

5. STRATEGY FOR IMPROVING FMDS

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1) Import of Large Volume of Fish from Thailand

The distribution system for large volume of exported fish to Singapore and to the fish consumption areas on the west coast of Peninsular Malaysia is completely controlled by the consumption area wholesalers in Malaysia and Singapore. It is difficult to conduct efficient fish marketing and not desirable for fishermen to participate directly in fish marketing in the consumption area markets. In this area, government intervention should be minimal in order to protect and promote efficient fish marketing in the consumption area markets.

2) Instead, it is essential for the government to create conditions where fishermen, AFA, or regional fish dealers are able to participate actively in fish production, fish landing, fish marketing, fish storage, and processing operations in the fish production areas.

3) The east coast of Peninsular Malaysia, Sarawak and the west coast of Sabah which face the South China Sea will be a base for future fisheries development. These areas should be designated as development area for a new fish marketing/distribution system.

4) Although the potential of fish resources in Sarawak and Sabah is great, physical and economical constraints in fish transport to the large consumption areas in Malaysia has been very inhibiting; consequently, resource development has not progressed as anticipated. In order to achieve fish distribution over a wider area, including export, it is essential that an integrated system which upgrade fish quality, institutes large-scale collection and storage, and mass transport should be developed.

5) Licensing fish traders in consumption area markets (wholesale and retail markets) and licenses permitting the use and operation of facilities should be managed by local autonomous bodies. Furthermore, management of market facilities in production areas should be gradually turned over by leasing or transferring some or all of the facilities to the AFA or local wholesaler associations.

- 6) A fish distribution network should be instituted at the fish production areas which will efficiently link the landing and marketing functions among several public complexes and private jetties in the model areas. In particular, complexes which will be the centers of fisheries development on the east coast of Peninsular Malaysia, Sarawak and Sabah states which face the South China Sea, will be designated. All other facilities related to fish distribution should function as satellites of these complexes and the functions of all complexes in this area should be demarcated and integrated as fish marketing and distribution bases.

6. ALTERNATIVE PLANS TO IMPROVE FMDS

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Basic improvement plans appropriate to the objectives of this study, namely achieving efficient FMDS and upgrading fishermen's income, were selected as long-term targets of Malaysia. Improvements recommended in the alternative plans, are shown in stages according to fish marketing and distribution on the nation or regional level, and public or private level.

Continuous implementation of the improved FMDS in stages through the alternative plans discussed below, is necessary in order to achieve the aforementioned objectives.

6.1 Fish Production Stage

(1) Fish Marketing System

The basis in formulating the improvement plans is firstly, to assist future fisheries development in the South China Sea where ample fish resource is available; and secondly, to improve FMDS to achieve fishery development targets based on a future balance of fish supply and demand. The following reforms will be instituted on this premise.

- 1) Strict quality control on board the fishing boat should be enforced in order to improve the quality of fish.
- 2) Fish price information should be furnished to the fishermen.
- 3) Credit activities of the AFA should be strengthened to offset the shortage in funds for the purchase of fishing boats, fishing equipment, and for operational costs incurred during fishing. Measures for strengthening of the AFA activities are:
 - a) to increase AFA funds with 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 employ qualified personnel from the private sector for better management,
 - e) to provide subsidies continuously from the Federal Government for AFA management based upon management ability and its strict evaluation.
- 4) Sorting and handling of fish should be done by the fishermen on board the fishing boat before arrival at the public landing jetties of LKIM, KO-NELAYAN, etc.

(2) Fish Marketing Facilities

- 1) Enlargement or improvement of fishing boats, gears, etc. which are necessary for fishermen to transfer from coastal waters to offshore fishing grounds, should be promoted in order to increase fishermen income and efficiency in fishing.
- 2) New fishing boats as well as fishing boats currently in operation should be equipped with refrigerator, well-insulated fish holds, etc. in order to improve the quality of fish.

(3) Institution and Organization

- 1) AFA should have responsibility in preserving and controlling coastal fishery resources under DOF supervision.
- 2) 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 operations. Such measures are expected to help protect and conserve coastal fishery resources while accelerating efficient development of offshore fishing.
- 3) As a part of a government finance system, it is suggested that BPM provide credit for the AFA revolving fund. This fund will in turn, be utilized by the AFA as loans to their members. Presently, BPM has been lending development funds for the purchase of fishing boats, etc. to the fishermen directly without involving the AFA, in contrast to

farmers who obtain loans through the Area Farmers Organization (AFO). Therefore a similar system should be made available to fishermen.

Simultaneously, in order to collect principal and interest of the disbursed loan, firstly, the AFA will require the fishermen to open an account with the association and secondly, pool funds through consignment sales of members fish catch and/or from their current accounts. Thirdly, the AFA will make the repayment of the loan to BPM using this pooled fund by deducting the corresponding amount from the fishermen's account (the two step loan system). In this case, the funds are pooled and used by AFA. Therefore, it is essential that a system of strict supervision and scrutiny is established in order to ensure fair loan recovery measures and impartial decisions on fund utilization. Namely, it is vital that the AFA does not become a political tool through its credit activities and that it functions strictly as an organization for the fishermen.

- 4) In addition to the aforementioned government financing system for large scale modernized fishing, affiliated financing systems at the private level should be established on a long term basis; a similar system is implemented in Japan for the Fisheries Cooperatives by the Central Cooperative Bank for Agriculture, Forestry and Fisheries, Credit Federation of Fisheries Coop. Associations, etc.).

(4) Anticipated Results and Constraints to Be Solved in Implementation

- 1) If fishing operation funds are provided , fishermen will be free to sell their fish catch to the dealer of their choice, and fishermen income will increase to a certain level. In particular, traditional fishermen will be able to cross the poverty line and those engaged in large scale fishing operations will be able to become independent of the dealers and increase their incomes.
- 2) Improving fishing boats, fishing equipment, etc. will establish economically efficient fishing operations.
- 3) Constraints: A major issue is to create an environment where the fishermen will agree to pool their funds with the AFA and to consign their fish catch to the association for sales. In order to accomplish this, the following two conditions must be met.

- a) Although AFA will be responsible for the efficient management of fish marketing, the cooperation of the fish dealers, particularly the wholesalers in the production and consumption areas and the wholesalers in Singapore will be required for the introduction of this system.
- b) The fishermen's passive attitude must be improved to prevent them from accepting credit from the dealers and giving up the right to aggressively participate in the sale of their fish catch. A spirit of entrepreneurship must be revived among the fishermen.

IMPLEMENTATION OF FMDS IMPROVEMENTS AT THE FISH PRODUCTION STAGE

Content of Improvement Proposals	National Level		Regional Level	
	Public/Private		Public/Private	
1. Fish Marketing System				
1) Strict quality control of fish on board	o	p	x	o
2) Dissemination fish price information	o	o	x	o
3) Strengthening AFA credit activities	o	o	x	o
4) Sorting and handling of fish on vessel	p	p	x	o
2. Fish Marketing Facilities				
1) Improve fishing boat, equipment, etc. (offshore fishery development, and resource management)	o	o	x	o
2) Improve cold insulation facilities of fish hold, refrigerating system	p	o	x	o
3. Institution and Organization				
1) Awareness of AFA's responsibility for coastal resources under DOF supervision	o	x	o	o
2) Improve method of fishing licenses	o	x	x	x
3) Improve government finance system for fishermen	o	o	x	o
4) Introduce affiliated finance systems of AFA (long-term)	o	o	p	o

Note 1: Implementation of each proposal is classified into national, regional, public and private sectors and the degree of implementation in each sector is: o = active participation; p = partial participation x = no participation

Note 2: Implementation on a national public level involves MOA/DOF/LKIM/KO-NELAYAN/BPM; implementation at a regional public level involves the regional autonomous bodies; implementation at a private level involves the FA and dealers.

6.2 Fish Landing Stage

(1) Fish Marketing System

- 1) In order for LKIM complex operations to run efficiently, the operating time and costs currently needed at the public complexes should be economized in such areas as sorting the fish on board at sea and refueling services for fishing boats. Moreover, market operating hours at the complex must be increased to several times a day to resolve the congestion. Rationalizing complex operations in these ways ensures convenient utilization by the fishermen. Consequently, fish landing can be concentrated and shifted from the private to the public jetties.
- 2) The AFA should be encouraged to become involved in the buying and selling of fish on a contract basis and not limit itself to simply supplying ice and diesel oil as it is currently doing. Fish consignment contracts between members and the AFA will be introduced which will allow the association to participate in fish marketing at the production areas.

(2) Fish Marketing Facilities

- 1) As efficiency of the public complexes is improved, fishing boats will be automatically encouraged to transfer their fish landings to the public complexes from the private jetties which will exceed their capacity due to the increase of fishing boats in future. The existing capacity of the facilities at some of the complexes will not be able to cope with increased fish landings. Therefore, the complexes which will be feasible for renovation from a national economic standpoint, should be expanded and their fish landing facilities refurbished. The complexes whose jetties which must be 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 fueling facilities within each complex area.

- 3) Supply facilities, particularly the capacity of the fuel pump should be enlarged.
- 4) Some public jetties will be transferred to alternative sites (however, it is necessary to carry out a study of the location sites including sea conditions to confirm physical feasibility).
- 5) The landing functions of some private jetties should be reduced and use of the public jetties should be promoted (however, this will be carried out only in cases where it is economically advantageous to the users of the private jetties.)
- 6) In order to execute effective and efficient quality control, a fish quality control centre should be set up. Its main purpose will be to establish and to promote fish exports; and it will be located in the metropolitan and export promoting areas.

(3) Institution and Organization

- 1) Even in areas where the state government is promoting new land development and is demolishing private jetties, the limits in the public complex capacity should be considered (not only physical limits, but to ensure that economic effectiveness of the fishermen and distributors is not jeopardized); and it must be carried out according to measures agreed upon by all parties concerned.
- 2) Concerned parties affiliated with the private jetties (fishing boat owners, transporters, processors, and wholesalers who are the owners of the jetty) should agree and cooperate in transferring the facilities to the public complexes. It should be carried out with financial assistance measures including accommodation of funds and provision of land sites to private jetty owners.
- 3) The management body of the public complexes should be reorganized to ensure efficiency. The management should be transferred or the facility should be leased to private parties or local public bodies. As a management body, the AFA, fish dealing associations, or local public organizations should operate individually or jointly the complexes. 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.

- 4) The percentage of fish landings at the LKIM complexes in Peninsular Malaysia is roughly seven percent of the total fish volume landed on Peninsular Malaysia. The DOF monitoring system which monitors all the fish landing sites throughout the country, is highly experienced and has access to current data, including the ex-vessel price at landing. The system will be utilized effectively as the data base.
- 5) LKIM quality control measures (equipment and personnel) should be reinforced in order to promote exports.

(4) Anticipated Results and Constraints in Implementation

- 1) The profitability of the complexes, LKIM, KO-NELAYAN, SAFMA, ANGKASA, and the regional autonomous bodies will be improved.
- 2) Renovation and expansion of the public complexes will bring about national economic benefits through minimization of time and cost of landing .
- 3) The income of the fishermen and other concerned parties who utilize the private jetties will increase when they transfer their fish catch to the public complexes.

IMPLEMENTATION OF IMPROVEMENTS IN FMDS AT THE FISH LANDING STAGE

Content of Improvement Proposals	National Level		Regional Level	
	Public/Private		Public/Private	
1. Fish Marketing System				
1) Extend operation hours of complex, establish operational system which will be more cost effective	x	x	o	o
2) Introduce a policy of fish consignment contracts between AFA and members	p	o	p	o
2. Fish Marketing System				
1) Expand and renovate fish landing facilities	o	x	o	x
2) Relocate complex facilities	p	x	o	o
3) Upgrade fueling facilities	o	x	o	x
4) Relocate public jetties	o	x	p	x
5) Decrease a segment of the fish landing functions of private jetties	p	x	o	o
6) Build a fish quality control centre	o	o	x	o
3. Institution and Organization				
1) Pursue a policy of reducing some of the fish landing function of private jetties and agreement on policy limitations	p	x	o	o
2) Support the private jetties after reaching a consensus on reducing private jetties	o	x	p	o
3) Transfer or lease public complexes	p	x	o	o
4) DOF data on fish landing (including ex-vessel price), effective use of monitoring system	o	p	p	o
5) Reinforce LKIM quality control function (to promote fish export)	o	x	x	o

Note 1: Implementation of each proposal is classified into national, regional, public and private sectors and the degree of implementation in each sector is: = active participation;
= partial participation = no participation

Note 2: Implementation on a national public level involves MOA/DOF/LKIM/KO-NELAYAN/BPM; implementation at a regional public level involves the regional autonomous bodies; implementation at a private level involves the FA and dealers.

6.3 Marketing Stage in Production Area

(1) Fish Marketing System

- 1) Auction is conducted only in some of the LKIM complexes on Peninsular Malaysia and it has not been adopted in other areas (less than one percent of the total volume of fish landed in Peninsular Malaysia). Auction is mainly been conducted for fish locally consumed within the vicinity of the production areas. Consequently, this type of auction will continue to be limited to small volume of locally consumed fish in the foreseeable future. Meanwhile, auction which is aimed at markets covering a large area, is actively conducted at the private jetties in Kuantan, the capital of Pahang state, and particularly at the private level for exported fish to Singapore. This auction should be selectively propagated in other areas.
- 2) Most of the transactions which take place at the production areas are by direct consignments. 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 from LKIM (data at wholesale market) and DOF (data at landing site), either directly or through the AFA, data on unit price, buying volume, and time and volume of purchase. Through the promotion of this method, direct consignments can be conducted under competitive conditions.

(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) Under the existing fish marketing system, functions of the wholesale markets are not clearly demarcated in the production and consumption areas including LKIM functions. Therefore, these functions need to be redefined.
- 2) The LKIM complex markets and the private jetties will be designated and reinforced as production area wholesale markets. In addition, the

current limitations on the licensing of fish dealers should be eased to stimulate competitive market conditions. However, direct intervention by government 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 and KO-NELAYAN. This function should be reinforced.
- 4) Operation of the production area wholesale markets should be transferred from LKIM to private organizations such as the AFA and the private dealer associations. Fish marketing transactions at the production area wholesale markets should be managed by the private sector, allowing the public agencies to function only in areas of supervision and instruction. The costs stemming from these limited activities will be covered by the utilization fees of the facilities.
- 5) In order for AFA to discard its role as sales agent for ice and diesel oil, and to begin functioning properly as an organization for fishermen, existing AFA economic activities will be bolstered and fish consignment sales activities for its members will be introduced.

These activities will enable the AFA to reinforce its finances to begin credit activities for its members. Introduction of a contract signed between the association and its members allowing the AFA to sell fish will strengthen implementation of this proposal.

However, with the exception of high grade fish, the profit margin in ordinary fish price is not very large for the dealers. Therefore, 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 aspect, guidance and supervision of the AFA and fishermen is vital.

- 6) AFA management ability should be strengthened by employing experienced personnel.

(4) Anticipated Results and Constraints in Implementation

The feasibility of AFA economic and credit activities are given in the following table.

Economic/Credit Activities	Anticipated Effect	Measures to Solve Constraints
Finance system for operation funds (outstanding accounts) and sales on credit	Economic independence of fishermen, increased income and use of FA activities by fishermen	Understanding of FA activities by fishermen, upgrade member abilities, hiring staff from private sector
Sale of ice and diesel oil	Increase fishermen incomes and use by members	Introduce credit, sales, expand/install supply facilities, improve supply services (time,etc.)
Purchase/sale of fish catch	Increase fishermen incomes	Upgrade management ability of AFA staff, employ managers from private sector, establish credit with fish traders, introduce finance system for fishermen
AFA fishing activities (large boats)	Increase utilization rate of fishermen, increase economic power of FA, disseminate fishing technology	Avoid competition among AFA members, license permission to AFA
Others (sale of fishing equipment, spare parts, daily commodities,etc.)	Increase fishermen incomes, elevate consciousness of members	Competition with existing shops, planned management of stock supplies

IMPLEMENTATION OF IMPROVEMENTS IN FMDS IN PRODUCTION AREA WHOLESALE MARKET

Content of Improvement Proposals	National Level		Regional Level	
	Public/Private		Public/Private	
1. Fish Marketing System				
1) Limited promotion of auction (considering its needs)	p	o	p	o
2) Establish a more effective system of direct consignments	p	o	p	o
2. Fish Marketing Facilities				
1) Expansion of on-land facilities of the public complexes	p	p	p	o
3. Institution and Organization				
1) Clarify functions of production area wholesale markets	o	x	o	p
2) Expand designation of production area wholesale markets (avoiding intervention in marketing activities of private dealers)	o	x	o	p
3) Reinforce monitoring functions of LKIM/KO-NELAYAN for fish marketing information	o	p	p	o
4) Transfer operation of production area wholesale markets	x	x	o	o
5) Reinforce credit/fish sale activities of AFA	o	o	p	o
6) Upgrade management ability of AFA	x	x	p	o

Note 1: Implementation of each proposal is classified into national, regional, public and private sectors and the degree of implementation in each sector is: o = active participation; p = partial participation x = no participation

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6.4 Storage, Processing and Transport Stage

The existing fish flow patterns will not change in future for the reasons outlined below. Intervention by public agencies should be minimal.

- a) Most of the fish imported from Thailand which flow to domestic consumption areas pass through the consumption area wholesale markets of Malaysia. The wholesalers of these markets trade directly with the exporters in Thailand.
- b) Approximately one half of domestic fish will pass through the consumption area wholesale markets and the remainder will be sold directly to the consumers at the fish landing sites or will be sold by small dealers and not through the wholesale markets.

(1) Fish Marketing System

Direct government intervention in the existing fish marketing system at this stage should be minimal. A long distance fish transport system will be developed to transport large volumes of fish from Sarawak/Sabah to Peninsular Malaysia and Singapore.

- 1) A transport system from the fish landing sites on the east coast of Peninsular Malaysia to the west coast, which has the largest consumption area of the nation, will be instituted.
- 2) The existing fish transport system between Sarawak and Singapore will be improved in areas of service.

(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) In conjunction with the institution of a transport system between the the east and west coasts of Peninsular Malaysia, Sarawak, and Sabah states, support facilities such as modernized fish storage and processing system should be introduced. (Fish processing on the east coast of Peninsular Malaysia is still a rural cottage industry and it needs to be modernized to the same level as the processing facilities on the west coast which are aimed at the fish export market.)

- 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, and transport facilities and housing.

(3) Institution and Organization

There are constraints in transporting fish from the east coast of Peninsular Malaysia, Sarawak and west coast of Sabah, which are expected to increase their production in future, to the large consumption areas of the west coast of Peninsular Malaysia and Singapore. These constraints are compounded by seasonal changes; and 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.

(4) Anticipated Results and Constraints in Implementation

- 1) Fish prices will stabilize with the development of unexploited fish resources and a flow of fish over wider areas.
- 2) The added value of fish will rise when a modernized fish distribution and processing base is established.
- 3) The institution of fish transport, storage, and processing facilities to accommodate a wider area lies in the sphere of private initiative; and its success is dependent on how much the private sector will be willing to invest in these facilities.

IMPLEMENTATION OF IMPROVEMENTS IN FMDS IN FISH STORAGE, PROCESSING, AND TRANSPORT

Content of Improvement Proposals	National Level		Regional Level	
	Public/Private		Public/Private	
1. Fish Marketing System				
1) Institute long-distance fish transport system (install freezing, storage, processing, and transport facilities)	p	o	p	o
2) Acquire efficient transport trucks, ships and institute quality control in conjunction with large volume fish transport system	p	o	x	o
2. Fish Marketing System				
1) Preparation of land for fish processing/storage facilities	p	o	p	o
2) Increase transport capability with insulated containers/cargo transport	p	o	x	x
3. Institution and Organization				
Initiate subsidies for stable fish price	o	p	x	p

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6.5 Wholesale Market Stage in Consumption Area

(1) Fish Marketing System

The private dealers are in complete control of the consumption area wholesale markets and there is little need for intervention by public agencies.

Although presently there is no opportunity for the fishermen to participate in fish marketing since wholesalers in consumption areas have their own fixed marketing routes from fish import and fish landing stages, opportunity will be created for the fishermen through the auspices of the AFA, to negotiate fish price, buying volume, etc. with the consumption area wholesalers in the future. In particular, there is a large scale consumption area wholesale market in the west coast of Peninsular Malaysia that connects distribution of Thai imported fish to Singapore. The aforementioned measures for fishermen will be enacted only upon recognition of existing conditions in the distribution system of this area.

(2) Fish Marketing Facilities

The local autonomous bodies and private dealer associations have definite plans on the relocation and construction of consumption area wholesale markets; and as construction on some of these markets is already in progress, there is no particular necessity for public agencies (LKIM, etc.) to intervene at the national level or to propose plans on the installation of new facilities.

(3) Organization and Institution

- 1) The function of LKIM at this stage will 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 the local autonomous bodies, with the exception of large scale markets; and independent construction and operation of these markets. Construction and operation of these markets should also be implemented under their jurisdiction
- 2) In principle, the AFA should carry out fish transactions 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 a supplementary sales outlet for the AFA.
- 3) LKIM should continue to monitor fish marketing including fish price, and supply the data to the AFA.

(4) Anticipated Results and Constraints in Implementation

- 1) The existing system at this stage is efficient. Therefore, intervention by the government (public agencies) is not necessary.
- 2) The cooperation of the wholesalers in consumption areas is indispensable in order for AFA to become active in fish sales. However, in order to get this cooperation, the AFA should guarantee the quality, volume, and price anticipated by the dealers.

IMPLEMENTATION OF IMPROVEMENTS IN FMDS AT THE STAGE OF WHOLESALE MARKETS IN CONSUMPTION AREAS

Content of Improvement Proposals	National Level		Regional Level	
	Public/Private		Public/Private	
1. Fish Marketing System				
Promote a reliable relationship between wholesalers in consumption market and the AFA	x	o	x	o
2. Fish Marketing System				
Construct/renovate consumption area wholesale markets	x	o	o	o
3. Institution and Organization				
1) Designation/licensing to consumption area wholesale markets	p	x	o	x
2) Reinforce information network with consumption area wholesale markets to support AFA fish sales activities	x	o	x	o
3) Reinforce LKIM/KO-NELAYAN monitoring functions of fish marketing information	o	p	p	o

Note 1: Implementation of each proposal is classified into national, regional, public and private sectors and the degree of implementation in each sector is: o = active participation; p = partial participation x = no participation

Note 2: Implementation on a national public level involves MOA/DOF/LKIM/KO-NELAYAN/BPM; implementation at a regional public level involves the regional autonomous bodies; implementation at a private level involves the FA and dealers.

7. ALTERNATIVES FOR FMDS IMPROVEMENT AT THE AREA LEVEL

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7.1 West Coast of Peninsular Malaysia

7.1.1 Model Area in Kedah State

(1) Concentration of Fish Landing at the Complex

The west coast of Peninsular Malaysia whose fish resources are limited, has not been able to evolve into an offshore fishing centre. Therefore, a major issue is to maintain existing levels of fish catch while controlling fish resources.

Fishing boats which operate outside the Kuala Kedah area, fish in fishing grounds near their landing site. It is unlikely that these boats will land their fish catch at the LKIM complex in the future. The potentialities of developing new fishing grounds are low in this area due to limited fish resources. Consequently, these fishing boats are not expected to transfer in great numbers to the Kuala Kedah area. Therefore, the LKIM complex will only service the Kuala Kedah area. The possibility of transferring fishing boats currently using the private jetties in Kuala Kedah, to the LKIM complex should be considered. As shown in Table 4.6.3, the jetty currently will be able to accommodate up to 8,880 tons of fish landing volume. In addition to sorting fish on board the boats before arriving at the complex, it is necessary to institute services such as a credit system for fishermen, quick paperwork procedures and other efficient operating measures which will make the complex attractive to its users. Unfortunately, expanding the jetty and concentrating fish landing at the complex is not feasible since construction costs cannot be met with the benefit borne by the extension of jetty in viewpoint of the fish resource condition. Therefore, it is inappropriate in terms of national economy (Appendix 7.1).

(2) Fish Marketing Facilities, their Operation and Management

1) Facilities

a) Fish landing stage

- To implement systematic sorting and grading of fish on board the fishing boat before entry into the port

- To enlarge and extend the fueling pump

- To expand the fish landing and supply jetties

This idea is not considered appropriate from a national economic viewpoint. Therefore, the jetty will not be expanded.

- To provide an anchorage for fishing boats

Present conditions will be continued.

b) Production area wholesale market stage

- To introduce fork-lifts

- Ice plant facilities

The capacity of the existing ice plant in the model area of Kedah is 120 tons per day. The shortage is compensated by ice brought in from Perak state and the demand is fulfilled at present. The increase in the volume of ice in future for use on board the fishing boats, will be left to the construction of private plants to fulfill.

- Enlargement of auction halls will not be carried out.

c) Fish storage, processing, and transport stage

There are currently three, large fish meal plants in the model area (Kuala Kedah), one medium capacity freezing and processing plant (Kuala Kedah), and one medium capacity processing plant for salted and smoked fish (Kuala Mudah). However, they are having a shortage of raw materials. Plans to construct new plants are inconceivable since fish catch volume is not expected to increase in future.

2) Operation of the facilities

The privatization and localization of LKIM complexes will be accelerated by gradually transferring a segment of the LKIM operations to local government bodies or AFA, etc.

(3) Quality Control

In both the LKIM complexes and the private jetties temperature control of fish before fish landing should be reinforced, in order to ensure freshness of fish. The following alternatives are proposed to achieve the objective.

Alternative 1 : to increase the volume of ice used.

Alternative 2 : to introduce fishing boats with cold storage facilities.

Alternative 3 : to promote the use of inexpensive ice boxes.

(4) Marketing Structure

- 1) FMR has designated Kuala Kedah LKIM complex as production area market and the Alor Setar wholesale market as a consumption area market. With regard to private jetties, it is not feasible from national economic viewpoint, to completely remove the private jetties and to establish the LKIM complex as the only production area market (proposal by the city authority). There are two alternatives to this issue.

Alternative 1 : to consolidate all the functions of private jetties into one designated production area wholesale market, excluding the LKIM complex.

Alternative 2 : to divide and designate the private jetties which are connected for about 500 m along the river into about five groups (the existing designated jetty will be the core), and together with the LKIM complex, a production area market comprising around six groups will be formed.

Changes are not necessary in the operation of Alor Setar wholesale market as a consumer area market.

(5) Fishermen's Associations

- 1) Improvement of existing economic activities

The economic condition of each FA in Kedah state is comparatively good (with the exception of Yan AFA). The FA are involved in a variety of economic activities. However, the utilization rate of these activities by its members is low. It is necessary to introduce

combined improvements such as national credit system, education of AFA management personnel and its members, etc.

Moreover, a contract should be signed between the AFA and its members to permit the AFA to sell their fish at the auction, etc. In terms of marketing, the structure of the auction will be strengthened only for locally consumed fish.

2) Expansion of economic activities

In order to increase the utilization rate of existing economic activities and to improve their financial conditions, it is necessary to reinforce the supporting structure by improving the institutional and operational structure. New economic activities are encouraged to establish a AFA economic base.

a) SFA activities

- AFA can invest jointly in the new business activities initiated by the SFA, and AFA receives payment in kind from SFA.
- New fish market outlets such as public institutions (dormitory schools, hospitals, prisons, etc.), city zone and tourist resort will be developed, and each AFA receives a profit by providing the fish to SFA.

b) AFA Activities

- It is desirable that all marine fishing activities of SFA and NFA are left to the AFA. Consequently, large fishing boats which are currently owned by SFA should transfer its management and operation to the AFA in the model area after the loans for the boats have been fully paid.

Moreover, sharing the capital by the NFA, SFA, AFA and expanding financial support by the government for fishing operations using large boats by the AFA should be strengthen until AFA's economic base is good.

- In addition, daily commodities will be sold by the AFA. These goods will be purchased through the NFA, SFA, and AFA which will enable them to purchase the goods in large volumes according to the needs of the members.

7.1.2 Model Area in Perak State

Although Lumut is a model area, it is most likely continue to remain as a transit point for fish, since the owners of the private jetties and processing plants on Pangkor Island have no desire to land their fish catch or to move from their present location to Lumut. An important issue is to ensure that the transit commissions collected by the complex, does not become a financially burdensome for the private traders.

7.2 East Coast of Peninsular Malaysia

7.2.1 Model Area in Terengganu State

(1) Concentration of Fish Landing at the Complex

- 1) This area will be the focus for improvements in offshore fishing.
- 2) The functions of the Chendering fishing port will be developed as the centre for offshore fishing (to concentrate functions as an offshore fishing centre for the east coast of the peninsula by accommodating large fishing boats from other area).
- 3) The functions of the other two areas (Kuala Besut and Pulau Kambing) will be organized to complement the fishing structure in these areas (particularly, to reorganize their functions as a fishing port for small and medium fishing boats).

(2) Fish Marketing Facilities, their Operation and Management

1) Facilities

a) Fish landing stage

- To Implement systematic sorting and grading of fish on board the boat before entry into the port.
- To enlarge the refueling pumps.
- To expand the fish landing and supply jetties

Kuala Besut: There is no necessity to expand the fish landing jetty. However, it is necessary to renovate the old, wooden supply jetty.

Pulau Kambing: Under construction for expansion (no need to expand further)

Chendering: There is no necessity for expansion. However, existing fueling facilities should be moved close to the ice plant so that ice can be loaded and the boat refueled at the same time.

- Anchorage for fishing boats

Existing conditions will be maintained at all three complexes.

b) Production area wholesale markets

- Fork-lifts

Fork lifts will be introduced at Pulau Kambing.

- Expansion of the auction halls

Kuala Besut: There is no need to expand.

Pulau Kambing: A steel and concrete one story building is under construction above the wharf.

Chendering: There is no need to expand.

- Ice plant facilities

The capacity of the existing ice plant in Terengganu state is 432 tons per day. In the Kuala Besut area, there is a shortage of ice. The demand for ice in 1989 at the Kuala Besut complex was 9,219 tons and the ice supplied from other areas (Kota Bahru and Thailand), excluding Chendering, was 6,050 tons. The capacity of the ice plant in Chendering was 200 tons per day which was only 45 percent of its operational ratio in 1989. Therefore, it is not necessary to construct new facilities since the shortage of ice can be supplied from Chendering in the future. Moreover, the number of fishing boats which will increase in future will be mainly boats with refrigeration facilities involved in offshore fisheries. The demand in ice is anticipated to increase only at the marketing level and this issue will be left to private investors to resolve.

c) Fish storage, processing, and transport

- Fish processing facilities.

Kuala Besut: There is a freezing and processing plant under construction within the complex. It is not necessary to install other facilities.

Pulau Kambing: It is impossible to construct additional facilities since there is no available land in the lot behind or within the complex.

Chendering: A plant for freezing and processing of surumi (for fish balls and fish crackers) is presently under construction. Additional facilities are not needed. In addition, unused land is not available within the confines of the complex or in the back lot to construct a new processing complex.

2) Operation of the facilities

The privatization and localization of each organization will be accelerated by gradually transferring a segment of the LKIM operations to the fishermen associations, etc.

(3) Quality Control

Maintaining low temperature of the fish from the time of catch to landing is good. However, the freshness of fish drops conspicuously at the market or during transport to the retail markets. Thus the following alternatives can be considered to improve this situation.

Alternative 1 : To increase the volume of ice used during transport.

Alternative 2 : To promote the use of insulated containers.

(4) Marketing Structure

The LKIM complexes at Kuala Besut, Pulau Kambing, and Chendering function as a production area market. The LKIM complex at Pulau Kambing has a function of wholesale market for the state capital, Kuala Terengganu. Subsequently, it is congested because the market is constantly deluged by retailers. LKIM is renovating the Pulau Kambing complex. Some of its function as a base for large fishing boats should

be transferred to Chendering. When this transfer takes place, the function of a production area market will increase at the Chendering LKIM complex and decrease at Pulau Kambing. As a result, Pulau Kambing will effectively function as a consumer area wholesale market in the vicinity of Kuala Terengganu.

(5) Fishermen Association

1) Improvement of existing economic activities

The economic activities of the AFAs in Terengganu state are comparatively versatile. However, the utilization rate of its members is low. In fact, it has the lowest utilization rate of all the AFA's in the model areas of Peninsular Malaysia. The finances of the association are also weak. Therefore, an important objective of this area will be to increase the utilization rate of its existing business activities.

Improvements in the utilization rate of its members can be accomplished by combined improvements such as the introduction of a national credit system, the education of the AFA management personnel and members, etc.

Moreover, a contract should be signed between the AFA and its members to permit the AFA to sell members' fish catch. In terms of marketing, the structure of the auction should be strengthened for fish consumed locally.

2) Expansion of economic activities

a) SFA activities

- The NFA ice plant at the Chendering complex should be transferred to SFA management, as a new business activity for SFA.
- Furthermore, new market outlets such as public institutions (schools, hospitals, prisons, etc.), city area, tourist resorts will be developed. Operation of the fish processing plant currently under construction at the Kuala Besut and Chendering complexes will be transferred to the SFA from LKIM and NFA. Capital will be invested by both the SFA and the AFA, and each AFA will distribute and supply the raw materials which will be another

source of revenue for the AFA. However, if it is possible to procure well a experienced staff or a management, it is better to lease the facilities to private sector.

b) AFA Activities

- Fishing operations by AFA using large boats will be effective in improving the financial base of the association due to good fishing grounds in the Terengganu area. The capital for building fishing boats will be divided among the NFA, SFA, and AFA, subsidized by government funds, or financed by BPM.
- AFA will participate in management operations of SFA ice plants, processing, etc. by sharing the capital.
- In addition, daily commodities and fishing equipment will be sold by AFA. These goods will be purchased through the route of the NFA-SFA-AFA in large volumes, according to the needs of the members.

7.2.2 Model Area in Pahang State

The model area of this state is Kuantan.

(1) Concentration of Fish Landing to the Complex

Currently, a complex is under construction to accommodate all the fishing boats in the area after the private jetties located along the rivers are demolished. However, as shown in Table 4.6.3, the fish landing volume of the nearby private jetties (along the rivers) has already exceeded the estimated volume; and the capacity of the complex is insufficient. In addition, if the private jetties are demolished, it is necessary to secure mooring space other than the wharf. The construction of office facilities for local wholesalers who have been using the private jetties is planned, but the number of offices is inadequate to accommodate most of the wholesalers.

(2) Fish Marketing Facilities

a) Fish landing stage

- To implement systematic sorting of fish on board the boat

before its entry into the port

- To enlarge and increase the refueling pump
- To expand the fish landing and supply jetties

b) Anchorage for fishing boats

It would be necessary to move the fishing villages and secure anchorage for fishing boats upstream or to plan and implement in the vicinity of the complex on the Kuantan River when the private jetties are demolished.

c) Production area wholesale markets

- Expansion of unloading areas
- Ice plant facilities

The production of existing private ice plant facilities in Kuantan is 170 tons per day and it sufficiently fulfills the current demand. It is believed that with future increase in fishing boats, the demand for ice will grow. However, this issue will be left to private investors to resolve.

d) Fish storage, processing, and transport

The production volume of fish balls and fish crackers in Pahang state is small and is still a cottage industry. A plant will be constructed for frozen fish products (surumi, fish balls) in order to promote export and high quality products.

Product: Surumi, fish balls

Raw materials: Threadfin bream (some roundscads)

The details and the feasibility of this plan are given in Appendix 7.4.

7.2.3 Model Area in Johor State

(1) Concentration of Fish Landing to the Complex

a) Endau

This area has developed as a base for offshore fisheries due to its close proximity to large city consumption areas such as Johor Bahru

and Singapore. The private jetties is currently over-crowded with fishing boats and it is difficult for them to accommodate the large fishing boats which will increase with future development of offshore fisheries. The present complex is old, its capacity is small, and it is impossible to expand the facility due to unavailable land space. Therefore, it is necessary to transfer to the vicinity and expand the complex in order to accommodate the increased number of fishing boats. It is estimated that the anticipated increased production volume will cover a portion of the construction costs (Appendix 7.2). However, it is vital that measures are taken to make the complex more attractive to fishermen by introducing a credit system, and sorting fish on board the boat before arrival at the complex, etc.

b) Mersing

Mersing will remain largely as a base for small and medium fishing boats; and the number of fishing boats is not expected to increase overall due to the narrow width of the river and the shallow river mouth. It will be difficult to transfer all the fishing boats utilizing the private jetties to the complex, since there is very small space to expand or no suitable location to transfer to. Therefore, in order to increase use of current complex facilities, it is necessary to make the complex more attractive to fishermen by introducing a credit system, and sorting fish on board the boat before arrival at the complex, etc.

c) Kuala Sedili

This complex is mainly utilized by small and medium fishing boats. Although its facilities are adequate to accommodate all the fishing boats in that area (river), it is necessary to make the complex more attractive to fishermen by introducing a credit system, and sorting fish on board the boat before arrival at the complex, etc. in order to transfer and concentrate the fishing boats utilizing the private jetties to the complex.

(2) Fish Marketing Facilities, their Operation and Management

1) Facilities

a) Fish landing stage

- To implement sorting and grading of fish on board the fishing boat before entry into the port.

- To enlarge the fueling pump
- Fish landing and supply jetties
 - Endau: Expand the jetty and install cranes
 - Mersing: Expand the jetty and install cranes. Although there is a little room to physically expand the jetty, fishing boats which cannot be accommodated at the complex will utilize the private jetty.
 - Kuala Sedili: There is no need to expand the jetty. However an access jetty will be built and cranes installed.

- Anchorage for fishing boats
 - Endau: Secure and provide anchorage for increasing large fishing boats
 - Mersing: No changes are necessary.
 - Kuala Sedili: No changes are necessary.

b) Production area wholesale market

- Fork-lifts for the loading and unloading
 - Endau: Fork lifts will be installed.

- Auction halls

- Endau: Construct steel concrete one story building
- Mersing: Expand steel concrete one story building
- Kuala Sedili: There is no need to expand.

- Secondary facilities

- Endau: Administrative office, canteen, traders office, public toilet, guardhouse, electric, water, and sewage facilities, oil tank and oil supply facilities
- Mersing: Increase auction halls

- Ice plant facilities

The capacity of the existing ice plant in east Johor state is 186 tons per day and it is sufficient to fulfill the ice demand of the model area. In future, with an increase in the number of large fishing boats engaged in offshore fishing equipped with refrigeration facilities, the demand in ice at the marketing stage is expected to grow. However, this will be resolved by the private sector.

c) Fish storage, processing, and transport

The Endau complex will be utilized not only as a production base for offshore fisheries, but will be given the function of a marketing and processing complex. In addition to modernizing the existing, private processing plant (freezing, ground fish), a new freezing/processing plant (for export purposes) and ground fish processing plant (surumi for export and fish balls for domestic consumption) will be constructed. Terminal for trucks will be introduced so that the complex can also function as a collection centre for marketing and transport.

Freezing/processing

Product: frozen squid

Production capacity: about 5 tons/16 hours

Ground fish processing

Product: surumi, fish balls

Production capacity: about 2 tons per day

The details and feasibility of the aforementioned processing plants are given in Appendices 7.3 and 7.4.

2) Operation of facilities

A part of facility operations will be gradually transferred from LKIM management to local government bodies and AFAs.

(3) Quality Control

The following alternatives have been considered to maintain low temperature control of the fish catch on small fishing boats engaged in coastal fisheries.

Alternative 1 : To increase the volume of ice used

Alternative 2 : To introduce small refrigeration equipment

Alternative 3 : To promote the use of cheap insulation boxes

(4) Marketing Structure

If the Johor Bahru Wholesale Market is transferred and expanded

(according to city authorities), problems in allocation of functions will no longer exist, therefore no new proposals are given.

(5) Fishermen Associations

1) Improvement of existing business activities

The economic condition of the AFAs in Johor state, with the exception of the Endau AFA, is not good. Economic activities are still limited. Therefore, the first objective is to stimulate economic activities by introducing new business enterprises such as the sale of fish, ice, etc. to the AFA's which have not begun such activities yet.

Moreover, it is necessary for the AFA and its members to sign a contract on the sale of members' fish catch. The structure of the fish auction should be strengthened for locally consumed fish.

a) SFA Activities

It is recommended that new market outlets such as public institutions (schools, hospitals, prisons, etc.), city area, restaurants at tourist resort are developed. Since Johor Bahru is a big city and tourist spot, it is advantageous for SFA to manage restaurants.

Investment capital will be shared by both the SFA and the AFA; the AFA will operate the enterprise and individual AFAs will distribute and supply the raw materials which will be another source of revenue for the AFA.

b) AFA Activities

- It is anticipated that fishing operations by AFA using large boats will be effective in improving the financial base of the association due to good fishing grounds in the East Johor area. The capital for building fishing boats will be divided among the NFA, SFA, and AFA, subsidized by government funds, or financed by BPM.
- In addition, the possibility of purchasing daily commodities and fishing gear through the NFA/SFA by AFA should be introduced in consideration of the needs of the members.

7.3 Model Area in Sarawak and Sabah States

7.3.1 Model Area in Sarawak State

(1) Concentration of Fish Landing to the Complex

In future a shortage in fish supply is anticipated on the west coast of Peninsular Malaysia and development of highly potential offshore fishing grounds in Sarawak is expected to fulfill this shortage. It is desirable that large fishing boats expand their use of Bintawa as one of the fish supply base for Peninsular Malaysia. However, its fish landing facilities are adequate and no expansion is necessary (Table 4.6.4).

(2) Facilities and its Operation

1) Fish marketing facilities

a) Fish landing stage

- To implement systematized sorting of fish on board the fishing boat before entry into the port

b) Production area wholesale market

- To expand auction hall
steel concrete one story building

The area of the auction halls is limited. Of the total fish landing volume of 32,700 tons, 25,000 tons can be handled at the hall. The remaining 7,700 tons will be directly sent to the processing plant behind the complex.

- Ice plant

The total daily production volume of the LKIM ice plant and the private ice plant in Kuching is 100 tons. This volume satisfies current demand. In future the number of large fishing boats engaged in offshore fisheries, equipped with refrigeration facilities are expected to increase and demand in ice at the marketing stage is expected to grow. This issue will be left to the private sector to resolve.

c) Storage, processing, and transport of fish

- Fish processing facilities

A freezing/processing plant is necessary for this complex to function as a supply base of fish from Sarawak to Peninsular Malaysia. However, this is financially viable only in the case of high grade fish. A shortage of fish on Peninsular Malaysia is expected in the future and when the fish price of ordinary fish rises, the installation of a freezing/processing plant for ordinary fish may be feasible at that time. Hence a freezing and processing plant for high grade fish will be installed first and expanded in future for ordinary fish (Appendix 7.5).

- Long distance transport system of fish

In order to transport fish to Peninsular Malaysia and Singapore, an increase in cold storage containers and upgrading transport ability of cargo ships should be planned.

(2) Operation of the Facilities

A part of facility operation will be gradually transferred from LKIM management to local government bodies and FAs.

(3) Quality Control

Due to inadequate temperature control and handling of fish after catching, deterioration in quality is especially conspicuous. The following alternatives have been given:

Alternative 1 : To provide education and guidance on fish handling from catch to the market.

Alternative 2 : To increase the volume of the ice used.

(4) Marketing Structure

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

The consumption area wholesale market in Kuching is operating in the vicinity of both the new and old retail market and it is not necessary to create a consumption wholesale market.

(5) Fishermen Association

The SFA and the AFA have been established in Sarawak state; however, they are not active. There is a SFA in the model area of Kuching, but no AFA. Consequently, the SFA will take the lead in promoting economic activities for the present time.

1) Expansion of SFA economic activities

An important new activity for the SFA in Sarawak is to offer economic guidance and to share in capital investment of AFA activities within the state.

2) New markets will be developed in major cities, tourist areas, and restaurants. In particular, Kuching, the capital of Sarawak, has many tourists. Managing restaurants in tourist areas will generate stable revenue for the SFA.

3) Within the model area, the SFA is currently in charge of supplying fish to public institutions. However, AFA should supply fish to SFA in order to help improve their own financial condition.

4) The SFA should manage fish processing in viewpoint of effective collection of raw materials. A contract should be signed with the AFA to supply the SFA with raw material, thereby contributing to improvements in their financial condition.

5) In addition, daily commodities and fishing gear will be purchased through the NFA/SPA by AFA. However, purchases will be carried out in consideration of their members' needs.

6) Improvement of AFA business activities

At present, the AFA is not active; therefore, the focus will be shifted on reinforcing the use of the complex by large fishing boats. A major part of the strategy will be to improve fishermen income rather than to improve AFA fish marketing.

7.3.2 Model Area in Sabah State

(1) Fish Marketing Facilities, its operation and management

1) KO-NELAYAN complex

a) Lahad Datu

- Increasing ice plant facilities

There is a shortage of ice in Lahad Datu. However, there is an ice plant at each location in Semporna, Tawau and Kunak and especially Tawau has surplus ice. In studying the supply and demand of ice of these four areas, a balance is maintained at present. The shortage of ice in Lahad Datu can be met from Tawau. The details are given in Appendix 7.6.

- Effective use of unused facilities (freezer/refrigerator)

The supply of raw materials for freezing/processing is not sufficient. Furthermore, since there is a similar processing plant at both Semporna and Tawau, there is competition to secure raw materials and it is difficult to operate the facilities at a profit. Therefore, the unused facilities will be transferred to the SAFMA plant in Labuan Island or the new market centres in other areas.

- Operation of the facilities

Management of the facilities will be transferred to regional autonomous bodies or the fishermen associations to promote privatization.

b) Keninngau

The deterioration in fish product quality is conspicuous at the retail markets and it is necessary to increase the volume of ice used. Therefore, it is possible to utilize the unused refrigerator for ice storage. It is also possible to move these facilities to a new marketing centre in other areas since Keninngau is not functioning as a fish marketing centre.

2) KO-NELAYAN subsidiaries

a) SAFMA Kota Kinabalu

A future shortage of fish will become acute in Sabah state and in order to overcome this problem, it should function as an

offshore fishing base and accommodate as many fishing boats as possible including fishing boats which are not contracted with SAFMA. The facility must also take on the function of a production area wholesale market. The SAFMA complex is now utilized only by the fishing boats which contracted with SAFMA for fish sales, and other fishing boats are landing their catches in neighboring wharf. By designating this complex as a production area wholesale market through promoting these fishing boats to use the complex, it will be possible to have SAFMA facilities function as a public facility.

The following alternatives have been presented for these purposes.

Alternative 1: SAFMA will continue to process fish for export. The facilities will be opened to traders or AFA for fresh fish for domestic market. SAFMA will be involved only in management of the facility and will collect commission fees for the use of the facilities.

Alternative 2: SAFMA will not participate any fish marketing and lease or transfer the facilities to private sector (fishermen or fish trader). SAFMA will only supervise or manage the complex

b) SAFMA Labuan

In comparing SAFMA Labuan with SAFMA Kota Kinabalu, the Labuan complex is geographically at a disadvantage as a fishing base for supplying fish to Sabah state.

The total fish landing volume in 1989 was 7,300 tons and of this volume 80 percent was landed by medium and large fishing boats engaged in offshore fishing at Labuan (both contracted and uncontracted boats). Much of this volume was exported to Singapore, Brunei and Japan. The major fish species were shrimp, squid, spanish mackerel, tuna. Whereas the small fishing boats landed their fish catch at the wharf in front of the retailers market. Much of this fish catch was exported to Brunei in small cargo ships. The fish landing volume has increased over the past few years and during the peak fishing season, there is an oversupply of fresh fish which is sold as raw material for fish meal. The freezing and refrigeration facilities of SAFMA are old and are not functioning effectively for processing and storage of export fish and should be renovated immediately.

The following alternatives have been given for management of the facilities after renovation of freezing, cold storage, and fish landing facilities.

Alternative 1: SAFMA will manage all the facilities and will carry out handling, processing, and export of fish as it has in the past. A fee will be collected for the use of fish landing facilities, and commissions from the private sector (fishermen or traders) for use of freezer and cold storage facilities will be taken and processing and storage will be carried out by SAFMA.

Alternative 2: SAFMA will not interfere in fish handling. The facilities will be leased to the private sector (fishermen or traders) and will conduct only management and supervision of the complex.

c) ANGKASA and KO-NELAYAN complexes in Kudat

The quality of the fish landed at the ANGKASA and KO-NELAYAN complexes is very good. Therefore the freezing/processing of threadfin bream and spanish mackerel will be developed for export to Singapore and Australia. Unused facilities will be utilized through these activities.

(3) Quality Control

- 1) Kota Kinabalu: Temperature control of fish harvested is good.
- 2) Kenningau: It is necessary to increase the volume of ice used, as deterioration in quality is conspicuous since a long period of time has elapsed after arrival at the retail market.

(4) Marketing Structure

There are no wholesale markets in both the consumption and production areas. In Kota Kinabalu, fish transactions which are held in a vacant lot near the small retail market fulfills both functions (of wholesale market). When landing volume increases through the development of offshore fishery in future, construction of wholesale market will be required. The wholesale markets in the interior area

are not needed. Fish is fairly distributed due to the strong influence of the wholesaler who handles the fish after landing. With the exception of exported fish, there is almost no fish flow transacted between Kota Kinabalu (on the South China Sea of the mountain range) and Sandakan (on the Sulu and Celebes Seas). Sabah does not need to establish consumption area markets.

(5) Fishermen Associations

There is no AFA in Sabah state at present. However, there are currently plans to establish AFA under the guidance of KO-NELAYAN. It is desirable that FA is established incorporating the FA experience and system in Peninsular Malaysia.

7.4 The Wholesale Market in Consumption Area/Import Point

With the exception of the two distribution points, all other consumption wholesale markets and other fish distribution points have been developed or are in the planning stage for new facilities or to be transferred. There are no problems.

7.5 Alternatives for Fish Quality Control System

Currently, tests on fish are very rarely conducted, and about only one percent of the cooked and peeled prawn earmarked for export is tested. Although Malaysia has established domestic testing standards for fish, they are never enforced due to lack of inspection system. This is due to the fact that the testing agency and the agency which issues approval are not incorporated into one body and the awareness for high quality domestic fish is low.

Furthermore, the LKIM which is responsible for issuing import/export licenses rely on other agency to check the quality and sanitary condition of fish and is unable conduct adequate inspection itself.

In future, in order to expand fish export volume, establishment of an inspection system which guarantees high quality and hygienic standards is desirable. Furthermore, it is necessary to conduct an inspection at the

import and marketing points to promote quality domestic products.

For the purpose of the above, it is necessary that the agency responsible for issuing licenses should have an inspection center and related fishery research centres should be reinforced. In order to accomplish this, an inspection centre should be established or the existing facility upgraded at the following places.

As marketing centre, Peninsular Malaysia:

Kuala Lumpur wholesale market and Johor Bahru wholesale market

As import point, Peninsular Malaysia: Bukit Kayu Hitam, Pengkalan Kubor

As export point, Peninsular Malaysia: Penang port

As marketing centre, Sarawak: Kuching LKIM state office

As export/marketing centre, Sabah: Kota Kinabalu and DOF testing centre

The headquarters for these inspection centres will be established in Kuala Lumpur. The functions of the inspection centres for either long-term or short-term maintenance are as follows:

(1) Functions at the Time of Establishment

- Inspection to determine if the product will pass export and domestic standards
- Inspection at import points
- Monitoring domestic product quality
- Inspection to see if issuance should be withdrawn

(2) Functions for the long-term

- Training in processing technology and management control of processing
- Research and development of new products
- Environmental research and countermeasures on fishing grounds

The following functions should be established at each site

1) Headquarters (Kuala Lumpur)

It will be a quality control information centre.

2) Central inspection centre (Kuala Lumpur)

It will have the capacity to conduct quality control, and chemical tests for Peninsular Malaysia and Sarawak

3) Regional centres (Bukit Kayu Hitam, Penang port, Pengkalan Kubor, and Johor Bahru)

These regional centres will have the capacity to conduct bacteriological tests and quality control test.

4) Sarawak inspection centre (Kuching)

This centre will conduct bacteriological tests, quality control test, and chemical tests.

5) Sabah inspection centre (Kota Kinabalu)

This centre will conduct bacteriological tests, quality control tests, and chemical tests.

(3) Inspection Items

1) Food additive: anti-oxidizer, coloring, emulsifier, preservatives, spices

2) Toxic residues: pesticides, pollutants, natural poisons

3) Sanitary standards: MAB, Coliform, Vibrio, etc.

8. CONCLUSION AND RECOMMENDATION

8. CONCLUSION AND RECOMMENDATION

Considering the improvement of the fish marketing system of Malaysia in the production and consumption stages, as a rule in the consumption areas, the fish marketing should be left to the private sector and local authorities, while in the production areas the public agencies should concentrate their efforts on FMDS improvement.

In particular, public agencies such as LKIM, KO-NELAYAN should place priority on improvements in the areas surrounding the South China Sea and should carry out renovations to build up the area as a fish distribution base, reinforce the economic and credit operations of the AFA, and encourage eventual privatization and localization of the distribution operations in this region.

Consequently, the role of public agencies is to support the privatization and localization of the operations. They will remain only in the capacity as the main office and will gradually withdraw from management of the complexes at the site and at local levels.

In order to strengthen economic and credit activities of AFA, a strong support system by public agencies such as LKIM, BPM, and regional governments must be established. Simultaneously, it is essential that a fish distribution system suited to both the AFA and the consumption area wholesalers with access to information of both sides, is set up through intermittent talks with the wholesalers who will be purchasing the fish.

In particular, if future possibilities of a shortage in fish supply is overlooked, as shown in the study of the east coast of Johor state, it is possible that fishermen will be placed in a more advantageous position than the fish distributors due to sellers' market. It is with this possibility in mind, that talks with the wholesalers on the active participation of fishermen in the FMDS is proposed. Through this dialogue, information which will be exchanged by both parties should be confirmed. For this purpose, an experimental pilot project should be created and carried out to 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 reasons given below.

- 1) It faces the South China Sea which has high development potential of fish resources.
- 2) Competition between the public complexes and private jetties in fish landings and supply of diesel oil and ice is conspicuous. Therefore, it is an ideal site to develop methods of concentrating the functions of fish landing in the model area and increase the utilization rate of the public complex.
- 3) Johor Bahru, the consumption area wholesale market for domestic fish, is located nearby. Furthermore, Singapore, an export market as well as the transfer point for fish export to other foreign countries, is also located in the vicinity. Moreover, there are no access impediments to the large consumption area markets in Kuala Lumpur and the west coast of Peninsular Malaysia. Therefore, it is an ideal site to renovate into an integrated fish marketing base (with all the functions necessary for expanded fishing operations, efficiency, quality control, storage, processing, transport, etc.).
- 4) Conditions advantageous for fishermen can be seen here and credit ties to the wholesalers are relatively mild. Consequently, in addition to reinforcing AFA credit activities, it will be easier to institute AFA consignment and sales of fishermen's catch.
- 5) There is no impediment to maintaining close communications with the headquarters of government institutions affiliated with fish distribution such as MOA, DOF, LKIM, BPM, etc., located in Kuala Lumpur. The various methods in operation, maintenance, and management of a distribution facility which will evolve from this pilot project, can be diffused easily to other model areas from this site.

The facilities of the pilot project will include the LKIM complex in Endau in east Johor state to be relocated to a suitable site in the vicinity and expanded. An experimental plant with freezing, refrigeration, processing, and quality control functions will be installed as a model for the fish distribution processing base which will be set up at the three complexes; Endau, Mersing, and Kuala Sedili. In addition to this, a fish distribution and processing complex with the objective of developing the

fish export market, will be built on a commercial basis in the back-up provided by the state government.

Technology transfer from abroad will include dispatch of foreign experts and participation of Malaysian personnel abroad in comprehensive training programmes. Experts and training programmes will be in the areas 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.

ANNEX

ANNEX-1 LIST OF PERSONS INVOLVED

Name	Speciality	Position/Office
1.1 Government of Japan		
(1) Advisory Committee		
1) Ryuichi Tanabe	Chairman	Executive Director, Japan Marine Products Importers Association
2) Katsuji Hiroyoshi	Member	Assistant Professor of Economics, Tokyo University of Fisheries
3) Junji Tanaka	Member	Assistant Director, Planning Division, Fishing Port Dept., Fishery Agency
4) Atsushi Takei	Member	Assistant Director, Office of the Overseas Fishery Cooperation, International Affairs Division, Fishery Agency
(2) Study Team		
1) Tateo Kusano	Team Leader	System Science Consultants Inc.
2) Shigeru Iwasaki	Fish Marketing Planner	System Science Consultants Inc.
3) Nobuo Tsuchihashi	Marketing Institutional Expert	System Science Consultants Inc.
4) Teruo Yabana	Market Facility Planner	System Science Consultants Inc.
5) Sakae Negishi	Fish Quality Control Expert	System Science Consultants Inc.
6) Tamio Akaoka	Fisheries Expert (Resources)	System Science Consultants Inc.
7) Akira Imai	Fisheries Expert (Production)	System Science Consultants Inc.
8) Takashi Morimoto	Fisheries Cooperative Expert	System Science Consultants Inc.
9) Allahpichay Ibrahim	Fisheries Economist	System Science Consultants Inc.

Name	Speciality	Position/Office
1.2 Government of Malaysia		
(1) Counterpart Personnel		
<u>MOA</u>		
1) Zulkifli A. Hassan	Counterpart Leader	Assistant Chief Secretary (Commodity) MOA
2) Mohd. Tamin Yusof	Co-counterpart Leader (on matters relating to Government policy and strategies)	Deputy Assistant Chief Secretary (Commodity), MOA
<u>LKIM</u>		
3) Ang Saw Aim	Fish marketing planning	Deputy Director, Marketing Division
4) Abdul Rahim Mustafa	Fish marketing planning	Development Officer, Marketing Division
5) Mohd. Firdawos Shaharuddin	Marketing facility planning	Development Officer, Marketing Division
6) Noor Madiah bt. Zulkifli	Fishery economics	Development Officer, Marketing Division
7) Hamidi Hassan	Fisheries institution	Assistant Development Officer, Fishermen Community Development Division
8) Johar Waman	Fisheries institution	Assistant Development Officer, Fishermen Community Development Division
9) Halinah bt. Mohd Zain	Fish quality control	Development Officer, Marketing Division
<u>DOF</u>		
10) Kamaruzaman Hj. Salim	Fishery production, Fish resource, policy and strategies of DOF	

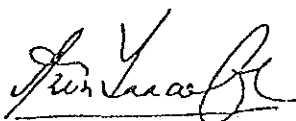
Name	Position/Office
(2) Steering Committee	
1) Abdul Aziz Mohd. Yaacob Chairman	EPU
2) Kamariah bt. Ramli	EPU
3) Wan Norma bt. Wan Daud	EPU
4) Zulkifli A. Hassan	MOA
5) Mohd. Tamin b. Mohd. Yusof	MOA
6) Hj. Mohd. Idrus Hj. Zainuddin	LKIM
7) Ang Saw Aim	LKIM
8) Rabihah bt. Mahmood	DOF
(3) Technical Committee	
1) Dato. Abdul Kudus Ahmad Chairman	MOA
2) Zulkifli A. Hassan	MOA
3) Mohd. Tamin b. Mohd. Yusof	MOA
4) Hj. Mohd. Idrus Hj. Zainuddin	LKIM
5) Ang Saw Aim	LKIM
6) Abdul Rahim Mustafa	LKIM
7) Kamaruzzaman Hj. Salim	DOF
8) Serifah Habibah bt. Abd. Majid	MOA

ANNEX-2 SCOPE OF WORK

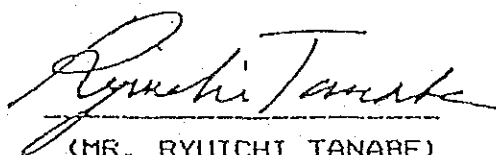
SCOPE OF WORK
FOR
THE STUDY
OF
FISH MARKETING AND DISTRIBUTION SYSTEM
IN
MALAYSIA

AGREED UPON BETWEEN
THE ECONOMIC PLANNING UNIT
OF
THE PRIME MINISTER'S DEPARTMENT
ON BEHALF OF
GOVERNMENT OF MALAYSIA
AND
THE JAPAN INTERNATIONAL COOPERATION AGENCY

Kuala Lumpur
26 July, 1989.



(MR. ABDUL AZIZ MOHD. YAACOB)
for Director General,
Prime Minister's Department,
on behalf of
The Government of Malaysia.



(MR. RYUICHI TANABE)
on behalf of
Japan International
Cooperation Agency

I. INTRODUCTION

In response to the request of the Government of Malaysia, the Government of Japan has decided to conduct the Study on Fish Marketing and Distribution System (hereinafter referred to as "the Study"), and in accordance with the relevant laws and regulations in force in Japan, the Japan International Cooperation Agency (hereinafter referred to as "JICA"), the official agency responsible for the implementation of the technical cooperation programmes of the Government of Japan, will undertake the Study, in close cooperation with the authorities of Malaysia.

The present document sets forth the Scope of Work with regard to the Study.

II. OBJECTIVE OF THE STUDY

The objective of the study is to provide alternative plans for achieving an efficient Marketing Distribution System and thereby upgrading returns to fishermen.

The study will:

1. Review the existing fish marketing and distribution network system (hereinafter referred to as "FMDS") nationwide taking into account the following factors:-
 - to upgrade the income of fishermen
 - to utilize the fish landing complexes effectively
 - to minimize the post harvest losses

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2. Identify constraints to improve FMDS,
3. Formulate alternative plans to improve FMDS.

III. SCOPE OF THE STUDY

The study area shall cover the whole of Malaysia.

The study should be conducted in the following stages:

- (1) Review Stage
- (2) Identification Stage
- (3) Field Survey Stage
- (4) Assessment Stage
- (5) Formulation Stage

The detailed scope of the work at the respective stages are itemized as follows:

1. Review Stage

- (1) Review of the existing data and Malaysian policy and social, economic and financial situations
- (2) Review of existing data and information including past projects and studies related to FMDS
- (3) Supplementary survey to collect additional data and information lacking in (1) and (2) above.

2. Identification Stage

- (1) Identification of constraints to improve FMDS
- (2) Characterization and selection of model areas
- (3) Preparation of indepth field survey programme

(4) Model areas confirmation

Signing of the Minutes of Meeting between JICA and the Government of Malaysia which will include the model areas and a tentative detailed implementing schedule of the field survey stage.

3. Field Survey Stage

Based upon the results of the Identification Stage, following field survey will be conducted in the selected areas.

(1) For functional (facility) factors of FMDS in terms of:-

- Origin/Destination Survey including method and route of fish transportation
- Seasonal fluctuation of catch/supply
- Quality control
- Processing
- Pattern of consumption
- Facilities for different level of FMDS namely from landing to retail level which include landing sites, wholesale markets and retail markets.
- Import and export.

(2) For management and institutional factors of FMDS in terms of:-

- Marketing structure including trading operations
- Income distribution between fishermen and intermediaries

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- Role of intermediaries
- Role of Fishermen's Association/Fishermen's Cooperative
- Organization concerning FMDS
- Laws and Regulations concerning FMDS
- Financial system

4. Assessment Stage

Based upon the data and information collected at the above Stages, especially those collected at Field Survey Stage, existing FMDS will be assessed in terms of:-

- (1) Analysis of existing FMDS
- (2) Assessment of existing FMDS taking into account following factors:-
 - Constraints to improve FMDS
 - Future projection of supply and demand
 - Japanese FMDS development experience

5. Formulation Stage

Based upon comprehensive analysis of the results of the above-mentioned Stages, alternative plans to improve FMDS will be formulated.

- (1) Alternative plan to improve FMDS at national level, which will be options toward government policy taking into account following factors:-

- Appropriate structure and function of management body of FMDS
 - Establishment and/or improvement of institutional supporting system
- (2) Alternative plan to remove functional (facility) and other constraints at model areas taking into account following factors:
- Preliminary lay-out plan of FMDS
 - Cost estimation of the components
 - Cost-benefit analysis
 - Implementation schedule

IV. STUDY SCHEDULE

The study will be executed in accordance with the attached Tentative Study Schedule.

V. REPORT

1. JICA shall prepare and submit the following reports in English to the Government of Malaysia.

(1) Inception Report

Thirty (25) copies within one (1) month from the date of the commencement of the Study.

(2) Progress Report

Thirty (25) copies within five (5) months from the date of the commencement of the Study.

(3) Interim Report

Thirty (25) copies within thirteen (13) months from the date of the commencement of the Study.

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(4) Draft Final Report

Thirty (25) copies within seventeen (17) months from the date of the commencement of the Study.

The Government of Malaysia is requested to provide its comments on the Draft Final Report within one (1) month after receipt of the Report.

(5) Final Report

Sixty (60) copies within two (2) months after receiving the comments from the Government of Malaysia on the Draft Final Report.

2. The Study Team shall ensure that all data, information, maps, materials and findings connected with the Study are kept confidential and not revealed or disposed off to any third party except with the prior written consent of the Government of Malaysia. Such maps and aerial photographs are to be returned to the Government of Malaysia immediately upon completion of the Study. All reports when finalized and submitted to the Government of Malaysia shall remain the property of the Government of Malaysia.

VI. UNDERTAKING OF THE GOVERNMENT OF MALAYSIA

To facilitate the smooth conduct of the Study, the Government of Malaysia shall take the following necessary measures:-

1. To inform the members of the Study Team of any existing risk in the Study area and to take any measures deemed necessary to secure the safety of the Study Team.
2. To secure the necessary entry permits for the Study Team to conduct field survey in Malaysia and exempt them from consular fees.
3. To exempt the members of the Study Team from taxes and duties, as normally accorded under the provision of Malaysian General Circular No. 1 of 1979, on equipment, machinery and other materials brought into and out of Malaysia for the conduct of the Study.
4. To exempt the members of the Study Team from Malaysian income tax on their official emoluments in respect of their period of assignment in Malaysia in connection with the conduct of the Study, but the Government of Malaysia shall retain the right to take such emoluments into account for the purpose of assessing the amount to be applied to income from other sources.
5. To provide the necessary facilities to the Study Team for remittance as well as utilization of funds introduced into Malaysia from Japan in connection with the conduct of the Study.

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6. To secure permission for entry into private properties or restricted areas for the conduct of the Study.
7. To provide the Study Team with medical services when needed but the expenses will be chargeable to the members of the Study Team.
8. To provide the Study Team with available data, maps and information necessary for the execution of the Study.
9. To make arrangements for the Study Team to take back to Japan the data, maps, materials connected with the Study, subject to the approval of the Government of Malaysia, in order to prepare the reports.
10. To appoint counterpart personnel to the Study Team during the Study Period.
11. To provide the Study Team with suitable office space with clerical service and necessary office equipment in Kuala Lumpur.
12. To provide the Study Team with adequate means of local transport for official travel only.

13. To indemnify any members of the Study Team in respect of damages arising from any legal action against him in relation to any act performed or omissions made undertaking the Study except when the two Governments agree that such a member is guilty of gross negligence or wilful misconduct.

14. To nominate the Ministry of Agriculture to act as the main counterpart agency for the Study and the Economic Planning Unit as the main coordinating body in relation to other relevant Governmental and non-Governmental organizations.

VII. UNDERTAKINGS OF JICA

In order to conduct the Study, JICA shall take the following measures:

1. To dispatch, at its own expense, the Study Team to Malaysia.
2. To pursue technology transfer to the Malaysian counterpart personnel in the course of the Study.

VIII. CONSULTATION

JICA and the Government of Malaysia shall consult with each other in respect of any matter that is not agreed upon in this document and which may arise from or in connection with Study.

JICA