more about the varieties and quantities of fish in various marine areas in order to estimate sustainable yields. Various handling and processing approaches were tested to improve preservation at sea, to promote faster movement to market, to more effectively smoke and salt fish (at less cost, especially using less fuel), and to more effectively use waste products and trash fish, including producing fish silage for poultry.

11.1. Marine Fisheries Research

During the past six years, surveys were made in several areas to collect data on both demersal and pelagic fish. The survey areas were: the Strait of Malacca and the east coast of Sumatera, South China Sea, Java Sea, Bali Strait, and the Indonesia/Indian Ocean.

11.2. Strait of Malacca

In the Strait of Malacca, surveys indicate that fish are more abundant in waters 40 meters deep than in shallower waters. This is due to the more intensive coastal fishing for shrimp which have a higher value (especially for export). The area below 40 meters depth is lightly exploited. More fishng could be encouraged at those depths and thus shift some fishing activity away from the coastal zone. For pelagic fishery analyses, the Strait of Malacca is divided into northern and southern parts. The maximum sustainable yield per year (MSY) is estimated to range between 70,000 and 80,000 tons. (Pelagic fish consist of mostly Clupeids, Carangids and Scombrids). The level of exploitation is still low so pelagic fishng could be increased in the area.

11.3. South China Sea

The Indonesian South China Sea is bordered on the east by the Province of West Kalimantan, on the south by the Java Sea (the Karimata Strait), on the west by the island of Sumatera, and on the north by the Natuna and Anambas Archipelagos. Catch rates during the 1976-1977 survey showed the abundance of fish. In the waters off West Kalimantan Province, the trawl catch rates averaged 115 kg per hour, with pony-fishes (Leiognathus spp.) as the dominant species. The catch rate for shrimp was 2.9 kg per hour. The pelagic species caught in this trawl-net survey were chub-mackerels (Rastrelliger spp.) and travallies (Caranx spp.).

II.4. Java Sea

Demersal fishery research in the Java Sea began intensively in 1974 and continued through 1978. Data were collected on catch-rates, catch composition, and biological aspects of economically important species. Partial results of this study are shown in Tables 2 and 3. In the coastal waters north of East Java and Madura Island, an estimated 90% of the catches are made by traditional fishermen. The pelagic fish account for 70% and demersal fish 20%. A detailed investigation was conducted from 1976 to 1978 on some demersal species such as goatfish (Upeneus spp.) and mullets (Mugil sp. and Valamugil sp.). The MSY of Upeneus sulphureus in the offshore area of the Java Sea was calculated as 51,000 tons or 20% of the demersal potential yields. The fish are found at a depth of 30 to 70 meters.

The concentration of fish schools in the northern coastal waters of West Java was also investigated in 1977 and the results are shown in Table 4.

Table 2

Results of Demersal Resources Investigation in the Java Sea (1976-78) *

Year of Observation	Location	Depth (m)	Stock million ton	Abundance kg/h
1976	Java Sea	20	0.7	-
	Java Sea	20	0.5	-
	Java Sea	-	-	262
	Coastal water of S. Kalimantan	-	-	500
	Coastal waters of N. Java	-	-	189
1977	- " -	-	-	133
1978	- " -	-	-	102

Table 3

Abundance and Potential Yields of Demersal Fish in the Java Sea (1976) *

Location	Abundance kg/h	Abundance ton/km2	Standing stock ('000 ton)	Potential yields ('000 ton)
INSHORE				242
North Coast of Java				53.5
- W. Java	174	2.7	33	
- C. Java	163	2.4	37	
- E. Java	248	3.8	37	
S. Kalimantan				188.5
- S. Kalimantan	435	6.9	118	
- C. & S. Kal.	556	8.8	116	
- S. Kalimantan	494	7.8	143	
South Sumatera	170	2.7	60	30
OFFSHORE				350
S. Kalimantan	82	1.3	49	
E. Java	192	3.1	174	
C. Kalimantan	202	3.2	182	
C. Java	212	3.4	149	
S. Sumatera	116	1.8	93	
W. Java	144	2.3	61	

* AARD, 1981

Table 4

Concentration of Fish Schools in the Northern Coastal Waters of West Java (1977) *

Resource		Location
Demersal	Pelagic	
Lizardfish (Saurida spp.)		Around Kangean Island
Catfish (Arius thalasinus)		East and west sides of Matasiri Island
Shrimps		Coastal waters of S. Kalimantan, i.e. Kumai Gulf, Kuala Pembuang, Tanjung Selatan and Laut Strait
Dusumiera acuta	Round herring	Northeast part of Java Sea from Bawean Island up to Laurot Island
	Chub mackerel (Rastrelliger spp.)	South of Laut Island
	Scads (Decapterus spp.)	Same

* AARD, 1981

11.5. Bali Strait

As a result of acoustic surveys of pelagic fish in the Bali Strait in 1976, the standing stock was estimated at 100,000 tons. This species tends to aggregate in schools which differ in size between day and night. The average (modal) width of schools is 68 meters in the daytime and 13 to 15 meters at night. The average (modal) depth levels are 38 meters and 23 meters, respectively. There is

no difference in the height of the school in the day compared with the night. Oil sardines (Sardinella longiceps) concentrate in two areas - near the coast of Java (northeast of Tanjung Sembulungan) with 1.5 million cubic meters of fish per square mile, the other near the coast of Bali, (southwest of Tanjung Antab) with 10.9 million cubic meters of fish per square mile.

11.6. Indonesia/Indian Ocean

The Sunda Strait connects the Java Sea and the Indian Ocean - an area of 8,200 km2. In 1978, pelagic fish were estimated in this area at 1.12 to 1.80 ton/km2 with a yield of 7,000 tons per year. The average (modal) pelagic fish school was 32.6 m in width, 8.2 in height, and at a depth level of 22.4 m.

During the East Monsoon (June, 1978), the fish concentrated in areas north of Merak and west of Labuhan on the coast of Java and in Semangka Bay east of Tabuhan Island off Sumatera. Demersal fish were estimated at 0.49 - 0.78 ton/km2, with a yield of 1,000 tons per year. The average (modal) width and height of the school were 47.3 m and 4.5 m, respectively, the school being located on the flat bottom at 26 m depth. In 1978, the waters of Nusabarong had a high density of demersal fish at 552.2 kg per hour, a concentration due to the low exploitation level.

12.0. EXPORT AND IMPORT

12.1. Export

During the period from 1974 to 1979, the total export of fishery products increased from 54,953 metric tons valued at 92.344 thousand U.S. dollars to 68,269 metric tons valued 236,827 thousand U.S. dollars with an average increase of 4.42% per year in volume and 20.7% in export volume. However, in 1975 there was a decrease of 25.9% in export volume and 4.5% in export value compared with the 1974 figure. Major export commodities in 1979 were shrimp either fresh, chilled, frozen, dried, or salted (200,483 thousand U.S. dollars), jelly fish either dried or salted (2,651 thousand U.S. dollars), and ornamental fish (96 thousand U.S. dollar).

The major ports for exports in 1979 were: Tanjung Priok (41,105 thousand U.S. dollars), Ambon (31,192 thousand U.S. dollars), Sorong (24,336 thousand U.S. dollars), Belawan (22,998 thousand U.S. dollars), Ujung Pandang (25,619 thousand U.S. dollars), Semarang (20,103 thousand U.S. dollars), and Surabaya (14,444 thousand U.S. dollars). Major export destinations in 1979 were : Japan (187,311 thousand U.S. dollars), Singapore (10,388 thousand U.S. dollars), Hong Kong (8,860 thousand U.S. dollars), the United States (11,487 thousand U.S. dollars), and The Netherlands (9,619 thousand U.S. dollars).

12.2. Export Projections

Export volume of fishery products during PELITA III is projected to increase by 12.1% per year and export value is projected to grow at a rate of 5.3% per year based upon constant prices of 1978. The yearly export volume and value by commodity are as follows (Table 5 and 6) :

Table 5

Export Volume of Fishery Products
Projection During PELITA III (thousand tons)

Commodity	1979	1980	1981	1982	1983	Rate of Increase (%)
Shrimp and Prawns	33.78	34.36	34.94	35.52	36.10	1.7
Tuna/Skipjack	11.04	17.08	23.12	29.16	35.20	47.7
Others	27.23	30.25	33.78	36.30	39.33	10.2
Total	72.05	81.69	91.34	100.98	110.63	12.1

Table 6

Export Value of Fishery Products
Projection During PELITA III (million US$) *

Commodity	1979	1980	1981	1982	1983	Rate of Increase (%)
Shrimp and Prawns	158.3	161.0	163.7	166.4	169.2	1.7
Tuna/Skipjack	8.3	12.8	17.3	21.9	26.4	47.7
Others	36.1	40.1	44.1	48.1	52.1	10.2
Total	202.7	213.9	225.1	236.4	247.7	5.3

* Note: Export value based upon constant price of 1978

Table 7 List of Large Scale Seafood Exporters and Processors in Indonesia *

No.	Name of Company	Address	Scope
1.	PT Misaja Mitra	Nusantara Building 19th Floor, Jl. MH. Thamrin Jakarta.	Catching and processing of shrimp & fish
2.	PT Tofico	Jl. R.E. Martadinata Tanjung Priok, Jakarta	Idem ditto
3.	PT West Irian Fishing Industries	Jl. Kemang I, Gg. Buntu No. 11A, Jakarta	Idem ditto
4.	PT Irian Marine Product Development	Skyline Building, 12th Floor, Jl. MH. Thamrin No. 9, Jakarta	Idem ditto
5.	PT Nusantara Fishery	Wisma Nusantara Bldg. 21th Floor, Jl. MH. Thamrin No.59, Jakarta	Idem ditto
6.	PT Mina Kartika	Kartika Plaza, Jl. MH. Thamrin No. 10 Jakarta	Idem ditto
7.	PT Alfa Kurnia Fish Enterprise	Wisma Metropolitan 4th Floor, Jl. Jen. Sudirman Kav. 29, Jakarta	Idem ditto
8.	PT Dwi Bina Utama	Wisma Metropolitan 7th Floor, Jl. Jen. Sudirman Kav. 29, Jakarta	Idem ditto
9.	PT East Indonesian Fishery	Wisma Metropolitan 7th Floor, Jl. Jen. Sudirman Kav. 29, Jakarta	Catching and Processing of skipjack
10.	PT Central Java Marine	Jl. Kaligawe, Semarang	Collecting and processing of shrimp & fish
11.	PT Tri Daya Kartika	Jl. Tinumbu, Ujung Pandang	Idem ditto
12.	PT J. Surya Sakti	Jl. Imam Bonjol 17, Medan	Idem ditto
13.	PT J. Surya Aceh	Idem ditto	Idem ditto
14.	PT Surya Sumatra	Idem ditto	Idem ditto
15.	PT Dharma Mulia	Jl. Kalibesar Barat 2, P.O. Box 1021, Jakarta	Idem ditto

Table 7 continued

No.	Name of Company	Address	Scope
16.	PT Central Java Cold Storage	Jl. Citandui, Cilacap	Idem ditto
17.	PT Serdid	Jl. Tarakan 110, Ujung Pandang	Idem ditto
18.	PT Corimex	Jl. Panakukang, Jalan Baru No. 55 - 57 Ujung Pandang	Idem ditto
19.	PT Pumar	Jl. Gunung Sahari 39, Jakarta	Catching & processing of shrimp
20.	PT Bonecom	Jl. Sulawesi 96, Ujung Pandang	Idem ditto
21.	PT Semarang Cold Storage	Jl. Empu Tantular 74, Semarang	Idem ditto
22.	PT Maprodin	Nusantara Bldg., 20th Floor, Jl. MH. Thamrin 59 Jakarta	Idem ditto
23.	PT Sari Samudera	Jl. Kaligawe, Semarang	Catching & processing of skipjack
24.	PT Kalimantan Fishery	Jl. Margasatwa 55, Pondok Labu, Jakarta	Idem ditto
25.	PT Samarinda Cendana Cold Storage	Jl. Karangmusuk SK 22/66 Samarinda	Idem ditto
26.	PT Karya Mina	Jl. Salemba Raya 16, Jakarta	Idem ditto
27.	PT Usaha Mina	Piola Bldg., 4th Floor Jl. Kramat Raya 7-9 Jakarta	Catching & processing of skipjack
28.	PN Perikani Sulawesi Utara/Tengah	Idem ditto	Idem ditto
29.	Perum Perikanan Maluku	Idem ditto	Idem ditto
30.	PT Perikanan Samudera Besar	Jl. Salemba Raya 55 Jakarta	Catching & processing of Tuna

* Available from DGF.

12.3. Import

During the same period from 1974 to 1979, imports of fishery products increased from 6,980 metric tons valued at 2,438 thousand U.S. dollars to 31,018 metric tons valued at 6,716 thousand U.S. dollars with an average increase of 34.8% per year in import volume and 22.5% per year import value. The major commodity imported in 1979 was canned fish (13,338 thousand U.S. dollars).

12.4. Import Projection

Considering the consumption, production, and export projections there will be a shortage of fishery products required to meet the domestic market demand. To fill the deficit, imports of fishery products in 1979 are estimated at 24,000 tons and in 1983, 22,800 tons with a rate of decrease at 1.3% per year. Imports are expected to decrease since the production of domestic fish canning factories should expand because of government tax and tariff relief for tinplate imports. The yearly import projection is shown in Table 8.

Table 8

Import of Fishery Products Projection
During PELITA III (thousand tons)

Import	1979	1980	1981	1982	1983	Rate of Increase (%)
Total Import	24.0	23.7	23.4	23.1	22.8	- 1.3

13.0. FISHERIES INVESTMENT

13.1. Modern fishing is a capital-intensive industry requiring a cosiderable amount of financial resources and well trained personnel. There is no industry that produces a commercial commodity as highly perishable as fish. Thus, there is a need for appropriate processing and distribution facilities that permit technically adequate, economic utilization of fish which greatly fluctuate in volume from season to season as well as within the season. Indonesia's fishery development plans envision the operation of integrated fishery projects with a well-balanced development of sea and shore facilities to overcome bottlenecks in the provision of fish for the domestic market and for export.

13.2. The primary objective in developing the fisheries industry through foreign investment is to produce the commodity for export and thus increase foreign exchange earnings of the country. This type of investment is governed by the Foreign Investment Law No. 1, 1967 and its implementatry regulations. By the end of 1976, 15 foreign investment projects in fisheries were approved by the Government of Indonesia and permission to operate was given to the companies concerned.

13.3. The total capital investment of the 15 joint venture companies is approximately 46.2 million U.S. dollars. Nine joint ventures relate to vertically integrated shrimp fishing operations including capture and processing plants onshore. Three companies engage in

pearl culture. Two firms have undertaken shrimp processing plants and one joint venture operates skipjact fishing operations, including a freezing plant onshore.

13.4. The following are the main factors to be considered in the procedure of request :

a. The prospective investors must be bonafide companies.

b. The proposed investment must end by improving the foreign earnings position of the country.

c. The proposed fishing operations must relate to waters where intensive exploitation by local fishermen and domestic enterprises have not yet taken place.

d. There is no ceiling on the capital to be invested but prefereably, the amount should not be less than 2 million U.S. dollars.

e. The proposed investment must be arranged on a joint venture basis.

f. The investment should be an integrated project covering catching fleets as well as processing plants.

g. The joint venture companies must undertake a training program for Indonesian personnel designed to gradually replace foreigners.

h. Transfer of the shares of foreign participants to Indonesians should be done at certain stages to enable the Indonesians to take over the companies after fifteen years of establishment.

i. The duration of such joint operations is fifteen years.

13.5. The Foreign Investment Law No.1, 1967 did not specify that foreign capital was only to be used in the form of joint ventures with local enterprises. In fact, the first foreign investment in fisheries was by a Japanese firm in the shrimp fishing industry. This was later converted into a joint venture because it has been the policy of the Directorate General of Fisheries since 1969 that all foreign investment in fisheries must be arranged on a joint venture basis. This has been adopted to promote the participation of national companies and the growth of national entrepreneurs.

13.6. As noted above, the development plan of the Directorate General of Fisheries was to designate joint ventures to operate in waters that have not been intensively exploited by local fishermen and domestic enterprises.

The waters are primarily east Indonesian waters which were virtually under-exploited and where fishing efforts in terms of fishermen, vessels, and gear were relatively low. The policy, therefore, will attempt to maximize exploitation of these waters that are located away from the highest concentration of fishermen in western Indonesia and thus minimize friction and resistance from the traditional fishermen.

13.7. The joint venture companies were directed to operate mainly in the waters off the south coast of Irian Jaya. Along with permission to fish, facilities for freezing and cold storage at Ambon and Sorong were provided. The development plan, therefore, envisaged the development of the regional economy of Maluku and Irian Jaya

through the multiplier effects generated by the on-shore construction of processing facilities. A joint venture for catching skipjack was permitted to operate from Ternate, North Maluku as a base with similar regional development objectives.

13.8. With the rapid development of shrimp joint ventures, local entrepreneurs recognized the opportunities for establishing cold storage and freezing plants for collecting shrimp for export in Java (Jakarta, Cirebon, Cilacap and Surabaya), in South Sulawesi (Ujung Pandang), in East and South Sumatera (Medan, Belawan, and Palembang), and in Kalimantan (Pontianak, Banjarmasin, Samarinda, Kota Baru). The increased capacity for receiving and processing shrimp in these areas sparked the development of national trawlers for catching shrimp. Thus, the success of shrimp export by the joint venture companies had a demonstrable effect in stimulating the development of national shrimp trawlers and shrimp processing plants throughout Indonesia. By the end of 1976, Rp. 7.6 billion (or U.S. dollars 18.3 million) had been invested by big Indonesian fishing companies. By the end of 1976, both joint venture companies and national fisheries firms had invested a toal amount of 64.5 million U.S. dollars or Rp. 26.770 billion. Detailed figures are shown in Table 9 below. They clearly indicated that the incremental capital output ratio (ICOR) in large scale fisheries investment is 0.96 which is an encouraging fact (Table 9).

Table 9

Total Investment of Large Fisheries Companies and Incremental Capital Output Ratio *

Year	Investment in Million Rp. (Cumulative)	Increase of Investment	Output Generated from Investment in Million Rp.	Increase of Output	ICOR
1969	820	-	79,5	-	-
1970	2,610	1,790	472,9	393,4	4,6
1971	5,310	2,700	3.706,2	3.233,3	0,8
1972	7,180	1,870	9.165,0	5.458,8	0,3
1973	11,360	4,180	14.296,4	5.131,4	0,8
1974	18,410	7,050	15.831,4	1.535,0	4,6
1975	24,500	6,090	19.206,1	3.374,7	1,8
1976	26,770	2,270	27.190,4	7.984,3	0,3
Total		25,950		27.110,9	0,96

* DGF

13.9. The fields of investment mentioned in the list of Priority Scale for joint venture companies in 1981 are as follows:

- Skipjack fishing:

  The fishing grounds are in the Indonesian Exclusive Economic Zone outside the Indonesian territorial sea. The base/port of the activities should be the Indonesian territorial sea. The base/port of the activities should be nearby the fishing ground, i.e. : Jayapura, Kupang, Ternate.

- Tuna fishing:

The fishing grounds are in the Indonesian Exclusive Economic Zone outside the Indonesian territorial sea. The base/port of the activities should be nearby the fishing ground, i.e.: Sabang, Kupang, Padang, Jayapura, Ternate.

Shark fishing:

The fishing grounds are in the Indonesian Exclusive Economic Zone outside the Indoesian territorial sea. The base/port of the activities should be the nearby the fishing ground, i.e.: Kupang.

- Eel Culture:

The area of operation: West Sumatera, Bengkulu, South of Java, Sulawesi, Nusa Tenggara Barat (NTB), Nusa Tenggara Timur (NTT), Irian Jaya. Eel Juvenile should be bought from the local fishermen.

- Seaweed Culture:

The area of operation: Lampung, south of Java, Buleleng (Bali), Nusa Tenggara Barat, Sangihe, Maumere, Seram, Limbo Island (North of Maluku). The investor is only to collect the seaweed cultured by the local fishermen, process and market it, and provide the fishermen with technical guidance.

- Shellfish culture (abalone species, oyster, excluding shrimp and pearl). The areas of operation: Aru, Sorong, Banggai, Kei, Sangihe, Sumbawa. The investor is only to collect shellfish cultured by the local fishermen, process and market it, and provide the fishermen with technical guidance.

Table 10 Name & Address of Enterprises Involved in National Fisheries Cold Storage Units

No.	Name of Companies	Address	Tel. No.	Cold storage site	Tonnage capacity
1	2	3	4	5	6
	PMA				
1	PT Maluku Pearl Development	Jl. MH.Thamrin 10, Kartika Plaza Room 272, Jakarta, Lantai II.	321728-43 3221108	Dobo	-
2	PT Misaya Mitra	Nusantara Building Floor 19, Jl. MH.Thamrin 59, Jakarta	54521-5 Ext.3256/ 350397 Ext.3199 320,3201 (Langsung)	Jl. Veteran Km. 2 Kota Baru	520 ton
3.	PT Tofico	Jl. RE.Martadinata,Tg.Priok, Jakarta.	493608	Ambon	100 ton
4.	PT Cejamp	Jl. Kaligawe, Semarang	20815, 26148	Jl.Kaligawe Semarang	500 ton
5.	PT West Irian Fishing Industries	Jl.Kemang I Gg.Buntu No.11A Jakarta	772999 772594		
6.	PT Irian Marine Product Development	Jl.MH.Thamrin No 9,Skyline Bldg. Lantai 12,Jkt	321708 Ext.3221 Direct Line 356572.	Jl.Kalademak Sorong	100 ton
7.	PT Nusantara Fishery	Wisma Nusantara Bldg. 21th Fl. Jl.MH.Thamrin 59, Jakarta	354521,356 111,356211, 356511,Ext. 3296,3297, 356392,354 354521 Ext. 3297	Jl.Kate-Kate Ambon.	100 ton
8.	PT East Indonesian Fishery	Wisma Metropolitan,Lantai 4,Jl. Jen.Sudirman, Kav.29,Jakarta	584205	Jl. Cempaka Ternate	300 ton

Table 10 Cont.

1	2	3	4	5	6
9	PT Mina Kartika	Kartika Plaza Jl.MH.Thamrin No 10, Jakarta	322979, 322134	Jl.Yunus Sara-namual,Ambon	100 ton
10	PT Alfa Kurnia Fisheries Enter-prises	Wisma Metropoli-tan,Lantai 4 Jl.Jen.Sudirman Kav.29 Jakarta	583849 584965	Jl.Kalidemak Sorong	100 ton
11	PT Dwi Bina Utama	Wisma Metropoli-tan Lantai 7, Jl.Jen.Sudirman Kav.29 Jakarta	584965 584205	Jl.Kalidemak 2, Sorong	100 ton
12	PT Tri Daya Kar-tika	Jl.Tanah Abang II/74,Jakarta Jl.Tinumbu,Ujung Pandang	52586/9-332 5529	Jl.Tinumbu U. Pandang	140 ton
13	PN Nisshin Samu-dera Mutiara	Asoka Hotel, Jl. MH.Thamrin No.28-30, Jakarta	322980 Ext. 303	Lokotoy	
14	PT Manei Southern Pearl	Wisma Nusantara Lantai 20,Jl.MH. Thamrin 59, Jakarta	Direct Line (356501) 354321-25 356111-15 356311-15 Ext.3156, 3157;	Dobo	
15	PT Tri Food Indo-nesia	JL.Bunderan 266 Sidoarjo		Jl.Bunderan 266 Sidoarjo	300 ton
16	PT Djarma Aru	Jl.KH.Hanyim Anyhari No.6 Jakarta	347715	-	
	PMDN				
17	PT J.Surya Sakti	Jl.Imam Bonjol 17,Medan, Jl.Tiang Bendera Jakarta	27000 21382 Ext. 113-145	Jl.Ujung Baru Belawan	200 ton
18	PT Pumar	Jl.Gunung Sahari 39, Jakarta Jl.Penjalai Pos 2, Tg.Priok, Jakarta	636608 495144	Jl.Penjalai Pos 2,Tg.Priok	200 ton

Table 10 Cont.

1	2	3	4	5	6
19	PT Bonecom	Jl. Sulawesi 98, Ujung Pandang. Jl. Kebon Sirih 40/15 Jakarta (Branch)	5409, 5267 5183 564541	Jl. Sulawesi 98 Ujung Pandang	90 ton
20	PT Semarang Cold Storage	Jl. Empu Tantular 74, Semarang	22501,22708	Jl. Empu Tantular, Semarang	620 ton
21	PT Maprodin	Wisma Nusantara 20th Floor, Jl. MH. Thamrin 59 Jakarta		Jl. Gudang Arang, Ambon	100 ton
22	CV Dharma Mulia	Jl. Kalibesar Barat 2, P.O. Box 1021, Jakarta Jl. R.E.Martadinata Tg. Priok, P.O. Box 1021, Jakarta.	691695, 690344, 690355	Jl. R.E.Martadinata, Ancol, Jakarta.	200 ton
23	PT Sari Samudera	Jl. Kaligawe, Semarang	24209, 25313	-	-
24	PT Surya Aceh	Jl. Binjai Km. 10.8, Medan. Jl. Tiang Bendera 104, Jakarta (Branch)	-	Jl. Pelabuhan Lhok Seumawe, Aceh.	200 ton
25	PT Kalimantan Fishery	Jl. Margasatwa No.53 Pondok Labu, Jakarta Selatan.	760666	Jl. Pondok Labu Tri Sakti, Banjarmasin.	100 ton
26	PT Central Java Cold Storage	Jl. Citandui, Cilacap. Jl. Sisingamangaraja No. 9, Kebayoran Baru, Jakarta	773530	Jl. Citandui, Cilacap	100 ton
27	PT Kaltim Megah Jaya	Jl. Panglima Batur IV No. 686C, Banjermasin.	321		
28	PT Samarinda Cendana Cold Storage	Jl. Karangmusuk SK.22/66 Samarinda, Kal.Timur. Jl.Antara 35, Jakarta.	1203	Anggana Dati II Kutai, Samarinda.	100 ton
29	PT Vivaria Indonesia	Jl. Ciputat Raya, Tanah Kusir, Keb. Lama No. 14; Jl. Ir.H.Juanda 42, Jakarta	775181 591453	-	-

Table 10. Cont.

1	2	3	4	5	6
30	PT Indra Deli	Jl.Jen.A.Yani Medan	-	Jl.Sei Deli 58, Medan	400 ton
31	PT Es Sari Tirta	Jl.Maj.Jen.S. Parman, Medan	-	Jl.Medan Belawan Km.8.8 Medan	200 ton
32	PT Timur Jaya Cold Storage	Jl.Teluk Nibung Km.2, Tg.Balai Asahan	-	Jl.Teluk Nibung Km.2, Tg.Balai Asahan	200 ton
33	CV Dharma Mulia	Jl.Kapt. Rivai, Palembang	-	P. Kemaro Palembang	130 ton
34	PT New Pioner	Jl. Tangga Buntung 36, Ilir Palembang	-	Jl.Tangga Buntung 36 Ilir, Palembang	25 ton
35	PT Sufraco	Jl.Pabrik Ban 2 Ilir, Palembang	-	Jl.Pabrik Ban 2 Ilir Palembang	60 ton
36	PT Wirontono Cold Storage	Jl.Kebon Sirih No.3, Jakarta	376384 365403	Jl.Ancol Barat II/ 2, Jakarta	1200ton
37	PT Indra Deli, Cirebon	Jl.Kalijaga 11 Cirebon	-	Jl.Kalijaga 11 Cirebon	400 ton
38	PT Surabaya Marine Product	Jl.Raden Saleh 16, Surabaya	-	Jl.Raden Saleh 16, Surabaya	185 ton
39	PT Sekarbumi	Jl.Badilan,Waru, Surabaya	-	Jl.Badilan, Waru Surabaya	150 ton
40	PT New Pioner	Jl.Adisucipto, Pontianak	-	Jl.Adisucipto, Pontianak	170 ton
41	CV Dharma Mulia	I d e m		I d e m	60 ton
42	PT Bacan	Jl.RE Martadinata I,Ancol Baru, Tg. Priok, Jakarta	694323, 694325, 692144, 692084, 692180, 692148, 694262	-	-
43	PT Hidup Tunas Abadi	Jl.Pasar Pagi No.142,Jakarta	277880	-	-

Table 10 Cont.

1	2	3	4	5	6
44	PT Surya Sumatera	Jl.P.Sidempuan Km.3, Sibolga	-	Jl.P.Sidempuan Sibolga	300 ton
45	PT First Metropolitan Fisheries Company	Jl.Gg.Kongsi 43 Jakarta	-	-	-
46	PT Serdid	Jl.Samarinda 27 Jakarta	-	Jl.Tarakan 110 Ujung Pandang	300 ton
	SWASTA				
47	PT Hasikin Jaya	Jl.Sisingamangaraja 9,Keb.Baru Jl.Tanah Abang II/52	365126	Aertembaga Bitung	100 ton
48	PT Chakrawala Semesta Ltd	Jl.Matraman Raya 107,Jakarta	881923	-	-
49	PT Wenas Frozen Prawns	Jl.Pangeran Jayakarta No.101 Blok D/4,Jakarta Kota	272604	-	-
50	PT Corimex	Jl.Sungai Gerong 2,Jakarta Case Bldg.Room 10, 5th Fl. Jl. Jen.Gatot Subroto Kav.12,Jakarta	583535 581581 Ext, 726 583821 Direct line	Jl.Panakukang Jl.Baru No.55-57 U.Pandang	100 ton
51	PT Sumber Mina Raya	Jl.Salemba Raya No.55, Jakarta	884665	-	-
52	PT Mina Palwa	Jl.Veteran 63, Semarang	Candi 312630	-	-
53	PT Sumber Hasilindo	Jl.Kalibesar Barat 26,Jakarta	-	-	-
54	PT Samudera Jaya Line	Jl.RE.Martadinata 2,Tg.Priok, Jakarta	691002,691580 344192,349819	-	-
55	PT Golden Basto	Hotel Sari Pacific 4th Fl. Room 406,Jakarta Jl.MH.Thamrin 6 Jakarta.	371809-5 Ext. 1923	-	-

Table 10 Cont.

1	2	3	4	5	6
56	PT Perikanan Modena	Jl.Prapatan Kwitang 24,Jakarta	372843	-	-
57	PT Antasena	Jl.Wijaya X/15, Keb.Baru,Jakarta	72268	-	-
58	PT Es Nabar	Jl.Sekip 1 Medan	-	Jl.Medan Belawan Km.10,5 Medan	100 ton
59	CV Sinar Purwodadi	Jl.Ampenan Selatan, Surabaya	-	Jl.Patrice Lumumba No.137, Sby	80 ton
60	PT Tirta Raya Mina	Muara Baru Kav. No.5, Pluit Jakarta	270417	Jl.WR.Supratman Pekalongan	600 ton
61	PT Karya Mina	Jl.Salemba Raya No.16, Jakarta	-	Sie Bela, Tg. Pinang	380 ton
62	PT Usaha Mina	Gedung Piola Tk. IV, Jl.Kramat Raya 7-9,Jakarta.	-	Jl.Kalademak I, Sorong	1,300 ton
63	PT Perikanan Samodera Besar	Jl.Salemba Raya No.55, Jakarta	884665	Jl. Telaga, Sabang Jl.Pelabuhan Benoa	1,800 ton
64	PN Perikani Sulawesi Utara/Tengah	Gedung Piola Tk. IV,Jl.Kramat Raya No.7-9 Jakarta	-	Aer Tembaga Bitung	600 ton
65	Perum Perikanan Maluku	I d e m	-	Jl.Galala Ambon	600 ton

13.10. Application Procedures for a Joint Company in Fisheries

1. The applicant may get the application model 1 from the Investment Coordinating Board (BKPM) on request.
2. The applicant should submit the application using the application model 1.
3. The Investment Coordinating Board (BKPM) will evaluate the application.
4. A provisional approval (SPS) will be issued by BKPM after the application has been made.
5. A final approval (SPT) will be issued after the applicant has completed all the data and information required for the final evaluation.

The principal rules for foreign capital investment procedures are stipulated in the Decree of the President of the Republic of Indonesia, Number 54 of 1977 (Chapter I, first part, article 2) which is available at the Indonesian Investment Coordinating Board (BKPM). Any information on the policy of fisheries development in the country is available at the Directorate General of Fisheries.

13.11. Fishing Ground of the Joint Venture Company in Sea Fisheries

Before the declaration of the Exclusive Economic Zone of Indonesia, the fishing grounds for the new joint venture companies in sea fisheries since 1970 have been directed to areas outside of Indonesian territorial waters. Consequently, after the Exclusive

Economic Zone of Indonesia was declared (on March 21, 1980), the fishing grounds for the new joint venture companies in sea fisheries will be in the Exclusive Economic Zone outside the territorial sea. However, some kinds of mariculture are still allocated to joint venture companies operating in the Indonesian territorial sea and even in the Indonesian archipelagic waters.

According to the Declaration of March 21, 1980, the Exclusive Economic Zone of Indonesia is the area beyond the Indonesian territorial sea as promulgated by virtue of Law No. 4 of 1960 concerning Indonesian waters, the breadth of which extends to 200 nautical miles from the baselines from which the breadth of the Indonesian territorial sea is measured. The Act concerning the Exclusive Economic Zone of Indonesia is being prepared by the Government. Exploitation of the Exclusive Economic Zone by joint venture companies will be based on Act No. 1 of 1967 juncto Act No. 11 of 1970. Until now, the total number of vessels operated for pelagic fishing in the Exclusive Economic Zone is 20 vessels from State Enterprise, 5 vessels from Domestic Investment without investment facilities, and there will be 57 vessels from joint venture companies, 12 vessels from Domestic Capital Investment with investment facilities, and 17 vessels of Domestic Capital Investment without investment facilities which have been approved by the Government.

13.12. It is still open for foreign companies to establish joint venture companies in fisheries in Indonesia based on Act No. 1 of 1967 juncto Act No. 11 of 1970. The area of operation for new joint

venture companies in sea fisheries is in the Exclusive Economic Zone outside the territorial sea and for mariculture joint ventures, in the Indonesian territorial sea and even in the Indonesian archipelagic waters. The fields of investment of joint companies are stipulated in the list of Priority Scale (see para 13.9.)

Table 11. List of Joint Venture Companies *

No. 1	Name of Company 2	Firm of investment 3	Approval 4	Share Holders		Remarks 7
				Indonesia 5	Foreign 6	
1	PT Maluku Pearl Development	Pearl culture	1967	PT Cora-Cora	PT Arafura Pearl Co (Japan)	Active
2	PT Musaya Mitra	Catching and processing of shrimp & fish	1969	PT Pelindo Raya	Toho Bussan Kaisha Ltd (Japan)	Idem
3	PT Tofico	I d e m	1969	Inkopal PT Rakintam Nusa	Toyo Menka Kaisha Ltd (Japan) Hoko Fishing Co Ltd (Japan)	Idem
4	PT West Irian Fishing Industries	I d e m	1970	PT Modena	Nippon Suisan Kaisha Co Ltd (Japan) Southern Fisheries Development (Japan) Mitsubishi Shoji Kaisha (Japan)	Idem
5	PT Irian Marine Product	I d e m	1970	PT Kasuari PT Rejo Food	Nippon Suisan Kaisha Co Ltd (Japan) Hokoku Marine Product Company Ltd (Japan)	Idem
6	PT Nusantara Fishery	I d e m	1970	PT Emdece Marine Development Product	Taiyo Fishery Co Ltd (Japan) Mitsui & Co Ltd (Japan)	Idem
7	PT East Indonesia Fishery	Catching and processing of shipjack	1973	PT Inficap Fishery	Nichiro Gyogyo Kaisha Ltd (Japan) Mitsubishi Corp. (Japan)	Idem
8	PT Mina Kartika	Catching and processing of shrimp & fish.	1971	Inkopad	Kyo Kuyo Co Ltd (Japan)	Idem

Table 11. Continued

1	2	3	4	5	6	7
9	PT Alfa Kurnia Fishery Enterprise	Catching and processing of shrimp and fish	1973	PT Bayu Kurnia Co	Nichiro Gyogyo Kaisha Ltd (Japan)	Active
10	PT Dwi Bina Utama	I d e m	1974	PT Naprodev PT Bahagia Raya	Nichimen Co Ltd (Japan) Tokusei Co Ltd (Japan)	Idem
11	PT Central Java Marine Product	Collecting & processing of shrimp & fish.	1979	NV HMS & Co	Sumitomo Shoji Kaisha (Japan)	Idem
12	PT Nisshin Samudera Mutiara	Pearl Culture	1975	PT Samudra Mutiara	Nisshin Trading Company Ltd (Japan)	Idem
13	PT Manei Southern Pearl	Pearl Culture	1977	PT Maprodin	Kanei Co Ltd (Japan) Toyo Gyogyo Co Ltd (Japan)	Idem
14	PT Multi Transpeche Ind.	Catching and processing of skipjack.	1981	PT Hina Manca Buana	SA Transpeche (France) Pecheries Franco Asiatiques Ltd. (Hongkong)	Idem
15	PT Mitra Kartika Sejati	Collecting and processing of shrimp & fish.	1974	Inkopad, Puskopad	Nan Ei Co Ltd (Japan)	Non active
16	PT Mamoyama Irian Jaya	Catching and processing of tuna & skipjack.	1978	PT Mas Naga Buana	Mamoyama Development	Preparatio
17	PT Pantara Fishing Industries	Catching/processing of tuna & skipjack.	1979	PT Tara Forso	Rock Yang Co Ltd (Korea)	Preparatio

1	2	2	4	5	6	7
18	PT Indonesia Canada Sea Food	Catching/processing of tuna & skipjack	1979	CV Bonito	Meijarr International Ind. (U.S.A.)	Preparation
19	PT Indotrang	Catching/processing of tuna	1981	PT Ayateya	Daeng Charaonchai Fishery (Thailand)	Just start
20	PT Hikari Lampung Permai	Pearl culture	1981	Mr. Budiman Ramly Mr. Iyo Wiranto	Indonesia Pearl Co Ltd (Japan)	Preparation
21	PT Arta Samudra	I d e m	1981	Mr. Ponco Nugroho Susilo	Halmahera Pearl Ltd (Japan)	Idem

14.0. FOREIGN TECHNICAL ASSISTANCE AND LOANS

14.1. The UNDP/FAO Fisheries Extension Project

The five year technical assistance project began in 1979 with a UNDP contribution of 2.7 million U.S. dollars. The objectives are to develop appropriate extension technology and to establish model marine fisheries extension outlets in Java, North Sumatera, and North Sulawesi. Target groups are small scale fishermen.

14.2. Seafarming Development Project

Was also funded by UNDP for 12 months with an initial funding of 277,320 U.S. dollars to do the feasibility study. Later on, 1.5 million U.S. dollars were allocated to implement the project.

14.3. Asian Development Bank Sumatera Fisheries Development Loan

Funding of 21.9 million U.S. dollars is presently being implemented by the DGF. The purpose of this project is to design and improve shore facilities near Bungus/Padang, West Sumatera including cold storage, ice plants, a new jetting shipway, auction hall refrigeration, and assorted vessels and trucks. The project also finances Bank of Indonesia sub-loans to fishermen in the Padang area for approximately 120 fishing vessels equipped with various gear (troll lines, bottom long lines, gill nets, etc.) and to local Sumateran fresh water fish farmers for intensification of fish culture.

14.4. The Belgian Administration for Development Cooperation (BADC)

Will provide 263,000 U.S. dollars grant for five years to develop Artemiacyst for shrimp culture in Indonesia. Artemia is considered as the suitable main food for freshwater prawns/shrimp during larval rearing stage. So far, Artemia is still being imported from foreign countries at a very high price.

14.5. IBRD Loan to Study Fishing Port Development and Fish Marketing System in Indonesia (5,000,000 U.S. dollars)

The purpose of this project is to study the problems encountered by the Indonesian fisheries (particularly the marine fisheries) which have a bearing on the future development of fishing ports and fish marketing systems and to formulate follow-up projects of that nature.

14.6. Asian Development Bank Brackish Water Aquaculture Development Project

The objective of the project is to increase production from brackish water aquaculture so as to (a) generate foreign exchange earnings from the export of shrimp, and (b) improve the employment opportunities and income of small scale tambak (fish pond) farmers.

14.7. USAID Small Scale Fisheries Development Project

Will provide 3 million U.S. dollars grant assistance in six major sectors : (a) a pilot ice plant, (b) brackish water fisheries extension, (c) demonstration fish cage culture, (d) rice-fish culture, (e) fresh water shrimp hatchery extension and (f) artisanal fisheries management system.

15.0. THE PRESIDENTIAL DECREE NO. 39, 1980 ABOLISHMENT OF TRAWLS

15.1. For at least the past decade, the small scale fishermen of Indonesia have been struggling to defend their traditional fishing grounds against encroachment by fishermen using more modern equipment, including motorized trawlers and dragnets. Because nearly all trawlers are owned by ethnic Chinese, racial and religions factors further complicated the conflict. At first, the small scale fishermen viewed the trawlers with envy. Later, the large catches from increasing numbers of trawlers began to innundate local markets thus driving fish prices down and the income of the coastal fishermen with them.

15.2. The increased numbers of trawlers also started to deplete the near shore stocks of fishes which traditionally have been for the small scale fishermen. This situation created fear among the coastal fishermen as the source of their very livelihood was being

threatened. Throughout the islands of Indonesia, the coastal fishermen formed anti-trawler struggle committies and appealed to the President for protection against depredation by the trawlers.

16.0. OPERATIONAL POLICY OF THE 4th FIVE YEAR DEVELOPMENT PLAN (REPELITA IV)

16.1. The purpose of fishery development under REPELITA IV is:

a. to increase fishermen and fish farmer incomes and productive employment opportunities;

b. to increase production and productivity through agro-business development;

c. to increase consumption leading to protein self-sufficiency by popularizing fish consumption;

d. to increase exports and decrease imports;

e. to increase resources development through control and supervision.

The main objectives of fishery development shall be focused and oriented to the increase of fishermen and fish farmer income and the expansion of employment opportunities.

16.2. Annual growth projection:

- per capita consumption	3.4%
- export	13.8%
- import	8.9%

Using the above growth rates, production during REPELITA IV is shown in Table 12 indicating sources (marine and inland) and the average annual increase by 6.2%. Based on the above projections, per capita consumption in 1988 will be 15.7 kg or 70% of the optimum nutritient requirement and exports will generate 726,200,000 U.S. dollars.

16.3. There will be nine main aspects that must be observed in the fishery development program : (1) production development; (2) production factors development; (3) natural resources, environment and energy; (4) institution strengthening; (5) improvement of marketing and distribution; (6) investment; (7) financing; (8) regional development; (9) linkage with other sectors.

Production development will adopt two approaches - commercial and non-commercial-and the main activities will include intensification, extensification, diversification, and rehabilitation. Catches and cultivation will be improved for both marine and inland fisheries.

Marine fish culture activities will be rationalized through a gradual extension of operations from coastal areas to offshore and deep (open) seas. Linkages for cross sub-sector or sectors and the regional development will be observed as indicated in Table 12.

Marine products cultivation is directed to spread out the activities to potential areas and accessibility to markets by observing the local environment and water conditions.

Inland fishery development will be rationalized through efficient harvesting, resources development, reservation, and restocking. Linkages for cross sub-sector or sectors including that with regional development is given in Table 12.

Inland fishery cultivation is focused on intensification and extensification activities inlcuding "fish products" (aneka ikan).

Table 12

Fish Production Projection in Repelita IV
(in thousand ton)

Sub-sector	1984	1985	1986	1987	1988	Average Increase per year (%)
Marine Fishery	1.741,2	1.843,2	1.951,3	2.064,8	2.185,1	5,7
- Capture	1.738,3	1.839,3	1.945,9	2.057,1	2.173,7	5,7
- Culture	2,9	3,9	5,4	7,7	11,4	40,8
Inland Fishery	562,2	601,3	644,4	693,5	747,3	7,4
- Capture	276,6	283,8	291,3	299,1	307,3	2,7
- Culture	271,6	299,5	329,1	361,4	394,0	9,7
- Brackish water pond	131,6	144,8	159,0	174,5	190,2	9,6
- Fresh water pond	87,0	93,5	100,4	107,6	114,9	7,2
- Cages	1,0	1,1	1,2	1,3	1,4	8,8
- Rice field	52,0	60,1	68,5	78,0	87,5	13,9
- Other fish	14,0	18,0	24,0	33,0	46,0	34,6
T o t a l	2.303,4	2.444,5	2.595,7	2.758,3	2.932,4	6,2

17.0. BIBLIOGRAPHY

1. Ellyas, Sofyan and Rustami Djajadiredja, "Research Activities" support the Shrimp Export Industry", Indonesia Agricultural Research and Development Journal v.1, No. 1 & 2, 1979.

2. Fisheries Research, Marine Inland Technology, Five Years Agriculture Research and Development in Indonesia, published by Ministry of Agriculture, Agency for Agriculture Res. & Dev., Jakarta, Indonesia 1981.

3. Fisheries Statistics of Indonesia 1979.
Published by The Director General of Fisheries, Department of Agriculture, Jakarta, 1981.

4. Information About the Possibility for Joint Venture Company in Fisheries in Indonesia.
The Director General of Fisheries, Jakarta, Indonesia, 1980.

5. International Trade Statistics of Fisheries Commodities, 1979.
Published by The Director General of Fisheries, Department of Agriculture, Jakarta, 1980.

6. Pourall P.C. "Millions Rely on Fisheries for Food and Income", Australian Fisheries, Indonesia Special Issue., Feb. 1975.

7. Sidarto, A. "Recent Development of Fisheries in Indonesia", speech delivered at the seminar on Post-Harvest-Technology and Investment in Developing Fisheries, Oslo, Norway, Nov. 20-22, 1978.

8. Sidarto, A. and Hadi Atmowasono. "Policies and Programs of Artisanal Fisheries Development in Indonesia", presented at the planning meeting on Small Scale Fisheries Development, Social Science Contribution, Honolulu, Hawaii Sept. 6-11, 1976.

9. Skipjack and Tuna in Indonesia, 1981.
Published by P.T. Perikanan Samudra Besar, Glory Offset press, 1st edition, 1981.

10. The Fishing Industry of Indonesia, 1979.
Prepared by the American Embassy Jakarta, Indonesia, Dec. 1979.

11. Third Five Year Development Plan (Repelita III) Fisheries, The Director General of Fisheries, Jakarta, 1980.

12. Unar, M. "A Review of the Indonesian Shrimp Fishery and its Present Developments", Marine Fisheries Review, Vol. 36, NO. 1 Jan. 1974.

SUMMARY

Appendix I

Fisheries production by sub sector of fishery, 1960 – 1980

Unit : Ton.

Year	Total	Marine fishery	Inland fishery						
			Sub Total	Open water	Culture				
					Sub Total	Brackish water pond	Fresh water pond	Cage	Paddy field
1960	756 765	410 043	346 722	249 674	97 048	43 078	39 801	–	14 169
1968	1 159 040	722 512	436 528	320 410	116 118	43 528	53 348	160	19 082
1969	1 214 399	785 344	429 055	314 201	114 854	51 876	42 180	574	20 224
1970	1 228 512	807 391	421 121	286 519	134 602	55 908	51 345	3 126	24 223
1971	1 244 555	820 447	424 108	285 745	138 363	60 788	54 647	388	22 540
1972	1 268 909	836 289	432 620	301 412	131 208	51 203	50 100	10 196	19 709
1973	1 277 512	888 518	388 994	249 592	139 402	60 481	51 870	345	26 706
1974	1 335 268	948 566	387 702	240 893	146 809	56 756	54 739	503	24 811
1975	1 390 074	996 856	393 218	228 571	164 647	78 776	55 403	480	29 988
1976	1 482 942	1 081 589	401 353	246 711	154 642	80 158	52 631	470	21 383
1977	1 571 852	1 157 691	414 161	254 243	159 918	87 604	54 341	272	17 701
1978	1 647 664	1 227 386	420 278	249 146	171 132	87 995	57 680	390	25 067
1979*)	1 748 397	1 317 744	430 653	248 161	182 492	93 644	59 359	369	29 120
1980*)	1 840 200	1 401 000	439 200	250 900	188 300	95 300	61 800	400	30 800

Appendix II

Value of fisheries production by sub sector of fishery, 1973 – 1979

Unit : Rp. 1.000.–.

Year	Total	Marine fishery	Inland fishery						
			Sub Total	Open water	Culture				
					Sub Total	Brackish water pond	Fresh water pond	Cage	Paddy field
1973	180 412	106 418	73 994	37 097	36 898	13 864	15 149	124	7 760
1974	210 512	131 744	78 789	37 207	41 562	14 896	18 711	176	7 779
1975	249 389	157 023	92 366	40 989	51 377	20 263	19 601	159	11 354
1976	272 486	159 514	112 971	52 643	60 328	29 006	21 052	237	9 993
1977	316 349	185 511	130 838	57 421	73 417	39 466	23 450	220	10 281
1978	378 851	225 941	152 910	65 945	86 965	45 809	26 192	316	14 648
1979	553 236	335 968	217 268	89 053	128 215	78 292	34 063	395	17 465

MARINE FISHERIES

Appendix III

Table 1.1 Number of marine fishing establishments, 1973 – 1979

Year	Total	Without boat	Non powered boat	Powered boat		
				Sub Total	Outboard motor	Inboard motor
1973	318 766	92 029	215 820	10 917	4 899	6 018
1974	361 001	123 943	227 647	9 411	4 770	4 641
1975	291 109	62 265	217 447	11 397	5 907	5 490
1976	283 333	60 759	208 185	14 389	6 826	7 563
1977	254 935	30 549	207 070	17 316	8 817	8 499
1978	248 602	25 917	200 459	22 226	11 896	10 330
1979	250 480	21 687	201 477	27 336	15 635	11 701

Appendix IV

Number of marine fishing boats, 1960 – 1980

Year	Total	Non powered boat	Powered boat		
			Sub Total	Outboard motor	Inboard motor
1960	169 431	167 975	1 456	–	1 456
1968	283 913	278 206	5 707	...	5 707
1969	280 633	275 314	5 319	...	5 319
1970	295 436	289 402	6 034	2 798	3 236
1971	284 836	277 662	7 176	2 652	4 524
1972	295 281	286 463	8 818	2 877	5 941
1973	242 882	230 615	12 267	5 019	7 248
1974	270 369	257 164	13 205	5 931	7 274
1975	257 152	242 221	14 931	6 771	8 160
1976	245 725	228 244	17 481	7 746	9 735
1977	248 544	228 228	20 316	9 601	10 715
1978	248 113	222 121	25 992	13 226	12 766
1979r)	257 905	225 804	32 101	17 343	14 758
1980x)	269 000	230 500	38 500	21 800	16 700

Appendix V

Marine fisheries production by species, 1973 – 1979

Unit : Ton

Species	1973	1974	1975	1976	1977	1978	1979(1)
Total	888 518	948 566	996 856	1 081 589	1 157 691	1 227 386	1 317 744
FISHES	814 554	880 447	902 231	918 936	976 700	1 029 335	1 120 669
Indian halibuts	1 071	1 149	542	1 737	1 968	2 611	5 655
Tongue soles	7 261	7 904	5 740	1 430	1 595	1 700	2 622
Bombay duck	245	3	172	5 069	6 885	7 963	5 274
Pony fishes/Slip mouths	10 266	12 440	21 257	26 702	36 216	37 751	41 235
Marine catfishes	10 488	8 425	11 560	20 228	20 155	20 204	21 [illegible]85
Lizard fishes	849	208	1 515	5 118	5 270	5 479	5 2[illegible]6
Goat fishes	3 737	3 343	3 366	6 986	7 362	7 269	7 427
Grunters/Sweetlips	542	466	1 148	2 468	2 963	3 209	3 728
Red snappers	6 454	5 862	7 870	14 492	14 515	15 598	17 805
Groupers	17 883	19 722	19 164	5 476	6 573	6 085	6 087
Emperors	1 540	1 538	3 927	6 589	7 984	8 196	9 547
Barramundi breams	14 765	15 878	14 518	11 138	8 817	9 314	8 456
Threadfin breams	5 097	4 580	5 893	7 004	7 425	8 778	9 859
Big eyes	1 293	900	2 649	1 237	1 474	968	1 110
Yellow tail/Fusiliers	10 395	11 585	10 150	8 505	9 777	8 403	10 067
Croackers, Drum	6 601	6 788	9 594	27 265	26 340	25 960	26 747
Sharks	10 455	12 824	17 246	16 911	17 531	19 189	20 254
Rays	5 765	5 657	9 715	11 308	11 964	11 148	11 147
Black pomfret	11 026	11 174	10 447	6 975	6 059	5 722	5 988
Silver pomfret	13 118	12 800	11 698	7 284	5 432	5 750	8 809
Barracudas	2 040	1 291	1 439	7 467	4 566	3 571	4 076
Scads	53 874	56 271	68 700	72 887	67 596	69 284	78 162
Trevallies	38 656	45 666	45 576	41 851	40 525	36 212	47 094
Jacks Trevallies	3 439	3 708	3 804	8 053	8 117	9 979	8 910
Hardtail scad	346	67	1 576	6 474	6 786	6 179	6 705
Queen fishes	691	657	3 984	2 355	3 049	3 944	3 260
Rainbow runner	403	134	476	2 694	2 065	3 033	3 447
Flying fishes	11 621	10 838	14 709	17 925	13 327	9 325	14 326
Mullets	8 366	8 907	9 347	14 323	13 066	12 685	14 430
Threadfins	27 914	29 328	26 247	10 394	10 537	11 [illegible]23	9 468
Garfish and Half beaks	11 726	11 250	10 913	15 816	13 493	17 778	19 543
Anchovies	63 887	75 665	66 780	68 532	80 519	105 388	96 147
Sardines	718	535	2 759	7 177	6 070	5 167	7 304
Fringescale sardinella	40 404	50 613	63 216	55 566	65 054	75 627	79 [illegible]68
Indian oil sardinella	12 851	16 314	41 779	41 400	62 507	49 617	45 625
Wolf herrings	14 758	14 861	14 625	14 972	14 753	8 884	9 529
Toli shad (Chinese Herring)	711	1 418	797	2 202	1 519	2 223	1 483
Indo Pacific mackerels	58 459	65 427	70 985	61 647	71 144	78 790	84 485
Indo Pacific Spanish mackerel	4 343	4 935	2 684	3 946	3 577	4 047	5 165
Narrow barred Spanish mackerel	30 758	34 442	29 735	28 013	26 359	26 394	27 711
Hairtails	4 336	4 210	6 142	11 806	10 949	13 267	12 717
Tunas	11 334	11 236	11 931	9 354	13 204	13 412	17 899
Skipjack tuna	26 405	28 060	27 241	30 651	30 410	33 515	42 624
Eastern little tunas	36 782	47 116	47 335	52 235	62 382	55 244	66 582
Others	210 791	214 252	161 089	137 173	138 605	163 195	183 716

Appendix VI

Marine fisheries production by species, 1973–1979

Concluded

Unit : Ton

— Species	1973	1974	1975	1976	1977	1978	1979[1]
CRUSTACEANS	56 296	53 668	63 220	113 051	129 004	131 508	137 092
Swimming crab	423	483	593	2 178	2 583	2 028	2 741
Mangrove crab	1 379	1 582	1 705	1 818	728	887	1 081
Spiny lobsters	1 471	1 818	1 926	1 570	627	285	258
Tiger prawn	11 372	10 583	12 244	9 252	7 716	9 275	9 027
Banana prawn	25 434	25 849	27 534	18 974	24 346	31 597	31 620
Endesvour	4 821	6 102	8 490	12 611	13 845	11 446	14 552
Other shrimps	11 390	7 222	10 197	65 840	78 672	75 648	75 618
Others	6	29	530	808	414	142	2 095
MOLLUSCS	8 856	9 403	15 484	35 972	45 840	58 336	51 088
Cupped oyster	1 058	11	1 009	617	1 274	186	912
Scallops	8	859	47	81	79	453	484
Clams	29	29	67	1 172	2 702	4 319	2 556
Blood cockles	482	604	2 399	22 975	31 350	40 980	32 183
Common squids	6 387	6 728	9 835	7 557	7 088	8 691	12 812
Cuttle fishes	648	695	1 401	2 490	2 396	1 804	1 827
Octopuses	108	103	237	77	102	65	37
Others	238	374	489	1 003	839	1 838	258
OTHER AQUATIC ANIMALS	5 556	2 040	7 495	9 880	2 049	2 586	2 989
Marine turtles	343	1 093	986	446	290	458	292
Sea cucumbers	371	124	208	185	207	203	246
Jelly fishes	4 827	432	5 507	8 886	1 527	1 914	2 395
Others	21	391	794	363	25	11	36
AQUATIC PLANTS	3 156	3 008	8 426	3 750	4 068	5 621	5 945
Sea weeds	3 156	3 008	8 426	3 750	4 098	5 621	5 945

Appendix VII

Area under culture, 1960 – 1980

Unit : Ha.

Year	Total		Brackish water pond		Fresh water pond		Cage	Paddy Field
	Area of fish pond (Gross area)	Area of water surface (Net area)	Gross area	Net area	Gross area	Net area	Net area	Net area
1960	266 893	...	145 144	...	30 179	...	..	91 570
1968	312 908	...	172 054	...	37 425	...	...	103 429
1969	287 426	...	177 061	...	35 168	.	...	75 197
1970	305 274	...	179 911	...	40 023	...	...	85 340
1971	301 601	...	182 073	...	40 798	...	...	78 730
1972	297 659	...	178 297	...	38 475	...	78	79 809
1973	282 278	...	184 090	...	36 037	...	9	62 142
1974	285 642	...	186 167	...	38 537	...	9	60 929
1975	294 305	...	182 701	...	38 914	...	34	72 656
1976	259 440	...	164 594	...	34 235	...	4	60 607
1977	257 556	224 649	174 605	145 829	34 033	29 902	7	48 911
1978	274 699	244 014	171 544	145 900	35 553	30 512	14	67 588
1979 r)	221 577	265 208	181 792	152 039	39 785	33 739	11	79 419
1980 x)	303 300	267 300	182 400	152 600	41 300	35 100	10	79 590

Appendix VIII

Brackish water culture production by species, 1973 – 1979.

Unit : Ton.

– Species	1973	1974	1975	1976	1977	1978	1979
– Total	60 481	66 756	78 778	80 159	87 504	87 995	93 644
– FISHES	50 905	55 140	68 782	65 537	66 142	66 188	69 218
– Milk fishes	38 439	41 650	44 697	44 027	48 641	48 287	46 187
– Mullets	331	532	1 450	2 200	3 937	3 489	4 856
– Barramundi	21	148	107	500	659	571	745
– Tilapia	1 243	2 264	5 345	7 748	8 075	8 049	10 165
– Puntius	2 487	1 441	65	–	–	–	–
– Others	8 384	9 107	17 133	11 064	4 830	5 802	7 265
– CRUSTACEANS	9 576	11 618	9 994	14 621	21 462	21 797	24 426
– Tiger prawn	1 581	1 788	3 603	5 099	4 078	4 600	6 955
– Banana prawn	3 296	5 348	4 324	5 003	10 476	10 584	10 070
– Endeavour	2 294	1 243	1 476	3 957	6 618	6 434	6 821
– Mysids	2 217	2 030	–	–	43	12	69
– Mangrove crab	207	1 205	384	562	247	167	501
– Swimming crab	1	2	7	0	–	0	–

Appendix IX

Table 3.2.2 *Value of brackish water culture production by species, 1973 – 1979*

Unit: Rp.1.000.000,–

– Species	1973	1974	1975	1976	1977	1978	1979
– Total	13 864	14 896	20 263	28 006	34 466	45 809	76 292
– FISHES	10 610	10 878	14 502	17 881	23 244	24 183	29 888
– Milk fishes	8 174	8 432	11 472	14 700	19 944	19 581	23 746
– Mullets	39	82	166	481	947	1 825	2 142
– Barramundi	4	40	13	251	207	198	310
– Tilapia	216	190	1 042	1 128	1 348	1 409	2 180
– Puntius	572	285	6	–	–	–	–
– Others	1 603	1 841	1 804	1 121	798	1 162	1 510
– CRUSTACEANS	3 254	4 017	5 761	11 325	18 222	21 626	46 404
– Tiger prawn	1 069	1 315	3 211	7 080	7 745	11 813	32 577
– Banana prawn	956	1 857	2 271	3 029	6 608	7 697	10 887
– Endeavour	764	276	187	1 066	1 795	1 863	2 799
– Mysids	420	365	–	–	9	3	15
– Mangrove crab	45	103	90	149	64	49	126
– Swimming crab	0	0	1	0	–	0	–

Appendix - X

Fresh water pond culture production by species, 1973 – 1979

Unit : Ton

– Species	1973	1974	1975	1976	1977	1978	1979
– Total	51 070	54 739	68 403	52 631	54 341	57 480	69 398
Common carp	16 868	17 573	17 493	17 485	20 937	14 830	15 600
Puntius	7 789	7 819	8 630	7 490	8 563	9 145	9 766
Nilem carp	595	526	5 833	4 123	5 811	7 [illegible]	7 163
Tilapia	8 404	6 980	2 424	2 000	6 804	10 [illegible]	11 732
Tilapia	87	148	192	1 115	3 523	4 [illegible]	4 709
Giant gouramy	2 083	2 256	2 569	2 972	2 331	3 [illegible]	3 255
Sepat siam	710	695	340	217	1 016	653	687
Kissing gouramy	2 781	3 030	4 660	4 261	2 608	3 731	3 843
Catfishes	425	283	319	186	191	298	310
Eels	13	1	4	4	12	9	12
– Others	14 335	16 428	12 234	12 798	2 505	2 935	2 097

Appendix - XI

Value of fresh water pond culture production by species, 1973 – 1979

Unit : Rp. 1 000.000,–

– Species	1973	1974	1975	1976	1977	1978	1979
– Total	15 149	18 711	19 601	21 082	23 450	26 192	34 063
– Common carp	7 197	8 197	7 750	10 238	12 256	10 605	14 113
– Puntius	2 057	2 448	2 834	2 588	3 153	4 136	5 002
– Nilem carp	129	145	1 686	1 306	1 463	2 648	3 354
– Tilapia	1 536	1 484	467	397	2 079	2 627	3 602
– Tilapia	13	61	52	427	1 026	1 519	1 814
– Giant gouramy	310	1 260	1 675	1 954	1 780	2 194	2 900
– Sepat siam	100	176	53	37	221	215	290
– Kissing gouramy	728	967	1 943	1 513	874	1 411	1 832
– Catfishes	85	43	83	58	59	88	164
– Eels	2	0	1	1	5	7	1
– Others	2 932	4 035	3 151	2 573	525	742	890

Appendix - XII

Carp culture production by species, 1973 – 1979

Unit: Ton.

Species	1973	1974	1975	1976	1977	1978	1979 [1]
Total	345	503	480	470	272	390	389
Common carp	281	467	464	445	210	334	308
Puntius	5	9	11	10	6	0	0
Nilem carp	–	–	–	–	–	–	0
Tilapia	–	–	–	–	6	..	–
Tilapia	1	1	1	1	0	..	–
Giant gouramy	1	0	–	0	0	–	–
Sepat siam	–	–	–	–	0	–	–
Kissing gouramy	–	–	–	–	–	–	–
Catfishes	0	0	–	–	–	–	–
Eels	–	–	–	–	–	–	–
Others	57	26	4	14	50	56	81

Appendix - XIII

Value of carp culture production by species, 1973 – 1979

Unit: Rp. 1.000.000,-

Species	1973	1974	1975	1976	1977	1978	1979
Total	124	178	169	237	220	316	395
Common carp	107	165	150	228	187	288	349
Puntius	2	4	7	4	1	0	0
Nilem carp	–	–	–	–	–	–	0
Tilapia	–	–	–	–	1	–	–
Tilapia	0	0	0	0	0	–	–
Giant gouramy	0	0	–	0	0	–	–
Sepat siam	–	–	–	–	0	–	–
Kissing gouramy	–	–	–	–	–	–	–
Catfishes	0	0	–	–	–	–	–
Eels	–	–	–	–	–	–	–
Others	15	7	1	4	30	28	46

Appendix - XIV

Paddy field culture production by species, 1973–1979

Unit : Ton.

– Species	1973	1974	1975	1976	1977	1978	1979 [1]
– Total	26 709	24 811	29 888	21 383	17 701	25 087	29 120
– Common carp	20 715	19 458	26 807	18 275	15 527	17 313	18 009
– Puntius	1 826	1 783	1 495	1 462	345	1 783	3 269
– Nilem carp	51	49	40	122	215	226	181
– Tilapia	585	796	333	189	477	1 021	644
– Tilapia	20	31	33	74	90	82	119
– Giant gouramy	60	43	5	10	4	2	0
– Sepat siam	157	173	180	77	127	86	96
– Khsing gouramy	43	45	248	349	30	28	67
– Catfishes	82	99	106	49	126	101	109
– Eels	–	–	2	4	3	1	2
– Others	3 167	2 335	741	782	758	4 424	6 624

Appendix XV

Value of paddy field culture production by species, 1973–1979

Unit : Rp. 1.000.000,–.

– Species	1973	1974	1975	1976	1977	1978	1979
– Total	7 760	7 778	11 364	9 903	10 281	14 648	17 485
– Common carp	6 903	6 963	10 592	9 283	9 704	12 505	13 644
– Puntius	218	291	329	328	90	309	723
– Nilem carp	10	8	9	43	62	50	55
– Tilapia	58	85	62	35	97	180	228
– Tilapia	4	18	8	23	32	24	54
– Giant gouramy	11	7	1	6	3	1	0
– Sepat siam	11	10	26	14	18	24	40
– Khsing gouramy	8	8	74	101	10	11	41
– Catfishes	3	4	16	9	27	28	44
– Eels	–	–	0	1	0	0	0
– Others	534	389	138	150	225	1 427	2 636

SUMMARY

Appendix - XVI

Number of fishing establishments, fisher man/fish farmers, fishing boats, area under culture, fisheries production and value of fisheries production by sub sector of fishery, 1979.

Item	Total	Marine Fishery	- Inland Fishery						
			Sub Total	Open water	- Culture				
					Sub Total	Brackish water pond	Fresh water pond	Cage	Paddy filed
Fishing establishment	978 380	250 480	725 900	238 530	487 370	58 699	348 781	2 906	76 984
Fisherman/fish farmer	2 026 620	883 997	1 142 623	315 484	827 139	99 956	581 485	4 813	130 675
Fishing boats	372 751	257 905	114 846	114 846	-	-	-	-	-
Area under culture (Ha)									
Area of fish pond (Gross area)	221 577	-	221 577	-	301 007	181 792	39 785	11	79 419
Area of water surface (Net area)	265 208	-	265 208	-	265 208	152 039	33 739	11	79 419
Production (Ton)	1 748 397	1 317 744	430 653	248 161	182 492	93 644	59 359	369	29 120
Value of fisheries production (Rp. 10^6)	853 236	336 968	217 268	89 053	128 215	76 292	34 083	385	17 485

Appendix XVII

Director General of Fisheries

Name & Address of Officer

No.	Name	Title	Office address & Telephone No.	
1.	Abdu Rachman	Director General	Jl. Salemba Raya No. 16 Jakarta Pusat	881516, 883733 Ext. 8
2.	Drs. Poernomo K.S.	Secretary to Director General	I d e m	884149, 883733 Ext. 6
3.	Soenyoto Darmoredjo	Director Office of Program	I d e m	883733 Ext. 9
4.	Burhanuddin Lubis, M.Sc.	Director Office of Fisheries Production	I d e m	883733 Ext. 003
5.	Ir. TMD. Tambunan	Act. Dir. Office of Fisher-men Bussiness Enterprise	I d e m	883733 Ext. 06
6.	Soewito	Director Office of Fisheries Resource & Management	I d e m	883733 Ext. 3
7.	Ir. Soe'oed Alfandi	Act. Dir. of Fisheries Infra-structure	I d e m	883733 Ext. 006
8.	Abdullah Ben Peuken	Fisheries Regional Officer, Aceh	Jl. Kuta Alam, Banca Aceh	(0651)-22951
9.	Ir. Bambang Suboko	Fisheries Regional Officer, North Sumatra	Jl. Sei Batu gingging No 8 Medan	(061)-323338
10.	Ir. Gusti Areal	Fisheries Regional Officer, West Sumatra	Jl. Muara No. 51, Padang	(0751)-21518

Appendix XVII Continued

No.	Name	Title	Office address & Telephone No.	
11.	Ir. Abd.Munif Kadir	Fisheries Regional Officer, Riau	Jl.Patimura, Pekan Baru	(0761)-22921
12.	Ir. Nanan Rudayat	Fisheries Regional Officer, Jambi	Jl. Letkol Slamet Riyadi Jambi	(0741)-24991
13.	Ir. Ibnu Hajar Zein	Fisheries Regional Officer, South Sumatra	Jl. Kapt. A. Rivai No. 699/II Palembang	(0711)-3384 21394 22528
14.	Drs. S. Bandijono	Fisheries Regional Officer, Bengkulu	Jl. Besuki Rachmat, Bengkulu	(0732)-31477
15.	Ir. Robinson Sihite	Fisheries Regional Officer, Lampung	Jl. Bayangkara No. Teluk Betung	(0721)-41519 51518
16.	Ir. Soemarjo	Fisheries Regional Officer, D.K.I.	Jl. M. Merdeka Selatan No.8-9 Blok 8, Lantai 21, Jakarta	359363,353320 Ext. 176
17.	Ir. A. Damanhuri S.K.	Fisheries Regional Officer, West Java	Jl. Westukenca No. 17, Bandung	(022)-50471
18.	Soedarman B.A.	Fisheries Regional Officer, D.I. Yogyakarta	Jl. Sagan III/IV, Yogyakarta	(0274)-2386
19.	Ir. Adwinirwan Kamaluddin	Fisheries Regional Officer, Central Java	Jl. Mpu Tantular No. 2 Semarang	(024)-27997, 27998
20.	Drs. Yunus Bandie	Fisheries Regional Officer, East Java	Jl. Jen.A. Yani No. 152B Surabaya	(031)-813007 817926 817927

Appendix XVII Continued

No.	Name	Title	Office address & Telephone No.	
21.	Ir. A.A. Gde Harmony	Fisheries Regional Officer, Bali	Jl. Patimura No. 77, Denpasar	(0361)-4277, 3562
22.	Ir. Budi Soesilo	Fisheries Regional Officer, West Nusa Tenggara	Jl. Udayana No. 1. Mataram	(0364)-22083
23.	Ir. Fangginda E	Fisheries Regional Officer, East Nusa Tenggara	Jl. Kompleks Kantor Gubernur Kupang	(0391)-21309
24.	Andre Gomes	Fisheries Regional Officer, Timor Timur	Jl. Aleixo Corte Real, Dili	2637 - 2001
25.	Ir. S. Muranto	Fisheries Regional Officer, South Kalimantan	Jl. Jen. Sudirman No. 9 Banjarbaru	(0511)-992037
26.	Arief Choesaeri	Fisheries Regional Officer, East Kalimantan	Jl. Kusumabangsa, Samarinda	(0541)-23506
27.	Ir. Soetikno	Fisheries Regional Officer, West Kalimantan	Jl. Sutan Syahrir, Pontianak	(0561)-2521
28.	Ir. Sukirno	Fisheries Regional Officer, Central Kalimantan	Jl. Brigjen Katamso No. 2 Palangkaraya	(0514)-21294
29.	Soemarno MSc.	Fisheries Regional Officer, North Sulawesi	Jl. W.R. Supratman No. 25 Menado	(0431)-2396
30.	BTH. Simanjuntak BSc.	Fisheries Regional Officer, Central Sulawesi	Jl.DR. Mob. Hatta, Palu	(0451)-21560
31.	Ir. Muchtar Abdullah	Fisheries Regional Officer, South Sulawesi	Jl.Bajiminasa No. 12, Ujung Pandang	(0411)-83680, 84726

Appendix XVII Continued

No.	Name	Title	Office address & Telephone No.	
32.	Manggo Yusman	Fisheries Regional Officer, South East Sulawesi	Jl. Pertanian, Kendari	(0401)-21443
33.	Ir. E. Gerson	Fisheries Regional Officer, Maluku	Jl. Nn. Saar Sopacua, Ambon	(0911)-2216
34.	Soeprapto	Fisheries Regional Officer, Irian Jaya	Jl. Dok VII, Jayapura	(0967)-21423

Appendix XVIII

DEPARTMENT OF AGRICULTURE

Decree of the Minister of Agriculture
No. 633/Kpts/Um/9/1980

R E

GUIDELINES FOR THE IMPLEMENTATION OF DECREE OF THE PRESIDENT OF THE REPUBLIC OF INDONESIA NO. 39 YEAR 1980

MINISTER OF AGRICULTURE,

Considering : a. that in the framework of the abolishment of trawls as referred to in Decree of the President of the R.I. No. 39 year 1980, it is necessary to materialize effective, prompt and synchronized steps to ward aforesaid implementation throughout the region;

b. that for the purpose of achieving aforesaid objectives, it is necessary to lay down the operational guidelines.

With a view to :
1. Presidential Decree No. 44 and 45;
2. Presidential Decree No. 59 year 1978;
3. Presidential Decree No. 47 year 1979;
4. Presidential Decree No. 39 year 1980;
5. Decree of the Minister of Agriculture No.503/Kpts/Um/1980;
6. Joint Decree of the Minister of Agriculture, Minister of Home Affairs, and Minister of Trade and Cooperatives No. 596/Kpts/Um 1980; 183 year 1980; 345/Kpb/VII/1980.

H A S D E C I D E D

To lay down :

FIRSTLY : Operational guidelines for abolishment of trawls are as set forth the attachment ot this Decree.

SECONDLY : Regional Governments in implementing the abolishment of trawls in

Appendix XVIII Cont.

their respective region shall abide by said Operational Guidelines as mentioned in Dictum "FIRSTLY" along with coordination of steps for operation issued by the Ministers concerned.

THIRDLY : This Decree shall become effective on the date of the stipulation.

Stipulated in Jakarta
On September 1, 1980

MINISTER OF AGRICULTURE

w.s.

Prof. Ir. Soedarsono Hadisapoetro

Appendix XVIII Cont.

ATTACHMENT To Decree of the Minister of Agriculture

No. 633/Kpts/Um/9/1980

R E

GUIDELINES FOR THE IMPLEMENTATION OF DECREE OF THE PRESIDENT OF THE REPUBLIC OF INDONESIA NO. 39 YEAR 1980

1. Information as to Presidential Decree 39/1980

Information shall be given by the Regional Committee to:

a. Traditional fishermen, fishermen ex trawl and KUD (Koperasi Unit Desa = Village Unit Cooperatives) as to the role to be taken as available chances in benefiting fish resources which are about to be left by trawls, particularly by using obtain credit aid. In giving information as to technical aspect on using "dogol" and "klitik" catching instruments and other instruments substituting said trawls it should be seen to it that the fisher men would not feel as if they were being given chances to develop the system in the future into a trawl, although under a different name.

b. Owners and crews of trawls, as to the purpose and objective of the Presidential Decree No. 39/1980 along with its operational provisions particularly in order to attain better understanding as well as aid for the implementation of Presidential Decree No. 39/1980.
Support and encouragement should be given to the owners of the trawl in order that they would continue their fish catching operations by using other instruments for which purpose the Government would provide the required credit.

c. Fish processing industry and monger, concerning possible effects coming to light with the move of abolishing trawls and the transfer of other fish catching instruments as well as the problem-solving method so as not to harm too much said fish processing industry and monger.
Support and encouragement should also be given to cold storage owners and fish monger to actively approach traditional fishermen for the purpose of pooling their catches through the landing/pooling centres with motivations to boost up the production and productivity.

Appendix XVIII Cont.

It should be seen to it that HNSI (Himpunan Nelayan Seluruh Indonesia) = Association of Indonesian Fishermen) participate in the implementation of information giving and this should also be addressed to other parties concerned and could be effectively accomplished so that prior to abolishment of said trawls the target groups shall have been thouroughly informed and this objective achieved.

2. Inventory

Inventory shall be made by the Regional Committee and consist of:

a. Inventory of owners of trawl in possession of "SIUP" and "SKIP" issued by the region concerned whether or not they would continue their fish catching operations using other instruments, using their boats for other different purposes than fishery, sell the boats to the third party or to Government to be distributed to Village Unit Cooperatives.
For the above purpose , information as to compensation policy drawn up by Government shall be informed to those concerned. Those intending to continue the operations shall decide which types of fish catching instruments are going to be opted for.

b. Inventory of Village Unit Cooperatives supposed to obtain credit for said ex trawl including capabilities in possession of operating said ex trawl boats along with method of overcoming weak points.

The inventory shall be made as soon as possible, and it should be seen to it to complete the same fifteen (15) days prior to abolishment of the trawls so as to allow sufficient time for the preparation for transfer of the boat as well as transfer to other fish catching instruments. The proceedings of said inventory shall be reported periodically to the Governor/Head of First Level Region with a copy to the Minister of Agriculture in this case Director General of Fishery, Minister of Home Affairs in this case Director General of "PUOD" and Minister of Trade and Cooperatives in this case the Director General of Cooperatives.

3. Registration and the taking care of the boat

Registration and the taking care of the both with regard to the transfer of trawl boats into non-trawl boats shall be done by the Regional Committee from which the said trawl obtains "SIUP" and "SKIP". The fish catching Zone allowed to the ex trawl permitted to use new instruments shall be decided by the First Level Regional Government under the directions of the Mi-

nister of Agriculture in this case the Director General of Fishery.

4. Provisions on the compensation of the boat

Trawl boats to be taken by the Government shall be compensated in view of the price of the boat of which the decision shall be made which should favour the Village Unit Cooperatives as the receiver of the trawls. Compensation shall be made following the directions issued by Central Committee and the implementation in the region shall be made on a case by case basis following the conditions of each ship.

The Regional Committee shall survey and estimate the conditions and the price of the ex trawl ship to be sold to the Government and further to be creditted to Village Unit cooperatives. The new price shall be fixed by the Committee after the interested Village Unit Cooperatives have inspected the conditions of the boat, as well as after a compromise on the price and conditons of the ship have been reached between the Committee and Village Unit Cooperatives concerned.

As regards owners of the trawls not interested in continuing the fish catching operations and not willing to sell their boats to the Government are, basically, not prohibited from using/selling their boats for other purpose so long as the operation is not against the effective regulatory laws.

5. Administrative settlement of the transfer of the boat

The administrative settlement of the transfer of the boat is made directly in the name of the Village Unit Cooperatives as the receiver in accordance with the effective regulation. The payment to the owner shall be made following instructions issued by Central Committee.

Transfer of ownership of the boats that have been transferred shall immediately be made for the purpose of obtaining Registration Certificate.

6. Modification of Trawl Boat

Modification of trawl boat into non-trawl fish catching boat shall be made by the owners themselves or by the Village Unit Cooperatives as the receiver of the boat under the directions and supervision in order that the principal mechanical equipment would still be operable i.e. the trawl system is removed and taken out of the boat, or modified so that the trawl system would not be able to operate. The supervision over this provision shall be made by the Regional Committee.

Appendix XVIII Cont.

7. Safeguarding of Trawl Net

Trawl net that has already been forbidden is prohibited from being loaded in each fish catching boat operating in restricted area. Supervision over the implementation of this provision shall be conducted by the Regional Committee.

8. Training for Fishermen

Training for fishermen intending to use the ex trawler shall be conducted by the Government at the nearest Fish Catching Training Centres. Training fees including transportation fees shall be borne by the Government.

9. Transfer of ex. trawler's fishermen

Ex. trawler's fishermen who cannot be accomodated in another fish-catching boat should be encouraged to use"klitik" and "dogol" net. KIK (kredit Investasi Kecil = Small Investment Credit)/KMKP (Kredit Modal Kerja Permanen = Permanent Working Capital Credit) shall be given to groups of fishermen of this type of which the credit will be jointly guaranteed by Government, Bank Indonesia and Bank Rakyat Indonesia (50 : 25 : 25) in order that the interest burden can be softened.

10. Financing of the Implementation of Presidential Decree No. 39/1980

a. Expenses for the compensation of ex trawl boat to be transferred to Village Unit Cooperatives (KUD) shall be allocated out of the State budget in the form of long-term soft loan which is channelled through Bank.

b. For the modification of the hull, purchase of appurtenances and the boat working capital, KUD will be granted KIK/KMKP credits which are wholly guaranteed by the Government.

c. As regards owners of ex trawler intending to switch to another fish-catching instrument if it is needed and so long as the business is proved feasible, KIK or KMKP (credits) will be granted to them according to the effective regulations. In case the owners of the trawler mentioned above do not belong to economically-week groups the working capital credit may be used for the modification of the hull and purchase of new equipment with a credit period and other requirements following the effective requirements for the working capital credit.

Appendix XVIII Cont.

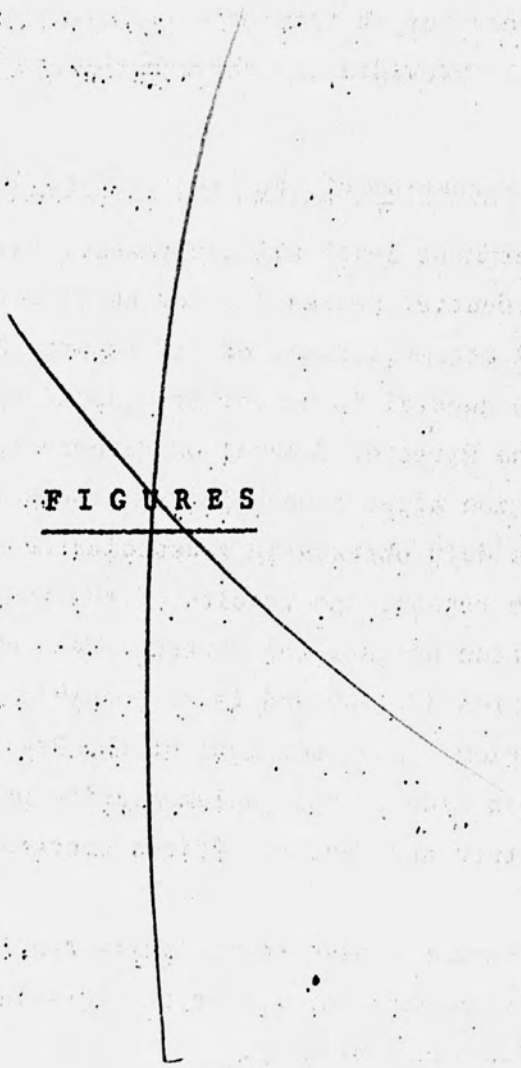
d. Modernization in stages for traditional fishermen ("dogol" and "klitik" net), and the development of sea culture shall be financed out of the Bank credit using the guaranty system in force with BIMAS (Bimbingan Massal = Mass Guidance to increase production).

e. Education fees for ex trawler's fishermen to handle the non-trawl equipment shall be provided for through the State budget.

11. Implementation Mechanism of the Presidential Decree 39/1980

At central government level all apparatuses having to do with the implementation of Presidential Decree 39/1980 shall work in a coordinated manner for the successfull accomplishment of the Keppres 39/1980. Operational instructions which are general in nature are issued by the Minister of Agriculture in this case the Director General of Fishery to the Governor/Head of the First Level Region after a coordinated processing is made at central level. Central offices duly observe in a coordinated manner the accomplishment received from the region, and results of the inspection visits in the regions. Regional Committee assists the Governor/Head of the First Level Region in succeeding Keppres 39/1980 and is responsible to the Governor/Heaf of the First Level Region. Governor/Heaf of the Region is to report on the development of progress made on the implementation of Keppres 39/1980 to the Minister of Agriculture and Central Offices concerned.

12. Matters which have not been specifically regulated in this Operational Guideline shall be regulated further by the offices concerned in accordance with their respective lines of duty.



FIGURES

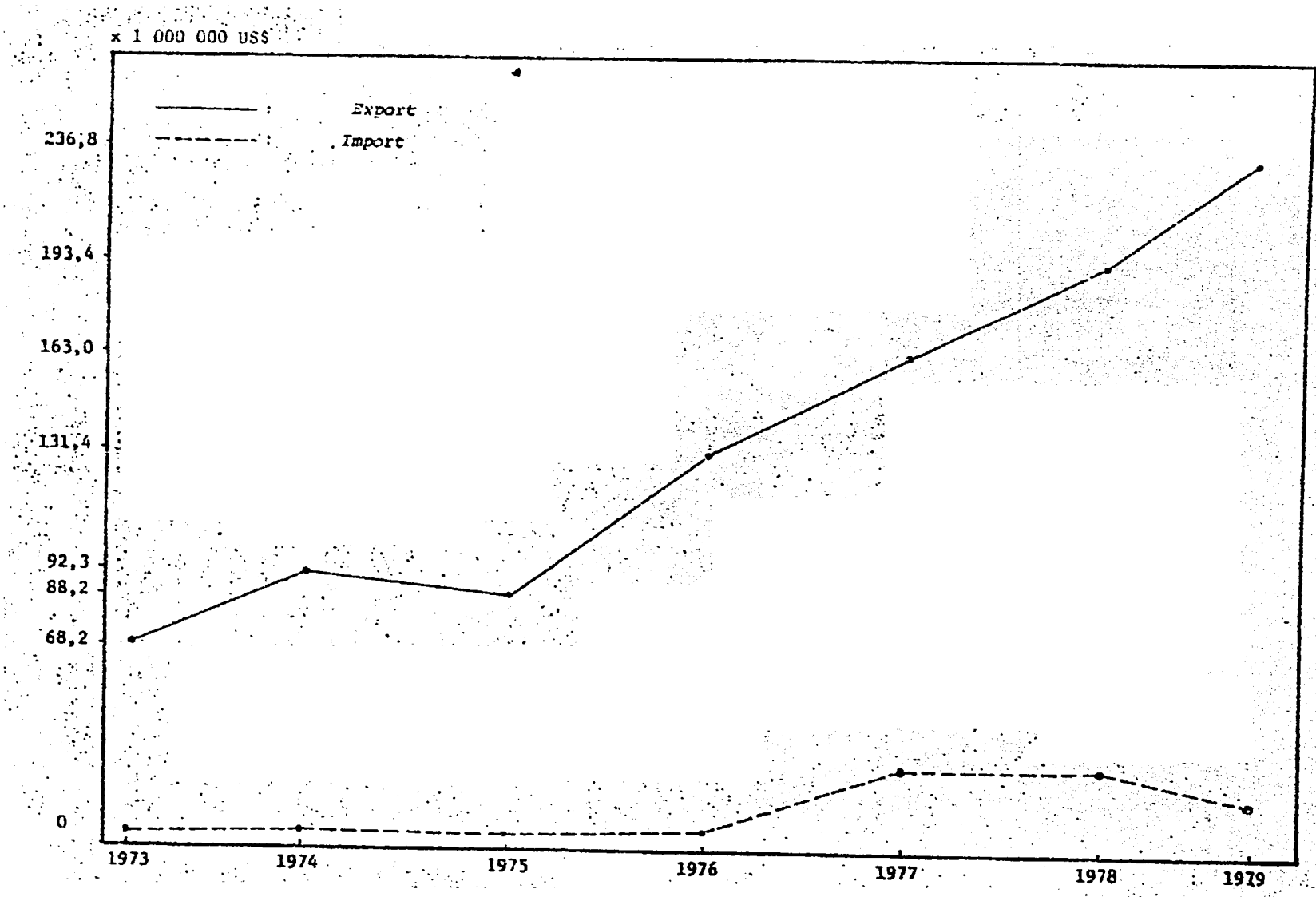


Figure 1 : Export and import of fishery product, 1973 - 1979

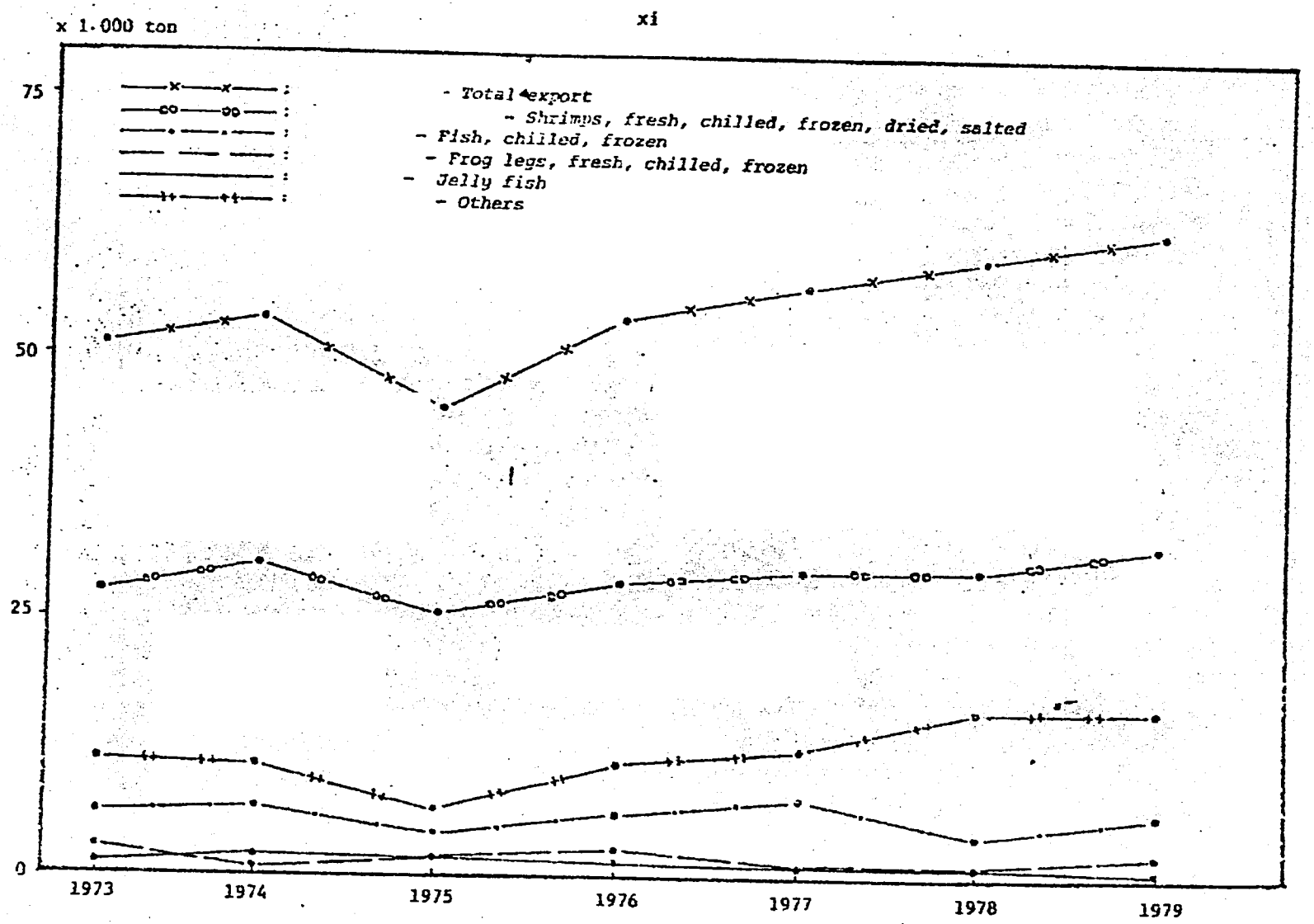


Figure 2 : Export volume of fishery products by major commodity, 1973 - 1979

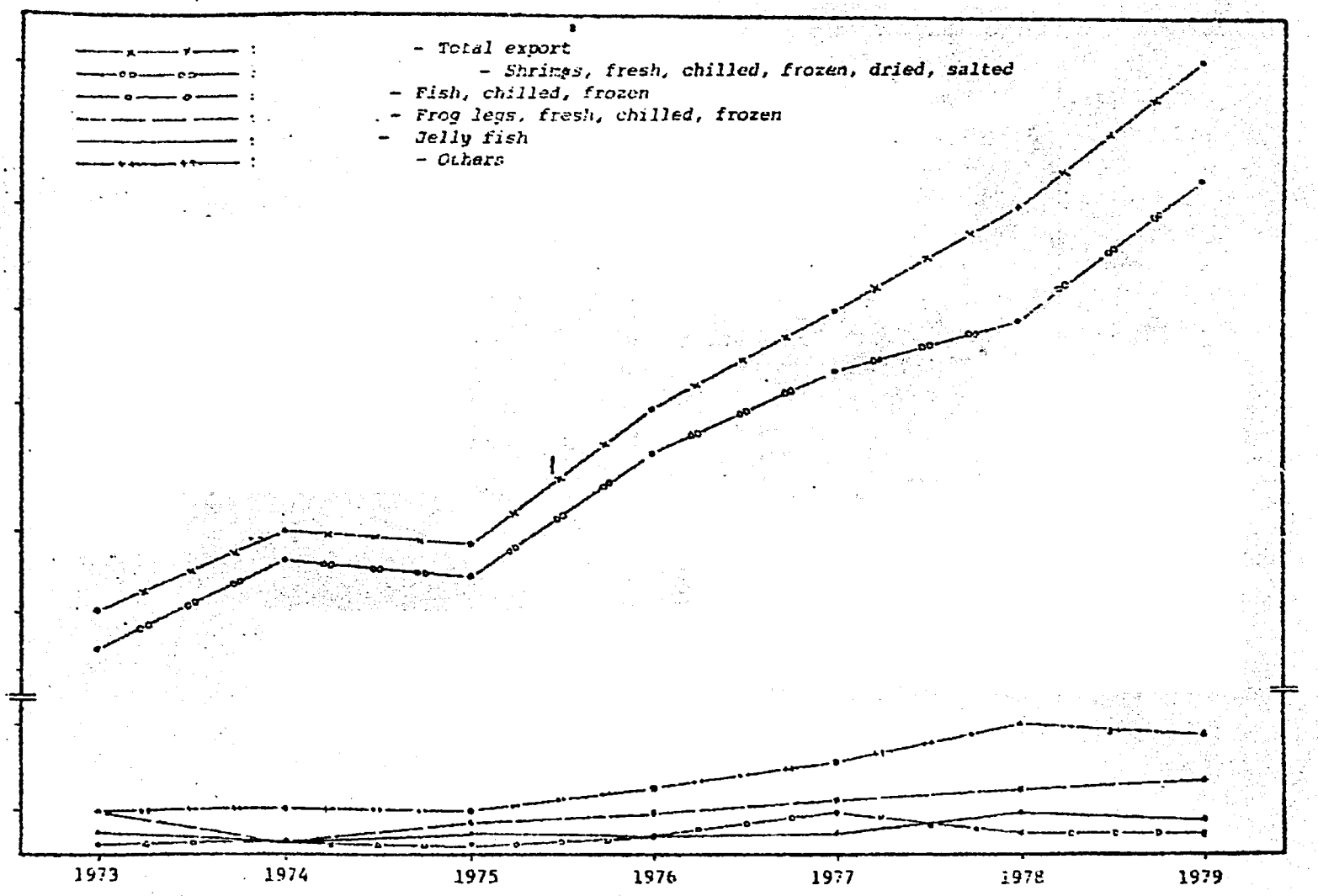


Figure 3 : Export value of fishery products by major commodity, 1973 - 1979

Figure 4 — *Export of fishery products by major commodity, 1978 and 1979*

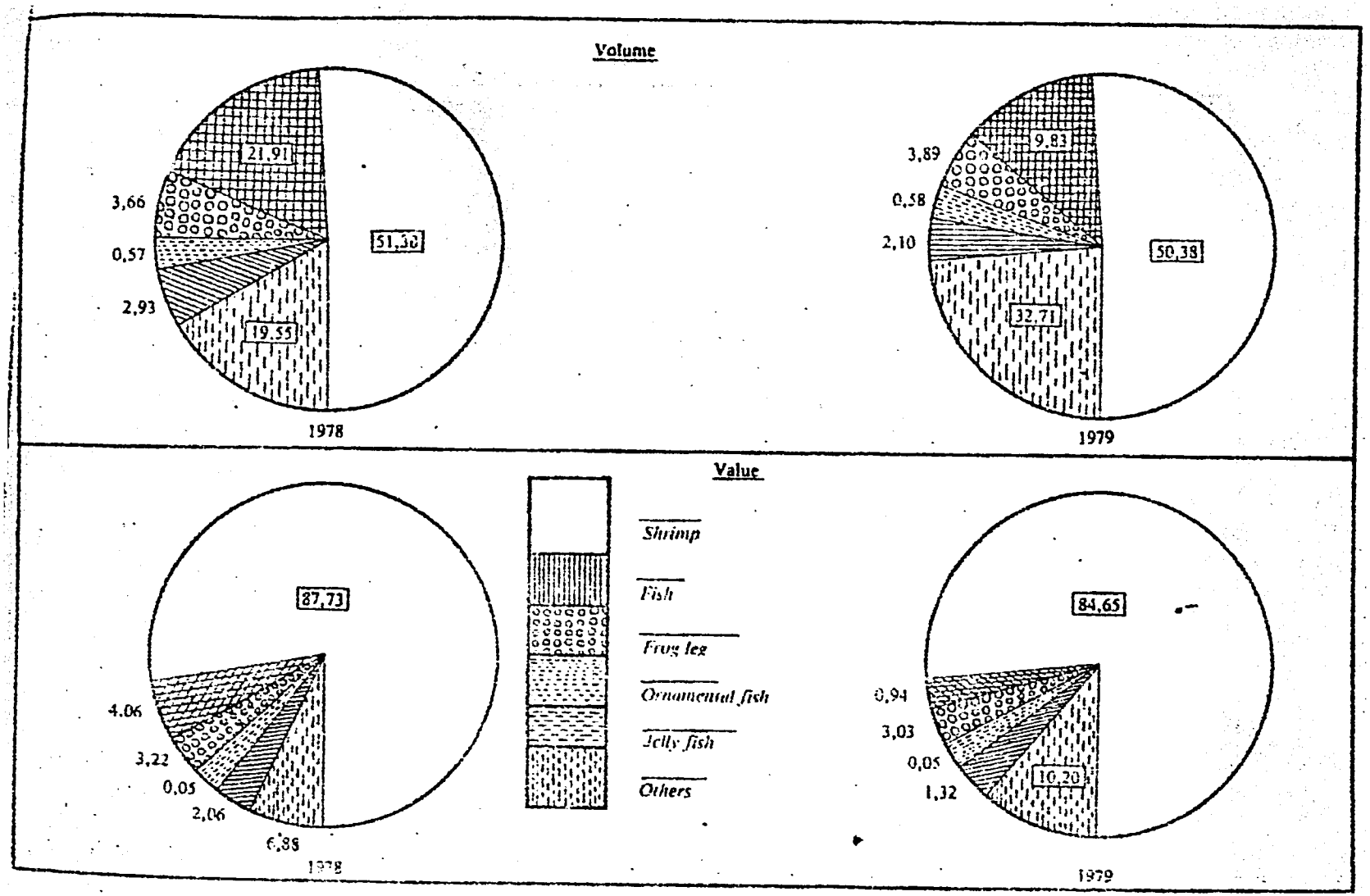


Figure 5 Export of fishery products by major port of export, 1978 - 1979

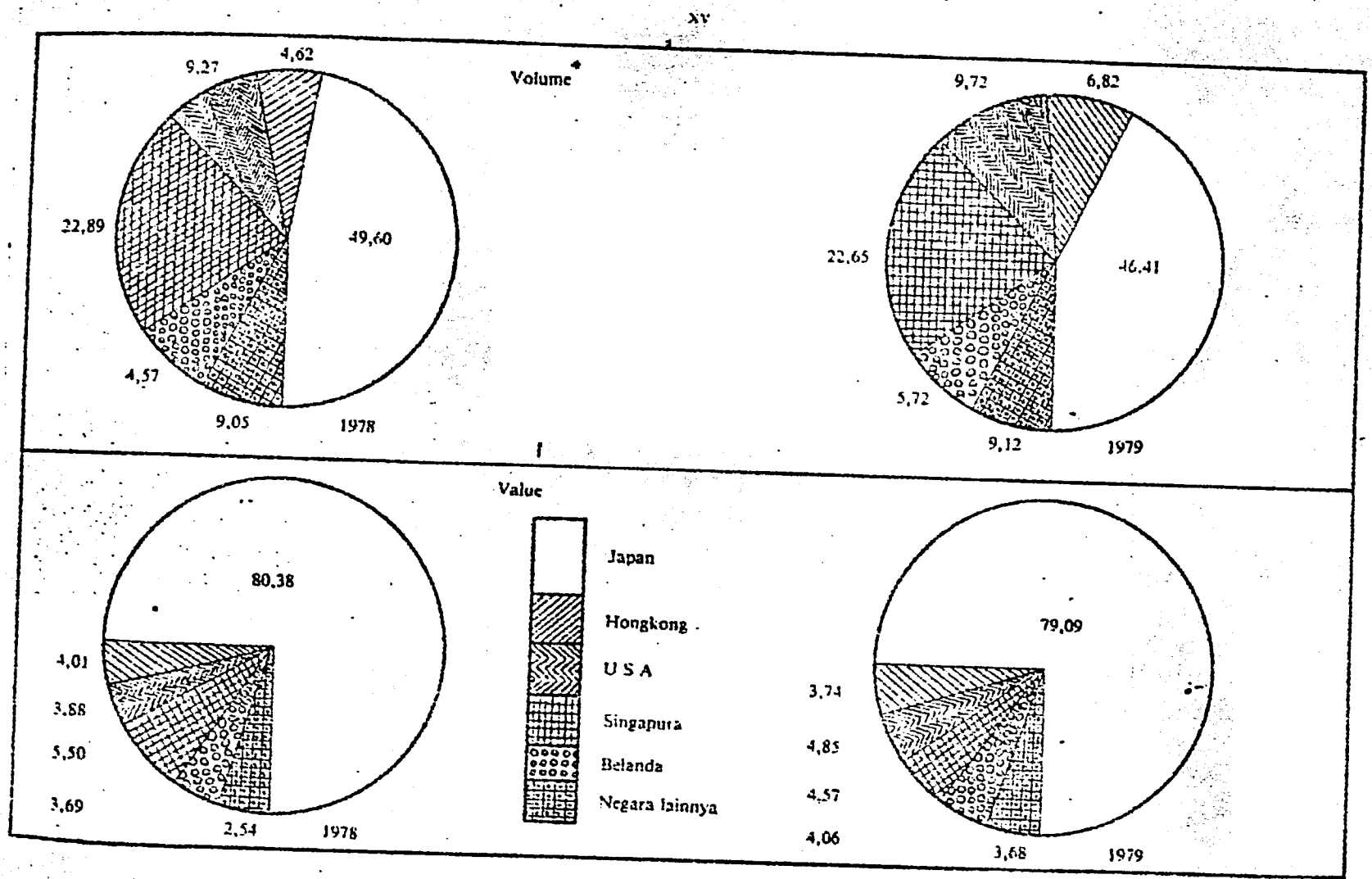

Volume
9,27
4,62
22,89
49,60
4,57
9,05
1978
9,72
6,82
22,65
46,41
5,72
9,12
1979
Value
80,38
4,01
3,88
5,50
3,69
2,54
1978
Japan
Hongkong
USA
Singapura
Belanda
Negara lainnya
79,09
3,74
4,85
4,57
4,06
3,68
1979

Figure 7

DIRECTORATE GENERAL
OF
FISHERIES
ORGANIZATIONAL SET-UP