

REPORT
ON
SEA TRANSPORTATION IN INDONESIA

SEPTEMBER 1970

OVERSEAS TECHNICAL COOPERATION AGENCY
GOVERNMENT OF JAPAN

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P R E F A C E

The Government of Japan, in response to the request of the Republic of Indonesia, decided to carry out a basic study on the promotion and development of the marine transportation of Indonesia and entrusted this task to the Overseas Technical Cooperation Agency (OTCA) which is an executing agency of the Government of Japan.

OTCA organized a study team of 4 experts headed by Mr. Kosei Watanabe, Special Assistant to the Director, Ship Bureau, Ministry of Transport, and dispatched it to Indonesia in July, 1970.

The study team stayed there about one month and successfully completed the field study including the discussion with the authorities concerned and collection of data with the whole-hearted cooperation from the Government of the Republic of Indonesia.

After its return to Japan, the team made further studies on the data and informations and the result were hereby compiled into the present report.

Finally, on behalf of the Overseas Technical Cooperation Agency, I wish to take this opportunity to express my sincere gratitude for the generous cooperation and assistance extended to the team during its stay by the Government of the Republic of Indonesia.



Keiichi Tatsuke
Director-General,
Overseas Technical Cooperation Agency

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I. Introduction

Objectives of the survey

The objectives of this team was to survey the present status of interisland shipping and shipbuilding industry of Indonesia as well as to have some idea on the size of advisers' group to the Government of Indonesia and on the composition of the group.

Composition of the team

Leader of the team	Mr. Kosei Watanabe	- Administrative Div., Ship Bureau, Ministry of Transport
Member of the team	Mr. Toshio Saito	- Overseas Div., Bureau of Shipping Ministry of Transport
	Mr. Hirozo Koyama	- Ship Bureau Ministry of Transport
	Mr. Toshio Kawakami	- Ship Bureau Ministry of Transport

Period of survey

The team conducted surveys at Djakarta, Surabaya, Den Passar, Macassar, Medan and Singapore from July 29 to August 31, 1970.

Counterparts Team

In order to assist the survey team, Ministry of Communications of the Government of Indonesia organized a counterparts team.

The counterpart team was composed of the following staffs.

Chief	Ir. Sugianto	Directorate of Sea Communication (Planning Board)
Sub-Chief	Mochtarutin	Directorate of Sea Communication (Shipping Enterprise)
	Waasono	Directorate of Maritime Production (Shipyards & Dockyard Management)
	Nazir	Directorate of Maritime Production (Planning Board)
	Rustam	Directorate of Sea Communication
	Nuzwari	Directorate of Maritime Production (Research)

Scope of the survey

In terms of pattern of activities, the sea transportation of Indonesia can roughly be classified into: overseas shipping, interisland shipping and local shipping.

The overseas shipping in the first category is the sea transportation linking between Indonesia and foreign countries and bigger type of vessels of more than 3,000 DW are used for this category of shipping.

Interisland shipping in the second category is part of internal shipping. However, since the Republic of Indonesia is composed of more than 3,000 islands, the interisland shipping in Indonesia plays a particularly important role in the field of sea transportation.

Though the shipping service between Indonesia and Singapore is the nature of international shipping, it has traditionally been considered as part of the interisland shipping.

Vessels being used for this service are mostly of the size between 500 DW and 3,000 DW.

The local shipping in the third category is one other field of internal shipping, namely, it is the shipping which goes around the minor ports in the region. In this category of shipping, smaller type of steel boats of less than 500 DW and wooden sailing boats are used.

The Government of Indonesia plans to improve and develop the maritime shipping in all the fields as mentioned above.

From the viewpoint of the transportation of cargoes and of the function of ports and harbours, the study should be done on the whole fields of physical distribution including not only the sea transportation but also the land transportation.

However, the present survey confined its scope of survey only into the

field of interisland shipping and shipbuilding industry of Indonesia which is related to the interisland shipping.

Major visiting places and survey spots

The members of Japanese Sea Transportation Survey Team had opportunities to meet various distinguished personnels of the Government of Indonesia including Rear Admiral H. Nimpuno, Director-General of Sea Communication for two times. They also met Mr. Sukaton, Director-General of Maritime Production, Dr. Widjojo, Chairman of BAPPENAS, Dr. Salim, Vice Chairman of BAPPENAS.

During its stay in Indonesia, the team visited shipping firms and their offices at eleven places and seven shipbuilding firms and four major ports in Indonesia.

In Singapore, which is in a very close relation with shipping and shipbuilding industries of Indonesia, the team visited four shipping firms and four shipbuilding yards.

The names of the above-mentioned firms are listed in Appendix 1.

Further, the team visited such organizations as Classification Society of Indonesia (BKI), Seamen's Academy and Central Bureau of Statistics. The team also had an opportunity of meeting and exchanging views with the Netherland Shipping Team.

The counterpart team provided the team with valuable data and information necessary for the survey.

Abundant information and materials were also offered to the team by the firms and agencies which have already referred to in the above.

The survey team wishes to express its sincere thanks to those firms and organizations for their kind cooperation and assistance.

II. Present status of interisland shipping in Indonesia

1. Interisland shipping as part of the infrastructure

The improvement and development of infrastructure has been launched by the Government of Indonesia as one of the major targets of Five Year National Development Plan started in 1969.

It is aimed in this plan that a series of economic activities, namely, Production, distribution and consumption (or export) be strengthened and thereby the standard of living of Indonesian people be raised.

In recent years, the investment on the infrastructure of Indonesia has been extremely small in its amount excepting those investment by foreign aids. And, consequently, the financial insufficiency has caused the delay of the improvement and rehabilitation of the infrastructure of Indonesia.

However, it is not exaggerating to say that the future economic development of Indonesia and raising up of living standard of Indonesian people will be determined by the achievement of targets of the current development plan.

This is the reason why the Suharto regime has launched the plan of improving and rehabilitating infrastructure as one of the major targets of the Plan for the reconstruction of National Economy.

The interisland shipping is the key supporting the Indonesian economy and it composes an important part of the infrastructure of Indonesia.

Indonesia consists of more than 20 bigger islands and of more than 3,000 islets and she is an islands country wtretching from Saban Port in North Sumatra down to Djajapur with a distance of about 3,300 miles between the two ports.

It is not necessary to say much that under this geographical circumstances, the security of sea transportation is indispensable for maintaining and raising up the living standard of Indonesian people as well as for the security of comprehensive economic activities of the country.

Excepting such mineral resources as oil, bauxite, nickel, major export items of Indonesia are occupied by agricultural and forestry products and this tendency has been constant for many years in the past. Therefore, the export of agricultural products is extremely important for Indonesian economy and it is reflected on the international balance of payment as well as on the financial situation of the country.

The ratio of shipping these agricultural products between Java and other areas (Sumatra, Kalimantan, Sulawesi, Maluku, Nusa Tenggara) is 25:70 showing an overwhelming reliance on the areas other than Java island.

Therefore, the transportation of these agricultural products by smaller type of vessels from minor ports to such main ports as Djakarta, Surabaya, Belawan and Macassar, transportation of daily necessities on the reciprocal route, and the smooth transportation of rice, which is the staple good of Indonesia, to the consuming areas, are indispensable for the economic activities of Indonesia and for the maintenance of stable livelihood of Indonesian people.

2. interisland regular liner service and its regional imbalance

In the interisland shipping service of Indonesia, two national shipping firms, namely, P.N. Pelajaran Nasional Indonesia (PELNI) and P.N. Bahtera Adhiguna, and 53 private firms are authorized by the Government to operate in the shipping service.

Due to the 'equal opportunity policy' of the government in the past, the number of shipping firms which have been established in recent years appears to be too many. Therefore, the present government has designated 55 main internal routes as the regular liners and has started to register those vessels which engage in the regular route. Thus, the government has tried to improve the management of interisland shipping. However, the intention seems not to be fully fulfilled.

The internal regular lines in Indonesia are classified into the following three categories.

LINE (A)	(Trunk Lines)	18 lines
ROUTE (B)	(Feeder Lines)	18 lines
ROUTE (S)	(Special route to Singapore)	19 lines

Vessels engaging in these lines are mostly of the size between 500 D/W to 3,000 D/W.

According to the statistical data of the Directorate of the Sea Communication (as of March, 1970), the total number of vessels of the above-mentioned size in Indonesia is 251 (289,000 D/W) and the total of vessels being engaged in the above-mentioned lines is 314 (392,000 D/W) as shown in Appendix 2. From the viewpoint of regional distribution of these lines, 40 lines out of the above-mentioned 55 lines are concentrated in Western Part of Indonesia including Singapore.

The number of vessels engaging in this area amounts to 252 (313,000 D/W) accounting more than 80% of total number of vessels being operated. Therefore, an excessive competition including competition with shipowners of Singapore is observed in West Indonesia.

On the contrary, the East Indonesia is less developed than West Indonesia and the volume of cargo movement is smaller in East Indonesia.

The number of vessels being engaged in East Indonesia is not sufficient even for securing the stable livelihood of the local people.

However, in order to intensify political and economic unification of Indonesia and to attain the real integration, it is one of the indispensable factors to secure the regular lines in East Indonesia by increasing the number of vessels engaged in shipping service in the area.

For the promotion of interisland shipping in East Indonesia, it may be necessary to make some financial arrangement such as granting some subsidies.

On the other hand, it may be necessary to establish some system for shipping service in West Indonesia in order to avoid more excessive competition which will may be caused by the rehabilitation of ships.

It may also be necessary to unify shipping firms into joint organization or to reorganize them into a few groups in order to avoid impeding factors which have been caused by the unnecessary competition among many firms. and to maintain the shipping activities, serving for the public benefit, on commercial basis.

3. Management condition of interisland sea transportation

(a) Management condition

Generally speaking, the revenue compensates only the amount expended. It seems that some regionally monopolizing enterprises are achieving favourable management to some extent, but on the contrary among the enterprises, operating services in the eastern area, there are ones which are not able to provide even repairing expenses of ships. Owing to this fact, short of funds of the shipowners is so serious that it is the greatest obstacle to modernization of the shipping industry. It appears that shipping firms of this country generally do not have sufficient scope to consider the depreciation of ships and also have not established their accounting basis.

(b) Attitude towards management

Every Indonesian shipping enterprise, recognizing that a result of flooding with shipping firms is intensifying competition, intends to expand its business taking opportunity of bank loans and other means of raising funds. Judging from this situation, it must not be easy to lead them to a unitary operation of ships. The top ranking staff is enthusiastic and active in managing their business, but since the backbone or lower ranking personnel does not follow the top management, overall activities of the enterprise are reduced.

(c) Freight rates

The approved freight by the Indonesian Government is different in accordance with kinds of cargoes but the same rate per tonmile is applied to the same kind of cargo in all the area. However, in the western area as sufficient tonnage is available, freight rebate (normally about 30%) is practised and the approved freight is not actually maintained. On the other hand, in the eastern area as they can not afford to offer freight rebate due

to small absolute volume in the cargo movement, it is not usually practised or if practised it is given at low rate. This fact is also related to the reasons that in the western area freight forwarders, who promote the rate cut, stand between shippers and shipping companies and that on the other side freight forwarders do not exist in the eastern area.

(d) Financing

Owing to short of funds in Indonesia, bank financing is so little compared with the amount expected that the interest paid to loans per month is nearly 4%. Recently, the Central Bank started offering low-interest funds at the rate of 1% to the shipping industry but it seems that opportunities to get such funds are confined to some well-managed enterprises and to enterprises having political power.

(e) Seamen

A comparatively large scale enterprise mainly has permanently employed seamen but a small enterprise gets more seamen employed at every navigation. The details concerning the technical skill of seamen are not clear but it will be all right to regard that they are capable of performing general work. That is to say, they are competent to some extent for doing independently simple repairing work related to a ship's hull and also the conditioning of an engine in addition to ordinary work for navigation. Generally speaking, it is felt that the engineering crew is behind compared with the deck crew.

(f) Management

In the survey conducted in a short time, the details concerned with management is not clear but it seems to be considerably weak judging from the situation that the talent required for the backbone level is insufficient, the receiving of information is inconvenient on account of imperfection of the domestic communication system and the top ranking staff has to be busily engaged in raising funds. These matters, however, originate from general problems in Indonesia, and since the inter-inland sea transportation itself is not managed by first class enterprises on the whole, the rapid improvement by their own ability can not be largely expected under the

existing circumstances.

4. Improvement plan of interisland fleet

(a) Working condition of ships

The working condition of ships placed in commission of the interisland marine transportation in Indonesia is better than that of the initial expectation and it is estimated that unoperable ships are approximately 10% of the ships owned. It is, however, under such condition as the greater part of ships are barely put in commission receiving insufficient maintenance, and since the working efficiency of these ships is extremely low coupled with underdevelopment of ports and other related functions, the annual transportation efficiency of the ships per D.W.T. resulted in 5.4 tons in 1969. According to the plan of the Directorate General of Sea Communication, a forecast, as shown in the following table, is made that the volume of cargo movement in the interisland marine transportation will increase from 1,900,000 tons in 1969 to 2,358,000 tons in 1973 and getting more increase afterwards, it will reach 3,798,000 tons in 1978. On the other hand, it aims at promoting transportation efficiency up to 12 tons in 1978 from 8 tons in 1973 but as for this improvement it requires not only rehabilitation of the marine transportation but also the overall leveling up of port and harbour, land transportation, road, communication and distribution systems.

Year	Estimated cargo movement (thousand tons)	Transportation efficiency (tons/D.W.T.)	Tonnage required (thousand D.W.T.)
1969	1,900	5.4	
1970	2,037	5.83	349
1971	2,139	6	356
1972	2,246	7	320
1973	2,358	8	294
1974	2,594	9	288
1975	2,853	10	285
1976	3,139	11	285
1977	3,453	12	288
1978	3,798	12	316

(b) Replacement of ships

Among 314 vessels, 392,000 D.W.T. used at present for the interisland sea transportation in Indonesia, ships more than 15 years of age have reached 146 in number, 218,000 in D.W.T. This fact means that among the vessels operated at present, ones calling for replacement are existent more than 50%. As indicated in the plan of the Directorate General of Sea Communication of Indonesia, the replacement of ships has to be carried out at the rate of 16,700 D.W.T. every year until 1973 from 1970 onward but the greater part of shipowners are thinking to replace than by means of the purchase of second-hand vessels for the reason that the replacement with newly built ships is almost impossible in view of the present capital capacity.

III. Present condition of shipbuilding industry in Indonesia

1. Present condition of shipbuilding industry

The shipbuilding industry in Indonesia is composed of the shipbuilding yards of 17 companies building or repairing steel ships and in addition, a large number of shipbuilding yards building small size ships for coastal service. In Indonesia, the primary object is so far placed on repairing work and as for newly built ships only coasting vessels smaller than 700 tons have been built. Among these shipbuilding yards, comparatively large ones in scale are as follows.

P.N. Dock Tandjung Priok	Djakarta
P.N. Dock Surabaya	Surabaya
P.T. Pelita Bahari	Djakarta
P.T. KAPIN	Djakarta
P.T. Waiame	Ambon
P.T. PAKIN	Djakarta
P.T. Carya	Djakarta

Dock Tandjung Priok, Dock Surabaya, Pelita Bahari, KAPIN and Waiame, which are shipbuilding yards mainly specializing in repairing work, have floating docks more than 2,000 tons respectively. PAKIN and Carya, which are shipbuilding yards mainly engaged in the building new ships, are now building coasting vessels less than 300 tons and engine mounted barges smaller than 200 tons. Historically speaking, such shipbuilding yards as Dock Tandjung Priok, Dock Surabaya, PAKIN and Carya are old ones established before World War II. Pelita Bahari, KAPIN, Waiame and Dock Makassar were mainly constructed after the independence getting aid from communist countries but after the change of political power as the aid rendered by communist countries was suspended, the operation of these shipyards was commenced in the last two or three years by efforts of Indonesians. An outline of the facilities is shown in Appendix 3.

2. Activity of shipbuilding industry

(a) Repairing of ships

Repairing work in Indonesian shipyards is mostly conducted for coasting vessels smaller than 3,000 tons. Since ocean-going vessels belonging to Djakarta Lloyd and Pertamina, etc. are mainly repaired in Singapore and Hongkong, repairing work done for such vessels is very little in the country. A record on repair in the past few years is shown in the following table.

Year	Number of shipyard	Ships repaired in dock		Ships repaired alongside quay or in off-shore
		Number of ship	G.T.	
1965	5	212	176,599	1,180
1966	6	209	151,584	573
1967	7	250	144,789	293
1968	8	362	329,951	571
1969	9	457	209,911	595

Although the turnover of facilities is extremely low, the state of utilization is good and at the time of the survey all the floating docks were occupied. The utilization ratio of shipways is, however, nearly 50%. The facilities of the machine, casting and forging shops existing from prewar days are so obsolete that the capability of producing spare parts in the country is not sufficient under the present circumstances.

The Classification Society of Indonesia (BKI) enforces to undergo regular ship inspections but as a matter of fact, a large number of ships does not come into docks for three to four years. Moreover, since aged ships are large in number, 10 to 20 tons of shell plate is usually renewed. The repairing of main engines is carried out not only at shipyards but for the most part by the hand of the crew in the ships. In the domestic shipbuilding yards, repairing technique related to engine department is not sufficient yet. Repair equipment for electric devices is available in Tg. Priok and Surabaja Docks. The repairing of wireless installations, radars and refrigerating machines is performed by placing orders outside and service men are sometimes called from Singapore. As for the time required for repair including the replacement of shell plates, the standard docking period is about one month.

In regard to the acquisition of spare parts, it is generally possible to

purchase steel materials and the like in the local market concerned but in getting parts for the repairing of engines and electric devices, depending upon manufacturers, it takes about three months. The bonded warehouse plan is an idea that foreign manufacturers store spare parts in a bonded warehouse in the country of Indonesia as the stock of the manufacturers. By this means it makes possible to get necessary spare parts in short time and also it aims to lower the rate of interest by charging money interest for the stock to the manufacturers. However, kinds of parts greatly increase and as manufacturers of various countries are involved, there are many problems to put it into practice. The rate of profit obtained from repairing is expected to be 10 to 15% on the average. The payment condition of shipowners is in principle decided to pay all the amount at the time of completion of repair but in reality there is a good deal of additional repair and as this part of payment is extended from six months to one year, the management of funds is placed under a difficult situation.

(b) Construction of vessels

New ships are mainly constructed by PAKIN and Carya. Shipbuilding record and schedule of PAKIN are as follows and every year its building tonnage is increasing little by little.

1968	390T. cargo boat	2
1969	390T. and so on, cargo boat	4
	Barge and others	3
1970	360T. and so on, cargo boat	5
	Barge and others	17

Any of these ships are small in size and used for coastal navigation. In addition to them, 24 new engine mounted barges of 200 tons type have been constructed in the domestic shipbuilding yards.

Although the import of newly-built ships smaller than 1,000 tons was recently prohibited, this action was taken prospecting the possibility of domestic production. However, it is felt that construction of 1,000 tons class vessels will be somewhat difficult under the present circumstances in the light of equipment and technique.

As an example of the cost up a newly-built ship, the building cost of a 600 tons cargo boat scheduled to be constructed in 1971 is approximately 180 million rupiah.

(c) Import duties etc.

The import duties on steel materials and main engines including parts are exempted but 10% on welding electrodes and about 20% on other are imposed. Every six months reconsideration is given to the rate of import duties and at that time a measure is taken to raise the rate of taxation on possible products to be manufactured in the country. In addition, 2% of sales tax and 10% of labour tax are imposed on enterprises.

3. Demand for repair and capacity of shipyards

As stated in 4 (a) "working condition of ships," cargo movement is expected to increase year after year and to get a rapid increase especially after 1974 but in estimating the necessary tonnage of ships, Directorate General of Sea Communication holds a view that the tonnage required in future will not be necessary to increase for the reason that a measure is taken for improving transportation efficiency.

In accordance with this view, if it is deemed that the tonnage of Indonesian interisland vessels does not become larger hereafter than that of the present one, the tonnage to be repaired by the shipbuilding industry for the present is totally 640,000 tons, that is to say, 314 coasting cargo boats, 390,000 tons and tankers etc., 250,000 tons owned by Pertamina respectively.

It is generally regarded a balanced capacity of the facilities for repair is available judging from such situations that already there is a record on the repairing of 360 to 450 ships, 210,000 to 330,000 tons only by 9 major shipyards, the potential repairing capacity is presumed to be about the double of the present one and in future some repair will be also carried out in Singapore when looking at the arrangement of navigational routes. By the way, if the technical level of shipbuilders is improved in future, as a demand for the repairing of ocean-going vessels is to be added, some

expansion of repair facilities will be required. As for the replacement and repair plan of aged ships, there is a following tentative plan made by Directorate General of Sea Communication.

Year	Large Scale Repair		Replacement	Scrap		Tonnage Quantity
	Ships	D.W.T.	D.W.T.	Ships	D.W.T.	(Thousand D.W.T.)
1969						414
1970	25	36,275	16,700	34	57,468	373
1971	33	42,243	16,701	10	6,598	383
1972	47	66,668	"	10	19,143	381
1973	66	52,645	"	17	38,243	359
1974			19,235	6	9,622	369
1975			"	5	14,254	374
1976			"	6	13,755	380
1977			"	8	7,230	392
1978				36	29,597	381

Notes:

- (1) Large scale repair is to rehabilitate ships less than 15 years of age in a good condition.
- (2) Scrap is to scrap vessels more than 25 years of age.
- (3) Replacement is to make ships younger by purchasing second-hand ships in a good condition.

In the replacement of ships, the reason why they have to be replaced with second-hand ships for some time without replacing them with newly-built ships is as follows.

- (1) The Fund of shipowners is not sufficient.
- (2) Even if new vessels are placed on commission, owing to the insufficient function of facilities related to cargo collection, handling and storage, as highly efficient operation is not expected, it cannot be managed without using second-hand vessels operated at low capital expense.

If the economy of Indonesia is improved more in future, a demand for new vessels is, of course, expected but it is estimated that the quantity will be 10 to 15 ships of 1,000 to 2,000 tons type a year. The tonnage of this rehabilitation plan exceeds the necessary tonnage estimated from cargo movement but Directorate General of Sea Communication intends to adjust surplus ships by placing them on ocean services.

4. Future problems for shipbuilding industry of Indonesia

Indonesian shipbuilding companies have an intention of proceeding to the stage of new steel ships construction in future but in consequence repairing work will be preponderantly carried out in the next few years. Accordingly, the goal to be immediately attained by the shipbuilding industry of Indonesia is to get capacity for repairing as many Indonesian ships as possible in the country. Under the existing circumstances, almost all the ocean-going vessels are repaired in overseas countries, even in the case of coasting cargo boats, PELNI, which owns nearly 30% of them in terms of tonnage, practises the greater part of its repair in Singapore and shipowners in the northern part of Sumatra also have their ships repaired in Singapore in connection with their navigational routes. The following points can be taken up as the reason for repairing ships in foreign countries.

- (1) As for ocean-going vessels, the technical level of domestic yards is not sufficiently high.
- (2) From the viewpoint of income, seamen prefer their ships repaired in a foreign country.
- (3) Spare parts concerned with engine repair are easily obtained.
- (4) It is related to navigational routes.
- (5) The period of repair is short.
- (6) In Singapore it is possible to get repair in deferred payment.

Shipbuilders themselves recognize even in their view that in comparison with Hongkong and Singapore the working cost is less expensive, and the repairing cost is about 10% lower, but since the repairing period requires about three times longer, if the economical matter of shipowners is taken into consideration, it is made advantageous to get repair conducted in a foreign country. Accordingly, in promoting the domestic repairing work for Indonesian ships, individual countermeasures are required for the various matters related to these causes that the repair is performed outside the country, but the most important points are (1) short of funds of shipowners is so serious that an urgent measure to this is to be taken and (2) in the side of shipbuilders, efforts are to be made so as to shorten the repairing period and to improve technique.

Short of funds of shipowners impedes not only the development of the domestic sea transportation itself but is also creating a habit of increasing the rate of deferred payment for repairing charge by adding more repairing items to the original contract of repair. Therefore, shipbuilders are troubled with confusion of repairing processes and the raising of funds causing a discredit to shipowners.

For raising technical level, there are several companies, putting training schools within the enterprises, are trying to promote the skill of workers and making efforts to train skilled hands. But generally speaking, the skilled ability is fairly low at present and due to the shortage of backbone skilled workers and technicians, the replacement of shell plates and painting work are mainly executed. Especially the repairing of engine department is, most cases, done by shipowners themselves and it is said to be lower at cost. This means that some problems are existing in the repairing ability for engine department in the side of shipbuilders in addition to the problem related to the acquisition of spare parts.

The reason why the repairing period is extended over an extremely long space of time is that there is a great deal of additional repairing work requested by shipowners together with the problem of the technical level in the side of shipbuilders, furthermore a long time is required to get spare parts and the number of inspectors is not sufficient.

In recent years, as financing at the rate of low-interest was commenced by the Central Bank to shipowners and the Classification Society of Indonesia (BKI) is directing shipowners to follow the inspection time the activity of the shipbuilding industry is getting more active. If the financial condition of shipowners is improved, the management of shipbuilding yards will be made better and it will also make possible to promote their modernization. Moreover, as the following step, it requires the level up the shipbuilding industry so as to make able to cope with the repairing of ocean-going vessels as well as the building of new ships.

IV. Technical cooperation steps to be taken for promotion of shipping and shipbuilding industries in Indonesia

The steps to be taken for the technical cooperation contributing toward the promotion of shipping and shipbuilding in Indonesia may be divided into two broad categories: One step is to send an advisors' group who makes out a master plan for the development of sea transportation in Indonesia, staying in the Indonesian Government, and who gives advice for an effective implementation of the prepared master plan with the economic cooperation funds offered by Japan, and, the other steps are to dispatch Japanese experts for educational assignments in the required fields of shipping and shipbuilding in Indonesia or to receive the corresponding Indonesian experts in training programs relevant to their training needs in Japan and to supply machines and equipment necessary for educational and research activities to Indonesia.

Here follows a discussion on the above-mentioned technical cooperation steps by each category. It may possibly be necessary in the course of their implementation that the technical cooperation with these steps should develop on a larger scale, extending over a wide range of shipping and shipbuilding industries in Indonesia.

1. Dispatch of advisory group

The Indonesian Government admits that her interisland shipping has made a belated start for its rising, and strongly feels it necessary to embark on the reconstruction of the business. Under this situation, the Government plans to make full use of experienced foreign experts of advanced countries for the purpose of preparing a master plan for the reformation of Indonesian shipping. And along with this policy of the Government, Dr. Salim, Vice Chairman of BAPPENAS, and Mr. Nimpuno, Director General of Sea Communication of Ministry of Communications expressed their wishes to invite an advisors' group from Japan.

The Indonesian Government intends to invite an advisors' group on the condition that it works not for its own government but for the Indonesian Government under Director General of Sea Communication. And, at the same time, the Indonesian Government wishes to make

it a rule not to expect economic cooperation funds offered exclusively for this project from a country or organ in a country, in principle, from which the advisors' group is sent for preparing the said master plan, but to voluntarily appropriate a necessary budget to this purpose from the total sum of economic cooperation funds from various advanced countries.

As expressed by Director General of Sea Communication, the Government of Indonesia expects technical cooperation covering the whole field of sea transportation including interisland shipping in Indonesia. Therefore, it is recommended to organize an advisors' group with several expert teams specialized in specific subject matters with due regard to cover a wide area of Indonesian marine transportation.

The expert teams specialized in specific subject matters are recommended to be as shown below:

Exports are experienced men specialized in

- Shipping policy
- Shipbuilding policy
- Planning and accounting of shipping business
- Commercial operation
- Maintenance and repair of ship
- Seamen affairs

And, experts specialized in

- Traffic economy
- Physical distribution
- Port and harbor
- Navigation
- Coastal communication
- Maritime law

To serve a present view, it is appropriate that an advisors' group to be sent from Japan at first should be manned to be able to draw up an economically effective plan for maintenance and repair of ships for inter-island shipping and to give advice for its implementation and also to be able to prepare a general development plan for the whole field of sea

transportation in Indonesia.

Make-up of Advisors' Group for Sea
Communication in Indonesia

(Subject Matter)	Number of Export	Remarks
Team Leader	1	
Maritime Policy	1	Shipping
"	1	Shipbuilding
Financing	1	Planning (From accounting division of shipping company)
"	1	Inspection (From inspection division of bank)
Commercial Operation & Freight	2	
Maintenance & Repair	1	From engineering division of shipping company
	1	From repair division of shipyard
Seamen Affairs	1	From seamen affairs divi- sion of shipping company
Total	10	

For reference, a list of ships made in Japan in Indonesian sea transportation is shown in Appendix 4.

2. Other steps of technical cooperation

The survey team has found some possibly effective steps to be taken for economic and technical cooperations by Japan during its survey tours at various enterprises and organizations in Indonesia. When these steps have been put into practice by the mutual consent between the two Governments, the survey team is fully assured of a great contribution to be ensured to the promotion of shipping and shipbuilding in Indonesia with these steps effectively implemented. These steps are as listed below. And, the way of actual implementation of each step recommended below should be determined in due consideration of the advices given by the above mentioned advisors'

group.

- (1) To dispatch a team of advisors assigned for maintenance and repair of ships to ships to shipyards in Indonesia.
- (2) To dispatch training experts assigned for the improvement of seamen training in Indonesia with necessary equipment and materials for its practical training.
- (3) To invite the managerial staff of Indonesian shipping and shipbuilding circles to Japan.
- (4) To supply laboratory equipment to be used for the technical development in shipbuilding to Indonesia

Appendix 1. Shipping and Shipbuilding Enterprises Received a Visit by
the Survey Team

1. Indonesia

Shipping Enterprise	Shipbuilding Enterprise
P.N. PELNI	P.N. KODJA
P.N. BAHTERA ADHIGUNA	P.N. DOCK TANDJUNG PRIOK
P.N. PERTAMINA	P.N. DOCK SURABAJA
P.T. BAHARI	GALANGAN KAPAL MAKASSAR
P.T. SRIWIDJAJA RAYA	P.T. KAPIN
P.T. PANURJAWAN	P.T. PELITA BAHARI
P.T. NUSA TENGGARA (Head and Branch Offices)	P.N. PAKIN
P.T. MERATUS	
P.T. P.P.S.S.	
P.T. DELI MADJU	

2. Singapore

Shipping Enterprise	Shipbuilding Enterprise
KIE HOK STEAM-SHIP	JURONG SHIPYARD
GUANGUAN SHIPPING	KEPPEL SHIPYARD
UNIQUE SHIPPING & TRADE	WENG CHAN ENGINEERING
P.N. PELNI (Branch Office)	EAGLE ENGINEERING

Appendix 2. Indonesian Merchant Fleet
(As of March, 1970)

(1) Operating Fleet

Local Shipping (Approximation)	410 Ships	47,000 G.T.
Interisland Shipping (- " -)	359	641,000 D.W.
Cargo Ships	314	391,000
Tankers (Approximation)	45	250,000
Overseas Shipping (- " -)	70	1,102,000 D.W.
Cargo Ships (- " -)	50	430,000
Tankers	20	672,000

Note: Sailing ships are not included in the fleet of the local shipping.

(2) Cargo-Boat of Interisland Shipping by Type of
Ownership

Under Indonesian Nationality	251 Ships	290,000 D.W.
Chartered	38	66,000
Hire-Purchase	25	35,000
Total	314	391,000

Appendix 3. Outline of Facilities of Shipyards

P.N. DOK. TANDJUNG PRIOK		
Location	Djakarta	
Facilities	Floating Dock ;	10,000 T. 6,000 T. 600 T.
	Slipway ;	2,000 T. 1,800 T.
Number of Employee ; (Contract Worker)		1,450 300
P.N. DOK. Surabaya		
Location	Surabaya	
Facilities	Floating Dock ;	20,000 T. 4,000 T. 3,500 T.
	Slipway ;	300 T. 200 T.
Building Berth ; Number of Employee ; (Contract Worker)		600 T. 1,300 400
P.T. Pelita Bahari (Former Name: Carya Putra)		
Location	Djakarta	
Facilities	Floating Dock ;	2,500 T. 1,500 T.
	Number of Employee ; (Contract Worker)	450 120

P.N. Pabrik Kapal Indonesia (PAKIN)		
Location	Djakarta	
Facilities	Dry Dock ;	600 T.
	Building Berth ;	700 T.
	Building Slip ;	150 T.
Number of Employee ;	500	
P.T. Carya		
Location	Djakarta	
Facilities	Building Berth ;	1,000 T.
	Slipway ;	300 T.
	(Repair)	50 T.
Number of Employee ;	430	
P.T. Galangan Kapal Indonesia (KAPIN)		
Location	Djakarta	
Facilities	Slipway ;	2,000 T.
	(New Building & Repair)	2,000 T.
		2,000 T.
		2,000 T.
Number of Employee ;	410	
(Contract Worker)	250	
P.T. Waiame		
Location	Ambon	
Facilities	Floating Dock ;	2,000 T.
P.N. Kodja		
Location	Djakarta	
Facilities	Building Berth ;	150 T.
	Slipway ;	100 T.
		100 T.
		100 T.
Number of Employee ;	150	

P.N. IPPA	
Facilities	(1) Djakarta Dock Berth ; 200 T. (2) Tjirobon Dock Dry Dock ; 650 T. Slipway ; 150 T. 150 T. 150 T. (3) Semarang Dock Dry Dock ; 500 T. Berth ; 300 T.
P.T. Djantra Dock & Shipbuilding Co.	
Location	Djakarta
Facilities	New Building ; Up to 200 T. Repair ; Up to 70 T.
Galangan Kapal Makassar	
Location	Makassar
Facilities	Slipway ; $70^M \times 3, 60^M \times 2$ Below a ship of 45 meters long
Number of Employee ; (Contract Worker)	150 20
P.T. Indomarine	
Location	Djakarta
Facilities	New Building ; Up to 200 T. Repair ; Up to 70 T.
P.T. Menara	
Location	Tegal
	New Building ; Up to 300 T. Slipway ; 300 T. (Repair)

P.N. Alir Mendjaja	
Location	Palembang
Facilities	New Building ; Up to 300 T. Slipway ; 200 T. 150 T. (Repair) 100 T. 100 T. 60 T.
P.T. Wahab Sidik	
Location	Palembang
Facilities	New Building ; 250 T. Slipway ; 150 T. (Repair) 150 T.
P.T. Karim	
Location	Sorong
Facilities	New Building ; Up to 700 T. Repair ; Up to 200 T.

Appendix 4. List of Ship Made in Japan (from B.K.I.)

Ship Owner	Type of Ship	DW	L x B x D	Main Engine	Shipyard	Delivery
Dwikora Muluku	Cargo-boat	340	36 ² x 7 x 3 ⁴	Yanmar-340	Gelbi	1965
P.T. Pel. Bachtera	"	1,993 G.T.	83 ⁰ x 12 ² x 6 ⁴	Mitsui-D-1600	Mitsui	1948
Dep. Bina Marga	"	738	54 ⁰ x 9 ⁸ x 5 ¹⁵	Yokohama-MAN D-765	Fukuoka Zosen	1965
P.T. Pel. Bachtera	"	2,603	77 ⁵ x 12 ⁰ x 6 ⁰	Uraga Tamashima 1,200	Sanoyasu	1956
P.T. Djawa Sumatera	"	650	42 ⁷⁴ x 7 ⁵⁸ x 3 ⁶²	MAN-300	Matsue Zosen	1941
Samudera Jaya Line	"	2,398	77 ⁵ x 12 ⁰ x 6 ⁰	Kobe-Akasaka -1,100	Sanoyasu	1955
P.N. Bachtera Adhiguna	"	2,403	77 ⁵ x 12 ⁰ x 5 ¹⁷	D-1,100	"	"
P.N. PELNI	"	2,252	77 ⁵ x 12 ⁰ x 6 ⁰	Kobe-Akasaka -1,400	"	1957
P.T. Perus Pontai Nauli	"	1,709 G.T.	80 ⁰¹ x 12 ⁰⁵ x 6 ⁰	Kobe Hatsudoki -1,400	Taiyo Zosen	"
P.N. Pertamina	Tanker	965 G.T.	62 ⁰ x 10 ⁰ x 5 ⁰	NV38-1150	Nakamaru Zosen	1959
"	"	2,500	74 ⁵ x 11 ⁶ x 6 ¹	Nippatsu -1,400	Sanoyasu	1960
"	"	4,476	89 ²⁵ x 14 ⁰ x 7 ³	Yokohama MAN -2,000	Usuki	"
"	"	4,370	90 ⁰ x 14 ⁰ x 7 ²	UET Kobe Hatsudoki -2,000	Sanoyasu	"
"	"	1,600 G.T.	71 ⁵ x 11 ⁷ x 5 ⁸⁵	Niigata -1,400	Setoda	1957
P.T. Astra Lines	Cargo-boat	913 G.T.	60 ⁹³ x 9 ⁵⁴ x 5 ⁵	Kobe Osaka -720		
P.N. Pertamina	Tanker	411 G.T.	46 ³⁹ x 7 ⁴ x 3 ⁸	Hanshin-450	Nishi Dock	1962
P.N. Bachtera Adhiguna	Tug-boat	133 G.T.	24 ⁴⁹ x 7 ² x 3 ¹	Nippatsu-530	Hayashikane	1965
Samudera Jaya Line	Cargo-boat	2,500	77 ⁵ x 12 ⁰ x 6 ⁰	Kobe Hatsudoki D-1,400	Sanoyasu	1958
Nusa Tenggara	"	"	"	"	Hayashikane	"
Samudera Jaya Line	"	2,450	77 ⁵ x 12 ⁰ x 6 ³	Nippatsu D-1,400	Shikoku Dock	1959
B.P.U. P.P.N. Gula	Rolling Stock Carrier	171	26 ⁵ x 6 ⁴ x 3	D-100x2 4 P.D.E.	Usuki	1960
Ampora Line	Cargo-boat	8,312	103x24x9	Hitachi B & W D-4,600	Hitachi Innoshima	1954
P.N. PELNI	"	1,463	60x12x4.7	Yokohama MAN D-1,500	Shikoku Dock	1961
Nutra Samudera	"	582	53 ⁵ x 9 ⁸ x 3 ⁰⁵	Yokohama MAN D-600	Taiyo Zosen	"
Pemerintah Daerah Irian Barat	"	591	"	"	Usuki	"
"	"	589	"	"	"	"
"	"	593	"	"	Taiyo Zosen	"
Nusa Nipa	"	"	"	"	Usuki	"
P.N. PELNI	"	1,463	60x12x4.7	Yokohama MAN D-1,500	Shikoku Dock	"
P.N. Pertamina	"	226 G.T.	32x10 ⁴ x 1 ⁹	Mitsubishi D-440x2	Hitachi Innoshima	1962
Garan Djakarta	"	2,500	79x13x7 ¹	Yokohama MAN D-1,400	Miho	1963
"	"	"	"	"	"	"

