

Approaches to Economic Progress of Rural Fisheries in the Developing Countries.

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Abstract

It seems difficult to achieve the planning of regional development in inshore fishing area, by reason of imperfect methodology in the field of fisheries economics. According to the state of affairs our study should be divided into two parts.

Some economic ideas for the planning of rural fisheries development are described frankly in the first part, and in the latter part, a certain system of fisheries production or fish marketing in the inshore communities are analyzed concretely, as a result of actual survey in the Riau Archipelago.

The first part; Basic points of view on fisheries resources exploitation in the developing countries.

A. Introduction

The objects of this report are not regarding on fisheries resource itself, but on the relationship between resource and mankind, that is the basic and principal problem with regard to the industrial development of living or new fisheries resources.

Although recently fisheries-economics has considerably made clear the ecological analysis of living resources, the subject of the study are limited in scope in the theoretical description of resources-conservation and optimum utilization, on the assumption that the fixed quantity of resources and a certain standard of fishing technique.

But in the case of unexploited sea, so many unknown factors of resources and so many kinds of fishing gears, that the state of affairs are variable and unprecedented.

These are the reason why we cannot apply resource-economics to our study in this report and I should like to talk about industrial development of fisheries resources.

When we talk about industrial development of fisheries resources, it refers to extracting valuable commodities from biological resources, and the judgement or decision on marketing values of the resources depend upon the economic situation of each country or society. That is to say, that the type and scale of resource-exploitation should be determined according to the economic policy of each country.

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B. Target of resources exploitation in the aspects of economic development policy

It goes without saying that, after finding new fisheries resources, considerable national finance or private investment should be required for the purpose of exploitation and utilization of the resources, therefore, establishment of industrial target of fisheries-development must be asked at the beginning.

On the target of fisheries development we usually hear as follows: "Promotion of self supply of animal proteinic food by fisheries product." or "Increasing of common wealth of nation through fisheries development". These targets are not industrial explanation but only political and abstract slogan.

The first reasonable target of fisheries-development is how to improve the living condition of several millions fishermen, who dwelling all around inshore area, and as a result it should be done with the progress of domestic marketing of fishes products.

Obtaining foreign currency as second target, belong to the difference rule of economy from the first target, because one is concerned with production structure and the other with marketing system.

C. Different types of fisheries management and economic scale in the fisheries development by reason of resources classification

At the general meeting of Economic Commission for Asia and the Far East in 1973, delegate of FAO explained on the result of green revolution which has been main program for agricultural development in this area, as follows, "as the result of this policy, unbalance of income between big scalefarmer and small scalefarmer has gradually enlarged".

This is the important point to be taken care of the fisheries development in future, because this is the problems who and how can take charge of fishery development.

General speaking, the categories of the fishery development should be classified by the condition of:

1. kind and fertilitiy of the resources;
2. location of the fishing grounds;
3. market of the fishery products.

Inshore fishery because of the limited fishery resources must be operated by small scale fishermen, on the other hand offshore fishery resources should be exploited by the big scale enterprise.

D. Problems on the economic development of the fishing community

Although the fishing gear in the fishing community have kept small scale and low productivity, complicated composition of traditional fishing gear had kept a certain harmony with fisheries resources. It means that fishermen had conserved the resources in good condition for hundreds years. At the same time fishermen had been

supported by the resources. This harmony had been continued not only by the passive fishing gear but also mutual control of operation in the fishing community. As a result of the above mentioned we can understand two points :

1. In order to increase productivity or fishing efficiency by introducing new fishing gear, over-catching has to be avoided;
2. New inshore resource should be approached and exploited by each unit of communities.

The main obstruction on promoting of inshore fisheries communities, are old and local religion, traditional custom and powerful of fish brokers or middlemen, it seems very difficult to exclude the obstruction either by education or laws.

In order to provide productive function of community there are two course we can consider : the easy course is to change dominator-class into the enterprise with the financial aids; the second course is difficult, but it is important, to grew up the economic character of the community with joint labour and joint property, into production cooperative society.

E. Problems on the introduction of enterprise scale fishing

Usually a new and big enterprise will be set up through the cooperation of foreign governmental credit or foreign private investment for the purpose of developing the offshore or deep sea resources. In such a case, as a matter of course, product and revenue should be shared according to the type of capital, and the result will be very different. Therefore, we have to point-out the importance of fund programing and business management.

The next problem of resource exploitation in a big scale enterprise are as follows: even if, fishing gears or boats will achieve modernization, it is difficult to get success of the development with out enough equipment and facilities of relative industry, infrastructure and replenish factory.

The last problem is marketing. Mass production of enterprise scale of fishery will premise large scale demand and international trade. Therefore, marketing will depend upon the difference of purchasing power or storage capacity and transportation capacity in each country, not only for the advanced countries but also the developing countries. This is the reason why to be consider about relationship between cost and price on one hand, or price and demand on the other.

F. Socio-economic role of the national fishery regulation to avoid a conflict on fishery among different subsectors of fishing industry

Japan has excelent achievement on regulation of domestic fisheries operation and the adjustment and control of inshore fishing grounds, but had also made many trouble in the international relation in fisheries. Therefore, we can apply many things from Japanese history of these experiences. First, in this stage there are few domestic regulation on fishing ground in the developing countries. When some resources are exploiting in the future, we have to establish some regulation or

adjustment in order to protect local fishermen right, against the expansion of other side, and to conserve the resource from excessive competition.

Second, geographically the major part of sea is surrounded by many countries. Therefore, there must be an international regulation on exploiting the offshore of resource for the purpose of equal utilization and optimum production. It should be necessity of some kind of committee for the establishment of neutral regulation in countries-concerned.

G. Fish marketing and price formation

Fish marketing is also basic problem for fishery development because almost all of the fishery products are not for self-consumption but for marketing. In actual condition in the developing countries, fish marketing has been taken charge of by premodernise fish brokers and middlemen. This situation is the result or reflex of small and scattered units of production, so that it is difficult to stop the function of fish brokers and middlemen by the administrative power.

One way to overcome this situation is how to change and mobilize the capital or credit of fish brokers and middlemen into more profitable industries such as fish processing, fish whole sale and related industries.

Concentration and joint-sale of fish, should be conducted by cooperative system, under a finance assistance program.

At the same time there are problems of price stabilization not only for domestically but also internationally.

Usually price fluctuation of fish, is caused by price difference between:

1. place of production and consumption;
2. amount of catch, high or low;
3. kinds of species of catch;
4. production and transportation costs.

In order to curb the price fluctuation we have to do many investigation and collection of data before we do administrative action.

Now, I have so far talk only about the principal ideas. Actual program for resource development needs many statistical analysis and economi calculation.

The latter part; Case study on economic structure of inshore fishing communities in the Riau Archipelago.

I. Background

As is well known, Indonesia has emphasized the five year development plan (1969/70-1973/74) based on expansion of foreign credits and investments; in consequence the field of fishery is beginning some deep sea fisheries projects by loans of from the World Bank or Japanese credit, but the subject of modernization of rural areas in which a million fishermen are engaged in offshore or coastal fisheries should be more consideralbe in such a vast territory as this country.

Generally speaking, fishery projects can be classified into two types according

to purpose. The first one is the enterprise development type which will introduce large scale fishing facilities disregarding the present fishing industry. But the second one is the regional development type, which will improve the local fishing industry by using the fishermen and develop the regional social economy, basing on the existing fishing villages. Riau Archipelag of course, belongs to the second type area. (see the Fig. 1)

The reason why Riau Archipelago is taken the priority of developmemnt in all rural fishing areas, are as follows:

- (a) The Province of Riau has maintained the largest catch in this country, and also keeps 70 % over the second placed provinces, Sulawesi Tengah 70 %. The 180.000 metric tons catch in the province of Riau during 1969 is about 6 times as much as the average catch of all other provinces, 32.000 tons. Further, the percapita annual catch of 12 tons discloses the highest productivity in the whole country in this stage. (see table 1.)
- (b) The motorization of fishing boats in this province has been widely promoted although only small outboard motor are used, it means the possibility for introduction of mechanical fishing gear and expansion of fishing grounds, (see table 1).
- (c) It should be mentioend particularly that the province of Riau is not only the largest exporting area of fresh fish to Singapore and Malaysia, but also almost all fish for exportation are produced by household fishermen. They are obtaining foreign currency without relation to governmental policy at present.

Although the province of Riau has been given available help for fishing production and marketing, fishermen in this area are gaining no reasonable rewards due to the existing marketing patern as mentioned later, so that the reorganization of fisheries, should impact on rural economic development in Province of Riau.

The Province of Riau has two main fish producing areas. Kabupaten Kepulauan Riau=Riau Archipelago with Tandjungpinang as centre is thriving through fish exportation for Singapore, Kabupaten Bengkalis with Bagansiapi-api as centre is sharing in exportation to Malaysia.

The contents of this report are limited as to the former by reason of the time schedule on the project planning, and as for latter, the survey report will be compiled at the earliest opportunity.

II. Actual coidition of fishing operations in Riau Archipelago.

- (A) Outline of fishing operations geographical situation of Riau Archipelago has been explained by provincial data as follows: The waters of Riau Archipelago, extending over a surface of 176.530 km², can be divided into three main parts:
 - a. The waters along the East Coast of Sumatra. This area, which lies between Panipahan and Kuala Enok is shallow about 1 to 12 meters deep,

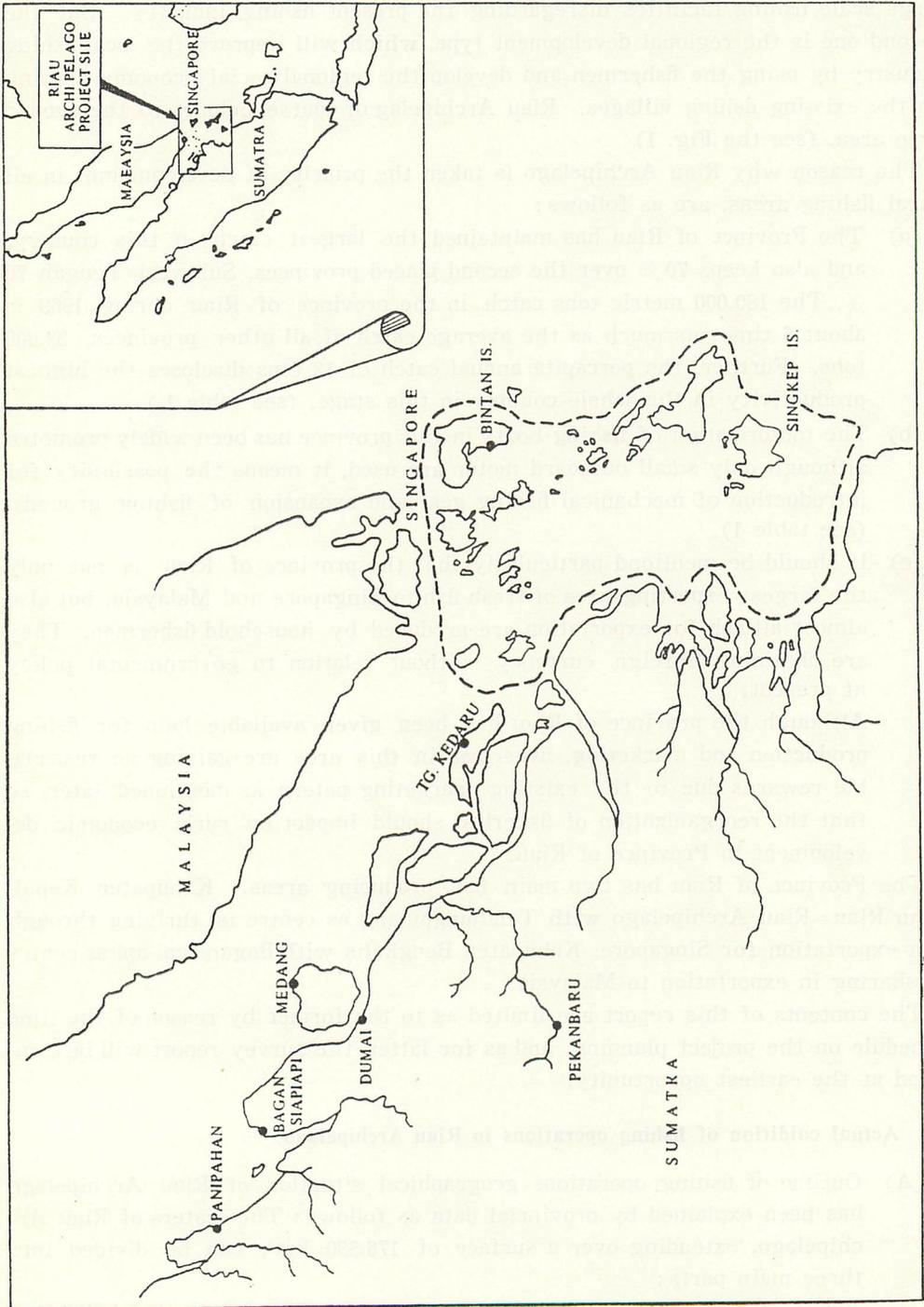


Fig. 1. Map of Riau Archipelago, Sumatra.

with a muddy bottom. It has a quite heavy current (2-7km/hour). Due to the great influence of the rivers, the salinity of the water is about 28-30 %. A great abundance of fishes is found here, especially pelagio fishes i. e. pari (day tadae), tjutjut (shark euselachi), udang (shrimp penaidae), tenggiri (scomberamoridae) belanak (mugilidae), and gulamah (scianeidae). It is estimated that the area has a 9 ton fish output per km² per year.

- b. The sea between Batam and Lingga Distict, which is 10 to 40 meters deep, with a muddy, sandy and rocky bottom, a heavy current and a salinity of about 30-32 %, teri (anchovy-clupidae), kuran (polyaemidae), tamban (clupidae), sotong (holocentridae), ikan merah, (lutjunidae) sea-weeds, sponge and pearlshells are found in great abundance.
- c. The South China Sea, which is 40-80 meters deep with a rocky bottom and a salinity, which can reach 33 % due to the influence of the South China Sea water masses. This is the place where tuna shoals (such as skipyack and yellowfin), trocha-shell and seaweeds are found. (Half of field (a) and majority of (c) are excised in this report because (a) is subject of next survey sche-duled to be held around Bagansiapi-api, and the fishing conditions of (c) belong to a different category for the purpose of this survey)

Now, about 13.000 fishermen are engaged in offshore or coastal fisheries. The distribution of the main fishing area, the type of fishing methods and the kind of sea products are classified as follows. (see table 2 and 3.)

main area	fishing gear	kind of fish
Bintan Selatan	gill-net	spanish Mackeral
Bintan Timur	lift-net with light (big-size, middle size)	Blue & gold fausili er. Golden banded fausilier
Moro	gill-net	
Tandjung Balai Karimun	gill-net	
Senajang	lift-net with light (small size)	anchovy (white bait herring)

notice

gill-net Djaring ingsang timbul
 lift-net with light (big size)-Kelong Batawi
 lift-net with light (middle size)-Kelong Kata
 lift-net with light (small size)-Kelong Pantai

spanish mackeral tenggirir
 Blue & gold fuslier parang2

III. Actual conditions of fish marketing

(A) Utilization and distribution of catches

Catches around Riau Archipelago are roughly utilized for fresh fish and salted & dried fish, and divided into the use of export, domestic supply and local consumption. Tenggirir, Kakap, E. Kuning, Kerapu and udang which are mainly caught by gill-net, lift-net (big size), are monthly exported to Singapore in the form of fresh fish. A part of fish is exported also in the form of salted & dried processing due to unavailability of cold storage facilities.

Ikan Teri, Tamban, which are caught mainly by Kelong net, are mostly processed into low-grade salted & dried fish in the nearby fishing villages, and sent to Palembang, Djakarta and other towns. Many other fishes of small type or involved, which are unable to collect in large volume, are consumed in the local markets in the form of fresh fish.

From the table no 4 and 5 details of exportation and distribution of the salted and dried fishes would be understood.

As to export figures, which is referred in the latter chapter, they seem to be increased further 20-30 % in the actual figures due to a considerably large number of smuggling. It might be, however, rather difficult to grasp the correct figures only through the statistics.

(B) Form of collection and distribution of fresh fish.

The sales organization which handle these fishes are unaplicated, and observation is tried to be given hereunder from the view point of local consumption and exportation.

As to local consumption, very small portion of fresh fish is sold directly on the beach in the small fishing villages, but main portion is sent to the big towns, and the remainder is processed into the salted & dried fish for broker's handling.

Explanation on the public market in Tg. Pinang, which is the most well equipped fishing market in Riau Archipelago, will be tried as follows:

The collected fresh fish are mainly brought about through small scale of brokers, who collect them from villages by way of purchase or consignment rather than directly from fishermen on consignment bases.

As to the range of collection area, it is observed that 60 % of the total catch is made around 30 miles off-shore from Tg. Pinang. Out of 40 % of the remainder, the fish of commercial value is directed for export, while dominant part of anchovy etc. is processed into salted & dried fish.

About 50 % of more than 400,000 tons of fresh fish, which is handled in this market for one year, is not for local consumption, but for brokers.

The fresh fishes brought to the market are all fixed through the auction under the control of PKPI (Refer Note).

There is no need of special qualification nor licence to take part in this auction,

in kind many necessities for life and foodstuffs on credit from fish brokers in return for sale of all catch, so that they always have an outstanding debt. Even the interest has to be paid on credit from fishermen to broker, but it is well known that the purchase prices decided by fish brokers are beaten down always to about 70 % of local market price.

On the other hand, there are a few fishing enterprises in Moro area like those elsewhere. For example, the largest company owns 60 units of gill-net with motor boat (lay out of net is 600 meter \times 1.5 meter, nylon made), 3 carrier boats of 60 tons class, and one ice-making plant of 20 tons capacity daily, and is operated by 200 of owners distant according to the relatives Chinese large family system.

The company produce daily 6 tons spanish mackerel in the season, and also as fish broker=exporter, the company has collected fresh fish which is caught by household fisherman all around the district.

Fishermen contracted with the company are paid not by cash wage but share system, as follows, and the take-home pay of fisherman is estimated about Rp. 6.000 monthly in the season or Rp. 3.000 out of season.

classification of share	Percentage of share
COMPANY	30 - 25%
Gear (company)	10 - 25
Fishermen	60 - 50

Almost all lift-nets are owned by fish broker as mentioned above. excepting a very few which are common property of the community. The following table shows the actual relationship between some fish brokers at Tg. Pinang and fishermen engaged in the surrounding area.

number of brokers	controlled village	number of dweller	number of fishermen	engaged fishermen	number of lift-net
1	KARAS	100	50	15 ⁺	3 - 4 ⁺
	GALANG	40	20	15	3 - 4
2	LOBAM	80	20	6	1 - 2
3 + 4	KIDJANG	150	70	20	4 - 5

chageable figure

The majority of fish brokers keep one or several villages under control, which they have done for generations in, and in spite of a two ton catch of good price fish or shrimp monthly per unit, the wage of fishermen engaged are no more than Rp. 30-40 daily in cash and subsidiary fish in kind.

but which is actually dominated by merchant including exporters who have retail corners in the market.

There are about 63 retail corners, and the right of use is transferable by payment of Rp. 2.000 through lottery which is held every 3 month under sponsorship of PKPI.

PKPI also control settlement of payment together with 5% of own commissions received from both seller and buyer.

Domestic distribution of the salted & dried fishes is made by brokers, who collect goods directly from fishing villages by small carrier, then tranship them to the big vessel in Tg. Pinang and Singapore basing on their contract with the big scale of whole salers in Djakarta and Palembang. But no analysis in this regard is attempted in this survey.

The route of collection and delivery of the exported fresh fish is illustrated under :

Indonesian side			Singapore side		
1	2	3	5	6	7
Fishermen - Broker - Exporter			agent - whole - Broker		
	4		saler retailer		
	agent				

The problem in this route lies in the function of fish brokers.

There is big difference among these brokers in their scale: the smallest who is always found at least one in each village and works as sub-contractor of the big scale of brokers, while the biggest enjoys export arranged by themselves even processing own carriers.

The whole time brokers are less in number and mostly they are operating in addition to trade or fishery works.

In this district, 35 brokers are said to be registered officially and all of them are included in 60 member of exporters.

Collection route by fish brokers are divided into the following three categories:

- (1) Production made by broker his own.
- (2) Purchase from fishermen or fish market.
- (3) Consignment from fishermen.

Purchase from fishermen dominants the main part (main purchase depends on fishermen).

Although the purchasing prices are to be fixed once or twice a month, the way of purchase itself is not always fair; fishermen are always bound to be in debt since the payment is offset (calculated in exchange of) provisions, ice, and fishing gear from the unimproved relations of long-standing debt.

Sales on consignment is also done on the market order.

As there is no more up-to-date export organization than PKPI fishermen are always exposed to the disadvantage caused by the fluctuation of market prices. That

means, the fishermen are suffering from double loss caused by both side of sales prices of fishes and purchase price of provisions.

Most of the brokers even the smallest with having own carrier of 3-4 or 7-8 tons can collect 2-3 tons of fresh fishes from fishing villages where they have foot stand.

As mentioned above, there are many exporters who also work aside as broker. Among them, there are also many small scale, ones who who are nearly licence holders, and not actually operate themselves, while there are bigger ones, who export about 100 tons of fresh fishes a month through own products and purchase, with processing of 3 carriers of 60-70 tons and ice making and cold storage facilities.

All these brokers and exporters are not necessary to prepare operation fund in cash, but depending on non-interest credit relations with fish dealers in Singapore which has been long established on kinship or landship.

Also their mutual relation is tightly united on guild system. Thus, each territory of influence is fixed and no competition among them is seen.

The head-ache to broker and exporter in general is uncertainty of shipping schedule of carrier.

Generally, brokers store fresh fishes for about 20 days in a wooden box while contains in the ratio of one ton fish per one ton ice. But those who have not own export carrier are compelled to utilize about 20 of Singapore flag carriers or 70 tons carrier of PKPI in Tg. Pinang with freight of Str. \$ 200-250 per m/t or 20-30 % of the fish value.

The problem, however, lies in irregularity of carriers calling which mainly due to conditions of sea, delay of fish collection or engine trouble.

Of course, fundamental thing is that fishermen have no economic counter measures against big fluctuation of fish prices in Singapore, which must be given more serious consideration.

The unstable market prices which is to be referred to in the latter chapter, naturally results in the cause of poverty of fishermen. Under the circumstances where prices of fishes in Singapore fluctuate 100 % subject to demand and supply, and no storage facility in Indonesian side is always exposed to bargaining, which is far from "free competition".

From March to June in each year, the price reduction is quite occasional due to increase of fish inflow from Philippine and Formosa into Singapore. This seasonal fact naturally effects the shipping prices from Riau side. So, Riau side puts more importance in September to December seasons.

(C) Troubles in export procedures.

The exporters who have collected fresh fish are all required to take necessary procedures for export in the end. Those in Tg. Bari Karimun and several number of large scale exporters in each place will do these procedures by themselves, but mostly they leave them to export agency under the control of

PKPI. PKPI has agent office in Tg. Pinang conducts even export on consignment basing on the confidence of near-by fishermen.

In Singapore on the other, there are also several import agents that are classified into two:

- (a) these who work as commission merchant and
- (b) those who work as whole saler.

The relation between exporters in Riau and agent in Singapore seems to be tightly connected on long-fostered traditional foundation.

The procedures of export are summarized as follows:

By request of import agent in Singapore, Indonesian Embassy in Singapore will issue purchase order and then the export agent may start the procedures to follow.

In the above purchase order, the export price of fresh fish is fixed S. \$ 1.600 and ship is S. \$ 1.500 per m/t. Actually however, there seems to be many modification or adjustment on prices and export quantity which usually far bigger than that of order. There are, therefore, several problems which are to be solved in this export procedure.

The first thing to be pointed out is that the export procedure here is not done by usual letter of credit but through more complicated ways which is easily connected with corruption. And no consideration to export of fresh fish seems to be paid.

Since these problems are mostly concerned with administrative organization, further explanation in details to be of stained from.

However, it will easily be conjunctured from the fact that previously 314 signature from the authorities concerned are requested for only one case of export procedure and even now still 150 are required for it. (although simplification of such rule was in force by law of April 1970 issued by Ministry of Trade, it has not been observed on the spot).

This must be one of the causes which have foster many small scale of smuggler in the region.

At the same time, the problem on import system of TAPI (TANDA PENGENAL IMPORT) to be solved from the view point of administration.

General importers and brokers, and even PKPI hold export licence (APE: ANGKA PENGENAL EXPORT), but provisions, fishing gears, ice etc., which are badly needed for fishermen for production and livelihood, are prohibited to import legally. So, they are compelled to use the unreasonable high cost of goods.

For instance, most of the ice used for storing fresh fishes is delivered from Singapore. The price is naturally about 10 % higher than that sold in Singapore, which is about Rp. 7.500 to 8.000 per ton. (see table 7)

PKPI once conducted efficiently the import procedure of food stuffs, but after prohibition of such importation the prices of fishing net etc., rise about 30 % which resultantly increase the case of smuggling.

(D) Problems in fish prices

The above mentioned pre-modernized character of fish marketing reflects adversely to fixation of fish prices. Although the data from statistical analysis is insufficient, the problems can be summarized as follows:

Judging only from the retail prices in the consumption market, the price fluctuation through a year and price fluctuation among each species of fish are in general seemed to be not so big. This might come from the reason that there are low stabilization of consumption, very small difference in quality and simplification of catching method.

However, the prices in the processing area are fluctuating badly by many reasons.

The fluctuation of prices between good catch and poor catch moves more sharply than the amount of catching quantity.

For example, the prices of Chinese Mackerel or shore-caught fish differ from Rp. 50 to 100 per kg. and so do the salted & dried fish from Rp. 65 to 145 per kg.

In the remote places for fish collector, Rp. 40 for one piece of Skipjak in the morning market drops to Rp. 15,- in the evening sale.

This fluctuation is by no means caused by lack of transportation and storage facilities. The conditions are the same in the case of export.

Generally speaking, quality and price of export fish is far better than those of domestic sale, and the prices in auction effects not only to the exporter but also to fishermen. The market prices in Singapore usually fluctuate depending on the amount of supplying fish and quality of fish.

The average prices of one kati (625 grams) of Spanish Mackerel fluctuate from S \$ 0.80 to S \$ 0.30. It also goes without saying that the reason is found in the fact that there is no freezing, storing, and transportation facilities which easily control the export quantity.

Note:

The organization of the Indonesian Fisheries cooperative association is classified into four national (State) province, District and word.

IKPI (INDUK KOPERASI PERIKANAN INDONESIA)

GKPI (GABUNGAN KOPERASI PERIKANAN INDONESIA)

PKPI (PUSAT KOPERASI PERIKANAN INDONESIA)

KPI (KOPERASI PERIKANAN INDONESIA)

PKPI of Tg. Pinang has 9 KPI, and is belonged to GKPI of Pekanbaru Baru.

The member of PKPI is only about 800 and that of KPI is 129.

2,000 to 4,000 people out of total 13,000 of the fishermen in Riau Archipelago are estimated to be a member of the cooperative association

Any body is allowed to enter the cooperative association, but which is mostly participated by a considerably big scale of fishermem, and partly a broker.

KPI in Tg. Pinang runs credit business, mutual insurance, relief of wreckage and export business. PKPI in Tg. Pinang was founded in 1962 who opened an office one time in 1968 in Uban for conducting export business, still enjoy export business and agent on the con-

fidene of fishermen.

IV. Outline of development project.

(A) Basic scheme.

The main reason why such big scale of export development scheme on coastal fishing villages as no other South-East Asian countries have established is on the positive profit expected in this scheme, since the fishery in Riau Archipelago is favoured with the stable and ever-expanding tendency of market like Singapore.

The control of fish broker, which prevents fishermen from economic development at present, must be emerged from step by step.

As there is small and weak producers who are scattered here and then, there is room for activity of pre-modernized brokers. And if production of fishermen is centralized or made on big scale, brokers will eventually convert themselves to modern trades or manufactures as our history shows.

Therefore, in the development project on fish marketing in Riau, the guide line for the production activity must be given in advance. This guide line in this area must be put the importance on the stabilization and improvement in the present fishery structure rather than putting on utilization of bigger type of fishing boats.

In this pilot plan, the proposal must be made on the operation of high productivity in the more expended fishing ground by means of organizing collective fishing association where there are capable fishermen selected from each fishing village, modernized small type of boats, and proper fishing net as gillnet for spanish mackerel or shrimp trawler net.

For this purpose, the guarantee of credit for fishermen is well given by PKPI who can collect catches exclusively.

Kelong and its like are desired to decrease gradually leaving partly their room for some catching place.

To maintain constant catch by introduction of this steps is the best way to prepare for marketing.

Secondly, as the theme is on the fish exportation projects, the guide line also must be by no means directed for obtaining facilities which enable fishermen to transport their catches on good condition and regularly in the main fishing bases.

Therefore, it can be proposed that big and small scale of cold storage ice-plant to be installed, and freezing equipment and several number of middle size carriers which are well controlled by project manager for fish collection to be arranged.

Although the profit in this project is positive, 5.000-6.000 tons of export per gear is only a small portion of the present export amount, and which will not be pressure to the existing broker and exporter. But this will work (serve) stimulant to the modernization of business operation of the present dealers by such ways like concentration of fresh fish on the projected bases.

Profitable it may be, it must also be kept in mind that the very important things required to manage export business for Singapore are enough business experience

to carry out the complicated business and leadership to the fishermen under severe competition with existing broker and exporter.

In consideration of the improvement in near future on the post system of state owned enterprises, responsibility for over all project and the system of divided allotment for each business operation must be proposed.

As withdrawal of loan to the fishermen in the form of fishing boat and gears is closely connected with collection of catches and export operation, it must be put under the control of PKPI.

The organization which can be tied up with the state enterprise concerned who is the processes of cold storage and carrier must be established.

In this project, permission of import operation on provisions etc. from Singapore is prerequisite.

(In this project, no reference is made on domestic delivery of salted & dried fishes. Although technical improvement on processing of this item is easy to attain, this matter will be taken up in the second development project since there are still many problems to improve in response to consumption market or pre-modernized in the sales structure.)

Remark.

The first part was announced at the SEAFDEC technical seminar on south china sea fisheries resources on May 1973.

The latter part was submitted to Directorate General of Fisheries of Indonesia on December 1970.

Table 1. PRODUCTION OF FRESH FISH, NUMBER OF FISHERMEN AND SAILING BOATS.

Daerah (Location)	Produksi ikan basah (ton)				Djumlah Nelayan				Perahu				Lajar	
	1965	1966	1967	1968	1969	1966	1967	1968	1969	1965	1966	1967	1968	1969
Ateah	28,825	32,410	18,468	20,132	21,000	54,265	56,000	54,234	55,000	13,491	13,579	11,942	11,942	12,000
Sumatra Utara	50,028	55,007	60,091	68,001	70,000	45,258	45,225	46,295	47,000	9,167	9,153	9,160	9,200	9,300
Riau	130,000	143,000	146,000	160,000	180,000	20,000	22,000	23,000	15,600	10,000	10,000	10,200	8,577	9,700
Sumatra Barat	4,000	15,060	12,268	12,000	13,500	13,500	13,844	13,917	12,500	4,000	4,660	3,782	3,782	3,800
Djambi	3,004	3,500	3,614	3,975	4,000	2,602	2,602	2,940	3,705	741	786	800	310	810
Sumatra Selatan *)	32,734	35,000	27,460	20,092	26,400	18,808	19,010	19,623	16,913	8,225	8,577	8,059	6,837	6,945
Lampung	3,835	4,800	2,854	4,564	4,000	4,428	6,012	3,785	4,000	2,281	1,961	522	1,017	850
D.C.I. Djakarta	2,318	2,400	3,020	3,688	4,500	12,893	12,893	7,000	7,335	7,500	1,556	1,706	1,302	1,300
Djawa Barat	40,467	41,500	56,178	58,458	59,900	62,632	62,632	73,273	60,426	7,942	7,880	7,578	7,897	8,106
Djawa Tengah	21,396	23,400	27,741	29,368	31,100	66,597	80,514	80,586	41,615	10,023	10,227	9,153	9,200	9,200
Djawa Timur	98,000	94,800	53,827	68,222	65,000	173,334	170,000	121,950	89,447	89,000	27,500	26,643	28,100	21,000
Kalimantan Barat	40,300	32,200	35,400	33,203	35,000	16,658	16,631	16,200	16,500	6,687	6,672	7,000	8,579	8,600
Kalimantan Tengah	12,660	13,200	13,000	26,244	26,000	10,115	10,115	9,000	6,810	7,000	26,222	3,065	3,000	5,000
Kalimantan Timur	19,864	21,900	22,528	20,812	22,000	10,817	10,817	14,326	14,595	5,491	5,991	5,199	5,478	5,400
Kalimantan Selatan	18,895	21,300	17,065	17,754	18,000	11,500	11,500	19,911	10,897	6,200	6,374	6,117	4,025	3,800
Sulawesi Utara	19,404	24,200	18,000	15,215	15,000	38,432	38,500	47,876	47,800	22,848	24,950	24,950	46,169	46,000
Sulawesi Tengah	4,500	6,000	3,000	5,000	5,000	17,300	17,300	23,603	24,500	10,400	10,400	13,693	13,000	13,000
Sulawesi Selatan	88,000	96,000	90,000	86,000	90,000	162,985	123,704	164,658	166,396	32,433	36,177	43,634	36,923	37,000
Sulawesi Tenggara	4,000	6,000	7,000	6,000	7,000	22,000	22,000	43,630	33,741	4,000	4,000	13,150	14,063	18,600
Bali	2,046	2,120	2,545	3,855	3,500	15,450	16,000	15,950	16,748	6,719	6,700	7,112	8,856	8,800
Nusatenggara Barat	14,789	14,390	19,650	19,357	20,000	14,518	14,548	14,786	18,304	4,690	4,491	4,618	4,253	4,200
Nusatenggara Timur	7,750	7,530	7,730	9,500	9,000	24,000	24,000	23,970	33,741	22,900	9,870	9,958	7,251	7,255
Maluku	16,144	19,819	24,500	25,500	26,500	79,000	73,000	72,000	75,000	15,162	25,850	31,500	32,800	33,000
Irian Barat	5,150	4,700	6,000	5,590	6,000	22,000	22,000	22,300	22,600	2,731	2,160	5,760	5,800	5,800
Indonesia	665,107	720,236	677,933	722,511	762,400	919,091	890,847	926,157	870,137	830,739	225,429	250,756	268,687	278,466

*) = inclusive Bengkulu

1969 : sementara, preliminary data.

Produksi ikan basah=production of fresh fish (marine)

Djumlah nelayan=Number of fishermen

Djumlah perahu lajar=Number of sailing boats.

Table 2. NUMBER OF THE POPULATION, FISHERMEN AND FISHING VESSELS IN RIAU ARCHIPELAGO 1968/1969*).

NAME OF REGION	Number of Fishermen						Number of Fishing Vessels							
	Indonesian fishermen		Part-timer fishermen		Foreign fishermen		Large size		Medium size		Small size		Motor boats	
	1968	1969	1968	1969	1968	1969	1968	1969	1968	1969	1968	1969	1968	1969
Bintan Selatan	1,074	1,074	370	370	15	14	1	65	65	227	297	43	44	
Bintan Utara	310	—	120	—	2	—	—	—	—	235	—	11	—	
Bintan Timur	361	387	6	7	—	—	—	132	132	—	—	44	45	
Tembilahan	—	—	—	—	—	—	—	—	—	—	—	—	—	
Batan	—	—	—	—	—	—	—	—	—	—	—	—	—	
Singkep	510	520	250	230	50	50	—	—	—	350	400	50	50	
Lingga	750	—	300	—	—	—	—	43	—	192	—	22	—	
Senajang	—	—	—	—	—	—	—	—	—	611	—	26	—	
Karimun	1,191	1,467	117	111	154	154	—	255	—	233	—	106	—	
Kundur	124	80	—	110	—	—	1	38	70	83	91	157	28	
Morosulit	596	363	—	—	11	7	7	—	7	82	287	212	230	
Siantan	440	—	850	—	—	—	5	150	—	1,050	—	130	—	
Bunguran Timur	—	—	350	459	—	—	—	48	68	278	282	24	27	
Bunguran Barat	—	—	232	—	—	—	1	10	—	—	—	11	—	
Selasan	—	—	—	—	—	—	—	—	—	—	—	—	—	
Midai	—	—	—	—	—	—	—	—	—	—	—	—	—	
Djemadja	—	—	—	—	—	—	—	—	—	—	—	—	—	
TOTAL	5,356	3,891	2,595	1,287	232	255	7	741	344	3,241	1,357	836	433	

*): = 1969 - preliminary data.

Table 4. EXPORT OF FISH AND OTHER RELATED SEA PRODUCTS FROM RIAU ARCHIPELAGO
BY DESTINATION OF SINGAPORE AND MALAYSIA IN 1969

	Fresh fish		Fresh shrimp*		Dried fish and shrimp		Processed waste shrimp product (Abon Udang)		Other related sea product			
	Weight (kg)	Value (Rp)	Weight (kg)	Value (Rp)	Weight (kg)	Value (Rp)	Weight (kg)	Value (Rp)	Sea weed Weight (Kg)	Sea weed Value (Rp)	Snail Weight (Kg)	Snail Value (Rp)
January	42,000	4,357,000					3,000	90,000	15,000	300,000		
February	55,250	5,804,500					2,000	80,000	3,750	95,000		
March	32,900	2,975,000							5,000	125,000		
April	25,600	2,800,000							14,000	210,000		
May	26,100	2,845,000					52,475	890,000	27,000	705,000		
June	24,000	2,431,250	1,000	75,000			29,000	1,050,000	5,000	78,000		
July	4,000	299,000	2,500	82,000								
August	22,000	1,394,000	4,500	178,500								
September	20,500	1,786,000	3,000	174,500			3,000	30,000				
October	22,000	1,800,000	3,000	245,000					9,000	224,000	1,000	27,500
November	29,000	2,310,000	1,500	112,500	787	787	62,703	18,850				
December	43,000	3,327,000	2,000	145,000	1,200	36,000	40,689	255,750	12,000	247,000		
TOTAL	346,850	32,129,750	17,500	1,012,500	1,987	36,787	172,867	2,414,600	90,000	1,984,000	1,000	7,500

Export fresh shrimp by port of Tandjung Pinang.

Table 5. INTER-INSULAR TRADE OF FISH AND OTHER RELATED SEA PRODUCTS BY PART OF ORIGIN TANDJUNG PINANG IN 1969.

	Name of Dried Fish									
	Teri/Bilis		Tamban		Sotong		Sepat		Trasi	
	Weight(Kg)	Value(Rp)	Weight(Kg)	Value (Rp)						
January	76,963	8,123,500	8,570	693,000	1,070	220,000				
February	39,174	4,854,750	16,222	469,800	1,202	152,200				
March	85,967	8,389,600	21,645	2,136,000	82	16,000				
April	110,109	10,477,100	30,340	1,912,550	550	110,000				
May	20,665	2,768,500	23,850	1,871,800						
June	35,350	4,413,000	19,702	999,900	1,361	381,650				
July	105,718	11,212,950	36,655	2,053,000	769	254,000	400	24,000		
August	132,873	14,189,295	8,174	838,300	406	101,500				
September	192,755	21,540,160	5,900	475,960	2,270	475,000				
October	241,329	23,301,630	3,000	296,900	1,670	582,000				
November	295,550	26,859,490	5,375	369,900	1,084	392,000			1,000	40,000
December	139,155	13,683,000	2,486	190,250						
TOTAL	1,471,628	148,821,515	171,919	12,484,860	10,464	2,684,350	400	24,000	1,000	40,000

Table 6. SALES AMOUNT OF FRESH FISHES IN TANDJUNG PINANG'S MARKET.

D A T E	QUANTITY (Kg)	AMOUNT (Rp)
(1969) July		
1st — 7th	8,095½	565,575
8th — 14th	8,514	662,210
15th — 21st	9,102½	650,855
22nd — 28th	9,369½	639,875
29th — 31st	4,174	293,580
	39,255½	2,812,075 71.63
(1969) August		
1st — 7th	8,676½	607,885
8th — 14th	9,124	679,600
15th — 21st	7,609	516,560
22nd — 28th	8,889	608,360
29th — 31st	2,045	167,930
	36,340½	2,580,335 71.00
(1969) September		
1st — 7th	7,886	525,220
8th — 14th	7,782	525,176
15th — 21st	7,793	505,298
22nd — 28th	5,052	485,810
	28,513	2,041,504 71.599
(1969) October		
1st — 7th	9,683	627,220
8th — 14th	9,527	570,955
15th — 21st	9,356	601,205
22nd — 28th	10,481	530,510
	39,047	2,329,890 59.668
(1969) November		
1st — 7th	8,011	552,075
8th — 14th	10,017	614,865
15th — 21st	9,978	584,275
22nd — 28th	8,575	520,590
	36,581	2,271,705 62.100
(1969) December		
1st — 7th	10,116	611,880
8th — 14th	10,202	400,240
15th — 21st	10,197	523,245
22nd — 28th	10,589	569,065
	41,104	2,104,430 51.197
(1969) January		
1st — 7th	11,232	645,315
8th — 14th	10,592	658,890
15th — 21st	10,445	586,760
22nd — 28th	10,565	632,315
	42,834	2,523,280 58.908
(1969) February		
1st — 7th	10,116	533,545
8th — 14th	13,686	647,055
15th — 21st	10,109	464,385
22nd — 28th	9,970	564,420
	43,881	2,209,405 30.349
(1969) March		
1st — 7th	11,150	597,100
8th — 14th	12,409	541,485
15th — 21st	11,265	456,485
22th — 28th	10,759	515,905
	45,591	2,110,975 46.30

D A T E	QUANTITY (Kg)	AMOUNT (Rp)
(1968) April		
1th — 7th	10,005	480,130
8th — 14th	8,737	741,355
15th — 21st	9,051	502,181
22th — 28th	9,231	498,045
	37,024	1,951,711
TOTAL	390,171 Kg	Rp.22,935,310 @ 58.70

Table 7. IMPORT ICE BY ORIGIN FROM SINGAPORE IN 1969.

MONTH	Port of Destination						TOTAL IMPORT	
	Tandjung Pinang		Tandjung Balai Karimun		Belakang Padang		Weight (Kg)	Value (Rp)
	Weight (Kg)	Value (Rp)	Weight (Kg)	Value (Rp)	Weight (Kg)	Value (Rp)		
January			17,000	102,000	30,000	201,000	97,000	303,000
February			12,000	72,000	153,000	397,000	165,000	469,000
March			5,000	30,000	187,000	467,000	192,000	497,000
April			5,000	30,000	63,000	157,500	68,000	187,500
May			4,000	36,000	92,000	230,000	96,000	266,000
June			6,000	36,000	76,000	191,250	82,000	227,250
July	3,000	18,000					3,000	1,800
August	174,500	770,000	8,000	48,000			182,500	818,000
September	126,000	925,000	20,000	120,000			146,000	1,045,000
October	218,000	1,362,000	10,000	60,000			228,000	1,422,000
November	42,000							
December	120,000							
TOTAL	685,500	3,075,800	130,000	840,000	6,510,000	1,643,750	1,472,500	6,352,550