

THE STUDY  
ON  
FISH MARKETING AND DISTRIBUTION SYSTEM  
IN MALAYSIA

SUMMARY

FINAL REPORT

MARCH, 1991

JAPAN INTERNATIONAL COOPERATION AGENCY

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## PREFACE

In response to a request from the Government of Malaysia, the Japanese Government decided to conduct a study on Fish Marketing and Distribution System in Malaysia and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to Malaysia a survey team headed by Mr. Tateo Kusano, System Science Consultants Inc. from November 1989 to December 1990.

The team held the discussions with the officials concerned of the Government of Malaysia and conducted field surveys. After the team returned to Japan, further studies were made and the present report was prepared.

I hope that this report will contribute to the promotion of the Project and to the enhancement of friendly relations between our two countries.

I wish to express my sincere appreciation to the officials concerned of the Government of Malaysia for their close cooperation extended to the team.

March 1991

A handwritten signature in black ink, reading "Kensuke Yanagiya". The signature is fluid and cursive, with the first name "Kensuke" and last name "Yanagiya" clearly distinguishable. It is positioned above a horizontal line.

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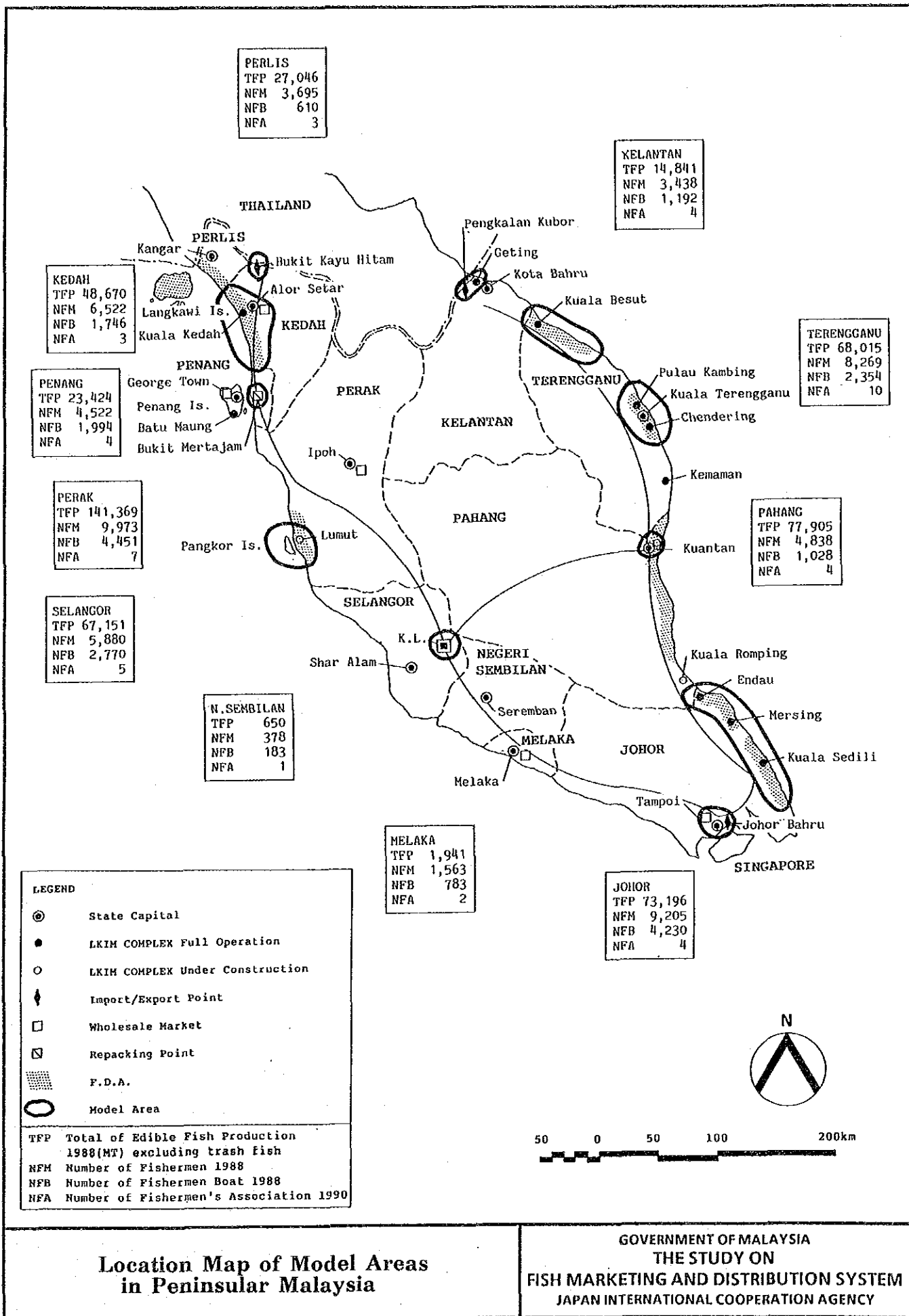
Kensuke Yanagiya

President

Japan International Cooperation Agency





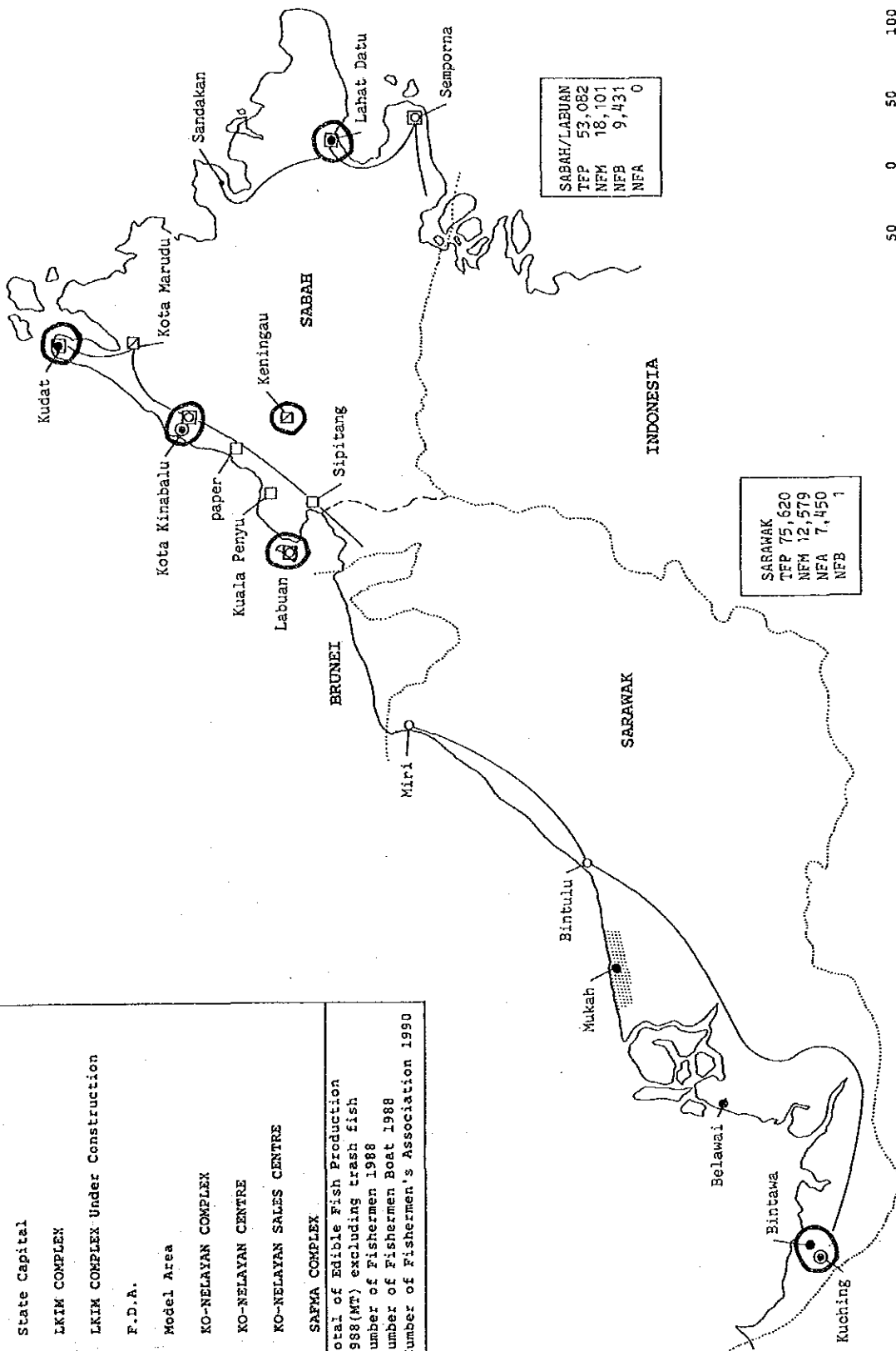




# LEGEND

- State Capital
- LKIM COMPLEX
- LKIM COMPLEX Under Construction
- ▨ F.D.A.
- Model Area
- KO-NELAYAN COMPLEX
- KO-NELAYAN CENTRE
- ▤ KO-NELAYAN SALES CENTRE
- ⊞ SAFMA COMPLEX

TFP Total of Edible Fish Production  
1988(MT) excluding trash fish  
NFM Number of Fishermen 1988  
NFB Number of Fishermen Boat 1988  
NFA Number of Fishermen's Association 1990



## Location Map of Model Areas in Sabah and Sarawak States



## TABLE OF CONTENTS

LOCATION MAP

ABBREVIATIONS

1. Objective of the Study -----	1
2. Study Area -----	1
3. Fish Production Potentiality and the Existing O/D Pattern of Fish Distribution -----	1
4. The Characteristics and Weaknesses of the FMDS -----	3
4.1 The Basic Structure of Fish Marketing and Distribution -----	3
4.2 Credit System -----	3
4.3 Profit Distribution in Marketing and Fishermen's Income -----	4
5. Fish Marketing Facilities and Their Operation/Management -----	4
6. Fish Quality and Handling Methods -----	5
7. Fishermen and Fishermen's Association (FA) -----	5
8. Financial Evaluation of the Fish Marketing Organization -----	7
9. Alternative Plans to Improve the Existing FMDS -----	8
9.1 Fish Production Stage -----	8
9.2 Fish Landing Stage -----	9
9.3 Fish Marketing Stage at Production Area Wholesale Market -----	10
9.4 Fish Storage, Processing and Transport Stage -----	12
9.5 Fish Marketing Stage at Consumption Area Wholesale Market -----	13
10. Alternative Plans for FMDS Improvement for the Selected Model Areas -----	15
10.1 West Coast, Peninsular Malaysia -----	15
10.2 East Coast, Peninsular Malaysia -----	15
10.3 Model Area in Sarawak -----	16
10.4 Model Area in Sabah and Labuan -----	16
11. Conclusion and Recommendation -----	17

## ABBREVIATIONS

ADB : ASIAN DEVELOPMENT BANK  
AFA : AREA FISHERMEN'S ASSOCIATION  
AFC : AREA FISHERIES COOPERATIVES (JAPAN)  
AFO : AREA FARMER'S ORGANIZATION  
BPM : BANK PERTANIAN MALAYSIA  
DOF : DEPARTMENT OF FISHERIES  
DOS : DEPARTMENT OF STATISTICS  
EPU : ECONOMIC PLANNING UNIT  
FA : FISHERMEN'S ASSOCIATIONS  
FAMA : FEDERAL AGRICULTURAL MARKETING AUTHORITY  
FAO : FOOD AND AGRICULTURE ORGANIZATION  
FCS : FISHERMEN'S COOPERATIVES  
FMCA : FISH MARKETING CONTROL AREA  
FMDS : FISH MARKETING AND DISTRIBUTION SYSTEM  
FMR : FISH MARKETING REGULATIONS  
GDP : GROSS DOMESTIC PRODUCT  
GOM : GOVERNMENT OF MALAYSIA  
KO-NELAYAN : SABAH MULTIPURPOSE FISHERMEN'S COOPERATIVE  
LKIM : FISHERIES DEVELOPMENT AUTHORITY OF MALAYSIA  
MFS : MALAYSIAN FISHERIES SOCIETY  
MOA : MINISTRY OF AGRICULTURE  
MOF : MINISTRY OF FINANCE  
MSY : MAXIMUM SUSTAINABLE YIELD  
NAP : NATIONAL AGRICULTURAL POLICY  
NEP : NATIONAL ECONOMIC POLICY  
NFA : NATIONAL FISHERMEN'S ASSOCIATION (NEKMAT)  
O/D : ORIGIN/DESTINATION  
PLI : POVERTY LINE INCOME  
SAFMA: SABAH FISH MARKETING SDN. BHD.  
SADOF: SABAH DEPARTMENT OF FISHERIES  
S/D : SUPPLY/DEMAND  
SFA : STATE FISHERMEN'S ASSOCIATION  
SPKP : SPECIAL INTEGRATED AGRICULTURE LOAN PROGRAMME  
UPM : UNIVERSITI PERTANIAN MALAYSIA  
IC/R : INCEPTION REPORT  
P/R : PROGRESS REPORT  
IT/R : INTERIM REPORT  
DF/R : DRAFT FINAL REPORT  
F/R : FINAL REPORT

## **1. Objective of the Study**

The objective of the study is to provide alternative plans for an efficient fish marketing and distribution system (FMDS) at the national and regional level, and thereby upgrade returns to fishermen.

## **2. Study Area**

The study area covered nationwide and an in-depth survey and analysis were implemented in the selected model areas as shown in the location maps.

## **3. Fish Production Potentiality and the Existing O/D Pattern of Fish Distribution**

Domestic fish production volume on the east coast of Peninsular Malaysia was projected to increase to the MSY level if fish resources are properly exploited and maintained, while fish production volume would not increase on the west coast. Ample fish resources in Sarawak and Sabah states should be exploited to increase production to fulfill the shortage in demand in Peninsular Malaysia as well as within the state.

Source: Annual Fishery Statistics, 1987/1988 and O/D Survey in 1990  
 Remarks: Import/Export volume based on the statistics in 1987,  
 O/D volume based on the survey in 1990

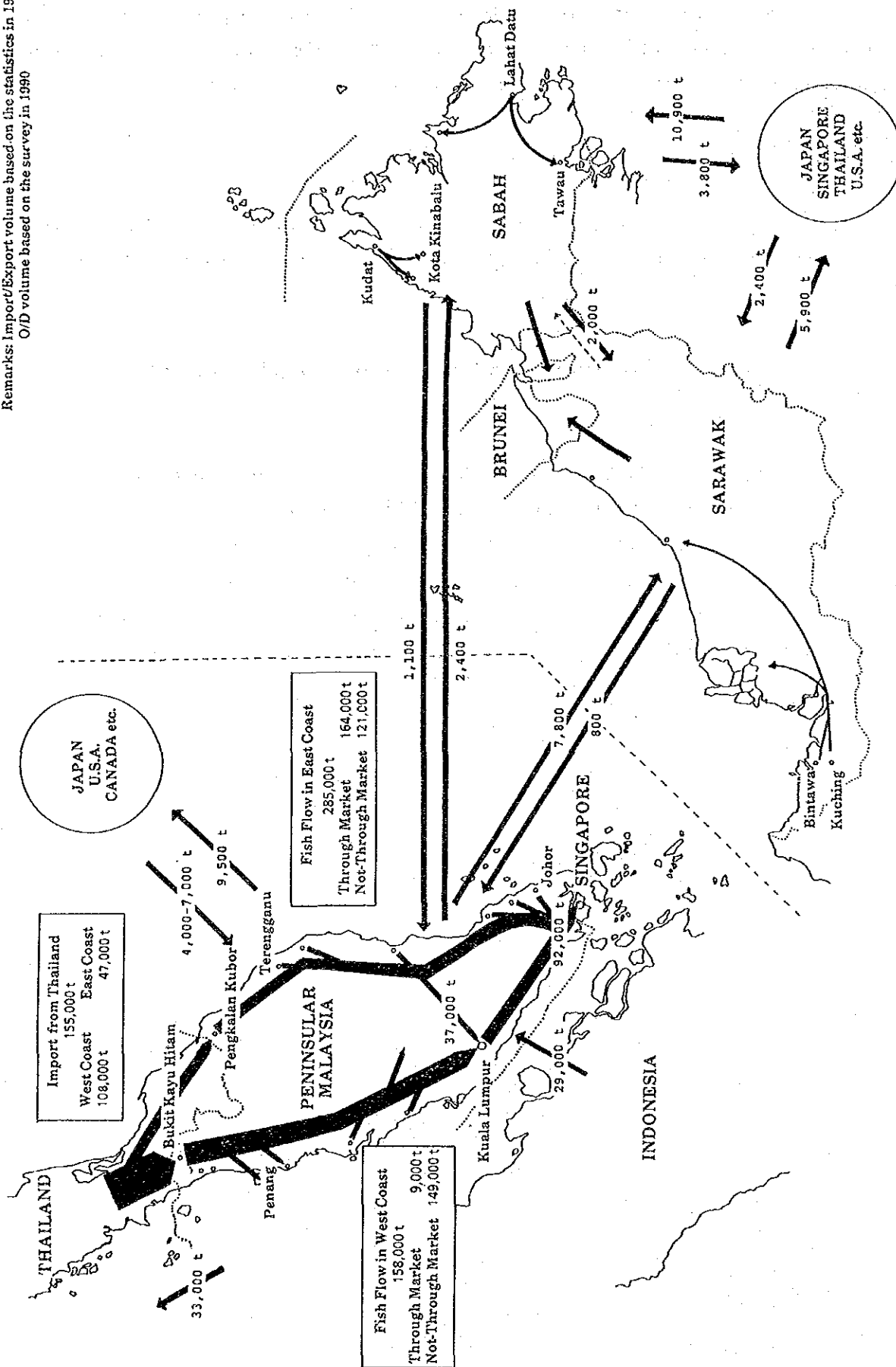


Fig.1 O/D Pattern of Fishery Products in Malaysia  
 (1987 & 1988)

GOVERNMENT OF MALAYSIA  
 THE STUDY ON FISH MARKETING AND DISTRIBUTION SYSTEM  
 JAPAN INTERNATIONAL COOPERATION AGENCY



#### **4. The Characteristics and Weaknesses of the FMDS**

The characteristics and weaknesses of the FMDS are indicated below. Major weak points are summarized in Table 1.

##### **4.1 The Basic Structure of Fish Marketing and Distribution**

- (1) The wholesalers at the consumption area wholesale markets throughout Malaysia determine fish price, purchase volume of fish, the time of purchase, etc. The base of their marketing operations is their close ties with Thai exporters and the middlemen at various fish landing sites throughout Malaysia. Moreover, the Singaporean wholesaler plays the same role as the Malaysian wholesaler does in consumption areas for fish export to Singapore.
- (2) For fish earmarked for consumption area wholesale markets, there is an exclusive linkage between the fishermen and the wholesalers in the fish landing sites. Costs incurred in fishing operations are prepaid to fishermen by the wholesalers or paid in the form of credit transactions. In exchange for this credit, an unwritten agreement exists that allows the wholesalers exclusive rights to purchase a portion of the fish catch from the fishermen. A major portion of the costs incurred during fishing operations are paid by the wholesaler. However, under present circumstances where domestic supply has not been able to meet growing demand, the advantage lies in the sellers' hand. Therefore, fishermen are not necessarily tied to the identified brokers, but are guaranteed by a wholesaler for their fish. Simultaneously, the wholesalers are assured of a stable supply of fish when they provide financial assistance to the fishermen. The fishermen have the advantage and convenience of a close source of funding and the guarantee that their fish catch will always be purchased. Many of the fishermen do not exhibit a positive drive for economic independence due to this dependence on wholesalers in funding and fish sales.

##### **4.2 Credit System**

Currently, the most common form of financial support available to the fishermen is the credit system provided by BPM and wholesalers. Fishermen prefer financial assistance from the wholesalers for the

reasons given below.

- 1) The fishermen are able to borrow funds whenever the need arises.
- 2) Difficulty in repaying the funds is minimal since the amount owed by the fishermen is deducted from the sale of the fish catch at the time of purchase by wholesaler.
- 3) The fishermen have a guarantee that their fish catch will be bought and in turn, the wholesalers have a stable source of fish supply.
- 4) For BPM financing, the applicant is required to have at least 20 percent of the project cost required on hand, in order to qualify for a loan. BPM will finance 80 percent of the project cost and a period of two to three months to a maximum of six months is required for the screening process to be completed for those applicants recommended by LKIM. Although priority is given to AFA members, membership in AFA is not necessary in order to apply.
- 5) Presently, BPM is reluctant to promote loan disbursement because the recovery ratio of loans corresponds to 30 percent of the total amount financed.

#### **4.3 Profit Distribution in Marketing and Fishermen's Income**

##### **(1) Profit Distribution**

The profit margin of fish wholesalers and retailers in Malaysia is not very high because the fish distribution structure is relatively simple.

##### **(2) Fishermen Income Levels**

Although fishermen who are classified as crew members have a lower income than boat owners in general, crew members on large boats have a higher income than small boat owners.

#### **5. Fish Marketing Facilities and Their Operation/Management**

- 1) Less than half of the fishing boats land their fish at the complexes

and use the facilities for refueling mainly because the landing and supply jetties are not separated and the small capacity of the fuel pump makes refueling at the complexes time consuming.

- 2) The catch is sorted and washed on board or on the jetty after the boat has arrived at the landing site, and it is time consuming. Therefore, the jetty is overcrowded and is not used efficiently.
- 3) There are no major transport constraints in fish flow from the production sites to the consumption areas in Peninsular Malaysia. However, there are major constraints in fish transport within Sarawak and Sabah states and from these states to the outside markets.

## **6. Fish Quality and Handling Methods**

With the exception of some public complexes and private jetties, the fish freshness is low and fish quality has deteriorated due to poor handling and fish temperature control at sea.

## **7. Fishermen and Fishermen's Association (FA)**

### **(1) Institutional Aspect**

#### **1) Organizations affiliated to the FA**

A multi-linkage system among NFA, SFA, and AFA has not been efficiently organized to help fishermen participate in fish marketing.

#### **2) Management Structure of the AFA**

Management personnel for AFA operations have been mainly dispatched from LKIM. Recently, a few AFA who have employed managers from the private sector, have increased their net profits from 1988 to 1989 and are uppermost on the entire list of AFA in terms of profit ratio. The positive effects of privatization can be seen, although a key factor for better management is the personal ability of the manager.

#### **3) Membership Qualifications of the AFA**

There are difficulties in reaching a consensus among the AFA members because they include distributors and processors who are in direct competition with AFA fishermen in fish marketing.

## (2) Functional Aspects

### 1) Sale of Fish

There are very few fishing boats that take part in the auctions sponsored by the AFA. The sale of fish through the associations is sluggish because there is no sales contract for fish between the association and the fishermen.

### 2) Fishing Activities

Only a few associations have undertaken profitable fishing operations by large fishing boats on their own.

### 3) Ice Manufacturing

AFA is only a sales agent of ice because the NFA operates the ice plants and markets the ice through the NFA-SFA-AFA to the fishermen.

### 4) Supply Activities

The association purchases and sells diesel oil, fishing equipment, and boat engines. Sale of diesel oil is a major profitable source of AFA revenue.

### 5) Joint Facilities and Equipment

Facilities and equipment such as jetties, wharves, cranes used in fish landing, etc. are owned and operated by LKIM, and not by the associations.

### 6) Credit Activities

a) Credit activities of the AFA have not been systematized and only a limited number of AFA conduct banking services for their members.

b) Very few AFA provide financing for their members in exchange for the right to sell members' fish catch through the association.

## (3) Issues on Fishing Rights

In Malaysia the Fishermen Associations do not possess fishing rights which would enable them to protect, foster, manage, and utilize fishing grounds. It is difficult for the AFA to establish a developed system of coastal fishing rights and resources management as seen in Japan for the following reasons.

- a) Fishing for migratory fish species has developed in Malaysia, as less non-migratory fish species inhabit the coastal areas.
- b) Fishing villages are located along the rivers away from the coastline. Therefore, the consciousness to protect fishing grounds is not developed.

## **8. Financial Evaluation of the Marketing Organization**

### **(1) LKIM Complexes in Peninsular Malaysia and Sarawak State**

One third of the LKIM complexes are operating at a profit due to the service fees collected from fishing boats for the use of fueling and fish landing facilities, which is the main source of revenue. Expenditure of depreciation costs, salaries, and other operational costs are significantly high in comparison to incoming revenue.

### **(2) The Complexes in the Model Areas of Sabah State**

#### **1) KO-NELAYAN Complex**

The complex is operating at a loss if depreciation costs are borne by each complex. It is necessary to cut operational costs and to increase ice sales which is presently a main source of revenue for each complex.

#### **2) SAFMA and ANGKASA Complexes**

Both complexes are operating at a loss. Operational costs are not met by generated revenue. Although the main source of revenue is the sale of prawn and fish, the buying price is rather high in comparison to the revenue generated from their sale; and the gross profit barely meets the operational costs. If the present situation is not rectified, it will be difficult to maintain sound management of the complexes even if interest payments on the loans for facility construction is waived.

### **(3) Fishermen Associations in the Model Areas**

The operation of NFA/SFA/AFA is in the black as a whole, since commission fees from the sale of diesel oil and ice are high.

## **9. Alternative Plans to Improve the Existing FMDS**

In order to improve the existing FMDS, a continuous step-by-step implementation of the following alternative plans will be necessary. The effects and benefits of the alternative plans are summarized in Table 1.

### **9.1 Fish Production Stage**

#### **(1) Fish Marketing System**

- 1) In order to improve the quality of fish, it is necessary to enforce strict quality control on board the fishing boat.
- 2) Fish price information should be furnished to fishermen.
- 3) Sorting and handling of fish should be done by fishermen on board the fishing boat before arriving at public landing jetties of LKIM, KO-NELAYAN, etc.

#### **(2) Fish Marketing Facilities**

- 1) Enlargement or improvement fishing boats, gear, etc. should be promoted in order to raise efficiency in fishing and fishermen income.
- 2) In order to improve the quality of fish, new fishing boats as well as fishing boats currently in operation should be equipped with refrigerator, well-insulated fish holds, etc.

#### **(3) Institution and Organization**

- 1) In conjunction with development of offshore fishing grounds in the South China Sea, the number of fishing licenses should be increased; and fishing licenses limited to offshore fishing areas will be issued also to comparatively small fishing boats that are adequate to function and undertake offshore fishing operation. Such measures are expected to help protect and conserve resources in coastal fishing grounds while accelerating efficient development of offshore fishing.
- 2) AFA credit activities should be improved to offset the shortage in

funds for the purchase of fishing boats, fishing gears, and for operational costs. Measures to strengthen AFA activities at the fish production stage are:

- a) to increase AFA funds by accumulating deposits from members,
  - b) to incorporate loan from BPM for members through AFA,
  - c) to open account with AFA and pool funds by marketing fish through AFA and/or from current account, and secure a source of funds for repayment of loan disbursed by BPM,
  - d) to actively employ qualified personnel from the private sector for better management,
  - e) to provide continuous subsidies from the Federal Government for AFA management, based on management ability and its strict evaluation.
- 3) It is essential that a system of strict supervision is established in order to ensure fair repayment plans and decisions on fund utilization. Namely, it is vital that the AFA does not become a political tool through its credit activities. It should be scrutinized to ensure that it functions strictly as an organization for fishermen.

## **9.2 Fish Landing Stage**

### **(1) Fish Marketing System**

The time and costs for fish handling, refueling, etc. currently needed at the public complexes must be economized to ensure an efficiently run operation. By rationalizing the operations of the complex in these ways, fishermen will be able to utilize its facilities conveniently. Consequently, fish landing can be concentrated and shifted from the private to the public jetties.

### **(2) Fish Marketing Facilities**

- 1) The existing capacity of the facilities at some of the complexes will not be able to cope with increased fish landings. Among these

complexes, only the complexes which will be feasible for renovation from a national economic standpoint, must be expanded and their fish landing facilities refurbished. Complexes whose jetties must be greatly enlarged and extended are the Endau and Kuantan complexes on the east coast of Peninsular Malaysia.

- 2) In conjunction with the aforementioned renovation and expansion, it is necessary to relocate the fish landing and supply jetties within each complex area and to enlarge supply facilities, particularly the fuel pump.
- 3) Quality control facilities will be established in metropolitan and in export promoting areas in the model areas, to enhance fish exports.

(3) Institution and Organization

- 1) The owners of private jetties must agree and cooperate in transferring the facilities to the public complexes. It should be carried out with financial support measures including accommodation of funds and provision of land sites to the private jetty owners.
- 2) The operation of the public complexes should be reorganized to ensure efficiency. They should be transferred or leased to private parties or local public bodies, mainly the AFA, fish dealing associations, or local public organizations, individually or as a joint operation. These organizations will be responsible for the operation of the complex independent of the LKIM. Therefore, it is important to select the organization which is most qualified to accomplish this task.
- 3) The DOF monitoring system, which covers all the fish landing sites throughout the country will be utilized effectively in providing data to fishermen.
- 4) LKIM quality control measures (equipment, property, personnel) will be reinforced in order to promote exports.

**9.3 Fish Marketing Stage at Production Area Wholesale Market**

(1) Fish Marketing System



- 1) In Malaysia from the viewpoint of existing condition of FMDS and its efficiency, direct consignment system should be applied for a wider area distribution, and adoption of the auction will be limited to small volumes of locally consumed fish in the foreseeable future.
- 2) In order to enable fishermen to select the wholesalers who will be the final buyers of the fish catch, the existing telecommunication system will be used to inform them, either directly or through the AFA, data on unit price, buying volume, and time and volume of purchase. If this method is commonly adopted, direct consignments by the AFA will become attractive due to its competitive edge, without enforcement of auctions.

## (2) Fish Marketing Facilities

The marketing facilities within the public complexes should be enlarged to accommodate the increased volume of fish which will be transacted.

## (3) Institution and Organization

- 1) The functions of wholesale markets in production areas including LKIM complexes should to be redefined.
- 2) The LKIM complex markets and the private jetties should be designated and reinforced as production area wholesale markets. In addition, current limitations on the licensing of fish dealers should be eased to stimulate competitive market conditions. Direct government intervention in the marketing activities of fish dealers should be minimal.
- 3) Fish marketing information including fish price at the production area wholesale markets should continue to be monitored by the LKIM/KO-NELAYAN. This function should be reinforced.
- 4) The operation of the production area wholesale market should be transferred from LKIM to private organizations such as the AFA and the private dealer associations.
- 5) In order for AFA to discard its role as a sales agent for ice and

diesel oil, and to begin functioning properly as an organization for fishermen, existing AFA economic activities should be bolstered and fish consignment sales activities for its members should be introduced. When the AFA begins such activities, it is necessary to institute a system where profits are stringently checked to ensure that the existence of the AFA is not jeopardized. In this respect, guidance and supervision of the AFA and fishermen is vital.

#### **9.4 Fish Storage, Processing and Transport Stage**

In this stage all commercial activities are conducted by private sector, and therefore intervention by public agencies should be minimal.

##### **(1) Fish Marketing System**

- 1) A long distance fish transport system will be developed to transport large volumes of fish from Sarawak/Sabah to Peninsular Malaysia and Singapore.
- 2) A transport system from the fish landing sites on the east coast of Peninsular Malaysia to the west coast, which contains the largest consumption area of the nation, will be instituted.

##### **(2) Fish Marketing Facilities**

- 1) In order to transport fish over a wide area, insulated containers should be installed and the transport capability of ocean freight improved.
- 2) Support facilities such as modernized fish storage and processing system should be introduced.
- 3) In order to transfer the fish transport and processing base from the private jetties to the LKIM complexes, it is necessary to procure and prepare land sites within the complex or within its vicinity, for processing, storage, transport facilities and housing.

##### **(3) Institution and Organization**

In order to avoid the risk caused by fish price fluctuation, it

is necessary to set up large fish storage and processing facilities and to institute subsidies for fish storage to stabilize fish prices. However, before implementation of the plan, it is necessary to conduct feasibility study.

#### **9.5 Fish Marketing Stage at Consumption Area Wholesale Market**

##### **(1) Fish Marketing System**

The private dealers are in complete control of the wholesale market in the consumption areas, but their profit margin is limited. Therefore, there is little need for public agencies to intervene in income redistribution.

##### **(2) Fish Marketing Facilities**

Installation of new facilities is not necessary except for a few markets, as local autonomous bodies and private associations have definite plans to construct marketing facilities.

##### **(3) Organization and Institution**

- 1) The function of LKIM at this stage should be limited to designating wholesale markets in the consumption areas. Issuance of licenses for trading and use of market facilities should be completely transferred to local autonomous bodies, with the exception of large scale markets. Construction and operation of these markets should also be implemented independently.
- 2) In principle, the AFA should carry out fish transactions directly with the wholesalers in consumption areas. However, in order to secure a stable sales outlet, a trading system from AFA to public organizations through NFA will provide supplementary sales outlets for the AFA.
- 3) LKIM should continue to monitor fish marketing conditions including fish price, and supply the data to the AFA.

Table 1. Major Weaknesses in the Existing FMDS, Alternative Plans for FMDS Improvement and Major Effects/Benefits through the Implementation of the Plans

Major Weakness in the Existing FMDS	Alternative Plans for FMDS Improvement	Major Effects / Benefits
<b>1. Fish Production Stage</b> 1) Insufficient fish quality control on board 2) Small scale and inefficient fishing activities of artisanal fishermen 3) Inefficient issuance of boat license in terms of fish resource utilization 4) Inadequate management of coastal fish resources 5) Low recovery rate of 8PM loans	1) Strictly enforce fish quality control and up-grade insulation of fish holds 2) Enlarge and improve fishing boats and gears and raise fishing efficiency 3) Increase licensing for off-shore fishing and improve licensing system 4) Promote coastal resource management system by AFA under DOP supervision 5) Introduce 8PM revolving fund for AFA members through AFA	1) Effective utilization of fish and increase of value added 2) Up-grade of artisanal fishermen's income 3) Effective development and utilization of fish resources 4) Effective management of coastal fish resources 5) Economic independence of fishermen * Increase of production and value added
<b>2. Fish Landing Stage</b> 1) Low utilization of public complexes due to inefficient management 2) Inadequate capacity of landing facilities of some public complexes 3) Financial difficulties for private jetties' owners to transfer their facilities to vicinity of complex 4) Lack of experienced staff for marketing and operation of complex 5) Limited use of fish landing information provided by DOP 6) Lack of fish quality control function for promoting export	1) Concentrate fish landing to public complex through efficient management of complex 2) Expand and improve landing and supply facilities of some complexes 3) Financially assist jetty owners to remove their jetties to vicinity of complex 4) Employ experienced staff for management of complex, and transfer complex operation to private sector 5) Improve DOP's monitoring system of fish landing information 6) Reinforce fish quality control system for promoting export	1) Scale merit by concentration of landing and marketing 2) Minimization of time and cost of landing 3) Scale merit by concentration of landing and marketing 4) Efficient management of complex 5) Timely and efficient marketing and distribution 6) Increase of export and added value of fish * Time and cost saving of FMDS
<b>3. Fish Marketing Stage at Production Area Wholesale Market</b> 1) Low efficiency of time and cost of auction system 2) Limited fishermen access to accurate fish marketing information 3) Inadequate capacity of marketing facilities in some public complexes 4) No clear distinction of functions between wholesale markets in production area and consumption area 5) Limited utilization of fish marketing information from LKIM/KO-NELAYAN 6) Weak independence of managing bodies due to government intervention 7) Low ability of AFA due to limited function 8) Lack of experienced staff to manage production area wholesale market	1) Adopt auction limitedly for small scale local consumption for the tie being 2) Provide fish marketing information to fishermen through AFA 3) Expand marketing facilities in complex according to fish handling volume 4) Redefine the functions of production area wholesale market and reinforce and designate LKIM complex including private jetties as production area wholesale market 5) Improve monitoring system of fish marketing information by LKIM/KO-NELAYAN 6) Transfer management of production area wholesale market from LKIM to AFA or private sector 7) Reinforce existing AFA's activities and introduce fish marketing activities 8) Employ experienced staff from private sector for management of AFA	1) Up-grade of efficiency of marketing through complex 2) Economic independence of fishermen 3) Minimization of time and cost of fish handling and marketing 4) Up-grade of efficiency of FMDS through production area wholesale market 5) Timely and efficient marketing and distribution 6) Reinforcement of independence of management and efficient operation of the market 7) Up-grade of AFA's financial ability and fishermen's income 8) Independent and efficient management of AFA * Up-grade of fishermen's living standard
<b>4. Fish Storage, Processing and Transport Stage</b> 1) Lack of a long-distance transport system to meet the deficiency of fish on the west coast of P. Malaysia 2) Lack of storage and processing facilities indispensable for long-distance transport 3) Lack of measures to counter unstable fish price due to the seasonal fluctuation of fish catch	1) Develop long-distance transport system between Sabah/Sarawak and Peninsular Malaysia 2) Introduce fish storage and processing facilities to support the transport system 3) Institute subsidies for fish storage to stabilize fish price	1) Cost saving of fish import and effective utilization of domestic fish resources 2) Efficient mass transport and distribution of fish 3) Stabilization of fish production and supply * Earning of foreign currency
<b>5. Fish Marketing Stage at Consumption Area Wholesale Market</b> 1) Existing FMDS at this stage is highly efficient 2) Existing income distribution among fishermen and fish dealer is reasonable	1) Minimize public intervention to this marketing stage 2) Transfer construction and management of consumption area wholesale markets to autonomous bodies or private sector	1) Efficient FMDS by activation of private sector 2) Efficient management of wholesale market by strengthening independent management

## **10. Alternative Plans for FMDS Improvement for the Selected Model Areas**

### **10.1 West Coast, Peninsular Malaysia**

From a national economic viewpoint, it is not appropriate to expand the fish landing and supply jetties of LKIM complexes on the west coast of Peninsular Malaysia.

In order to reorganize the private jetties in the Kuala Kedah model area as production area wholesale market, the existing function as production area wholesale market in all the private jetties should be consolidated and designated into one group or several groups of production area wholesale market.

### **10.2 East Coast, Peninsular Malaysia**

#### **(1) Model area in Terengganu State**

##### **1) Fish marketing facilities**

It is necessary to renovate the old, wooden supply jetty in the Kuala Besut complex.

##### **2) Marketing structure**

Some of the functions as a base for large fishing boats should be transferred to Chendering. If this transfer takes place, the functions of a production area wholesale market will increase at the Chendering LKIM complex. Therefore, the functions of the Pulau Kambing complex will be focused as wholesale market for consumption in the vicinity of Kuala Terengganu.

#### **(2) Model Area in Pahang State**

##### **1) Fish marketing facilities**

A new complex was under construction in Kuantan, the model area of this state. However, it is necessary to expand the fish landing and supply jetty.

##### **2) Fish processing facilities**

The production volume of fish balls and crackers in Pahang state is small and is at cottage industry level. A plant should be

constructed for frozen fish products (surumi, fish balls) in order to promote export and high quality products for the domestic market.

### (3) Model Area in Johor State

#### 1) Fish marketing facilities

It is necessary to expand the jetty and install cranes in Endau.

#### 2) Fish storage, processing and transport facilities

The Endau complex will be utilized not only as a production base for offshore fisheries, but will also be given the function of a marketing and processing complex. In addition to modernizing the existing private processing plant, a new freezing/processing plant for frozen squid and surumi for export and fish balls for domestic consumption will be constructed. A truck terminal will be constructed so that the complex can also function as a collection center.

### 10.3 Model Area in Sarawak

#### 1) Fish processing facilities

A freezing/processing plant for high grade fish is necessary for Bintawa complex to function as a supply base for fish products from Sarawak to Peninsular Malaysia. Since a shortage of fish in Peninsular Malaysia is anticipated in the future, the freezing and processing plant should be expanded in case of rise in the price of low and medium fish.

#### 2) Long distance transport system of fish

In order to transport fish from Sarawak to Peninsular Malaysia and Singapore, the number of insulated containers must be increased.

#### 3) Marketing structure

The Bintawa LKIM complex is a production area market. It is necessary to enlarge its functions in conjunction with an increase in future outflow of fish from the state.

### 10.4 Model Area in Sabah and Labuan

#### 1) SAFMA Complexes in Kota Kinabalu and Labuan

SAFMA will continue to process and handle fish for export.

However, the facilities including the fish landing complex will be opened to fish dealers and management of the facilities by SAFMA will be limited, to reduce financial burdens.

## **11. Conclusion and Recommendation**

Public agencies such as LKIM, KO-NELAYAN, etc. should encourage the privatization and localization of their complex operations. They should function mainly as central supporting bodies of FMDS and gradually withdraw from management of the complexes at local levels.

As the future possibility of a shortage in fish supply is expected, fishermen may be placed in a more advantageous position than fish distributors. It is with this possibility in mind, talks between fishermen and wholesalers can be proposed. Mutual understanding will be beneficial for both parties. For this purpose, an experimental pilot project is proposed to create and deepen mutual understanding.

Among the model areas investigated in this study, east Johor was selected as the most effective area for the implementation of the pilot project of FMDS improvement for the reasons given below.

- 1) The high development potential of fish resources.
- 2) Co-existence of the public complexes and private jetties.
- 3) Accessibility to the consumption area wholesale markets on the west coast of Malaysia and Singapore.
- 4) Advantageous position of fishermen to fish dealers because of sellers' market for fish.
- 5) Close communication with federal government institutions such as MOA, DOF, LKIM, BPM, etc., located in Kuala Lumpur.

This pilot project will include the relocation of the LKIM complex and the installation of an experimental plant with freezing, refrigeration, processing, and quality control functions. In addition to this, a fish distribution and processing complex with the main objective of developing a fish export market, will be built on a commercial basis in the back-up area

provided by the state government.

Measures for technology transfer from abroad should include a dispatch of foreign experts to Malaysia and the participation of Malaysian personnel in training programmes abroad. Experts and training programmes will be in the area of fishing operation, management of fishing ports, operation of fishermen cooperatives, quality control, fish processing, etc. It may also be meaningful to incorporate technical cooperation from other nations experienced in fish distribution for installation of facilities necessary for implementation of this pilot project.

In order to develop an effective and concrete pilot project, it is necessary to carry out a feasibility study following this survey and to procure funds and personnel for implementation at an early date.





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