



A Study on the Status of Compliance of the Philippine Domestic Merchant Fleet with the MARPOL 73/78 Convention

**A STUDY ON THE STATUS OF COMPLIANCE OF THE PHILIPPINE DOMESTIC
MERCHANT FLEET WITH THE MARPOL 73/78 CONVENTION**

1997

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for the Prevention and Management of Marine Pollution in the East Asian Seas

Published by the GEF/UNDP/IMO Regional Programme
for the Prevention and Management of Marine Pollution in the East Asian Seas

Printed in Quezon City, Philippines

MPP-EAS/Info/98/173

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EXECUTIVE SUMMARY

The GEF/UNDP/IMO Regional Programme for the Prevention and Management of Marine Pollution in the East Asian Seas conducted a national workshop on the Ratification and Implementation of MARPOL 73/78 Convention in the Philippines on 9-10 June 1997. A national action plan was developed by the workshop participants who represented the major stakeholders in the Philippine maritime industry.

The National Action Plan specifically identified issues and proposed actions to be undertaken by concerned agencies in the ratification and implementation of the MARPOL 73/78 Convention. One of the action items considered as a priority was establishing baseline data on the status of compliance of the Philippine domestic fleet with MARPOL. The Philippine Coast Guard (PCG) was identified as the lead agency for the study. Hence, this survey was conducted. Specifically, the objectives of the work were:

- a. To conduct an inventory of Philippine registered domestic vessels including information on gross tonnage (grt), service type and age;
- b. To determine the status of compliance of domestic vessels with the MARPOL 73/78 Convention;
- c. To make an estimate of the cost of achieving compliance, the time required and the overall impact of such action on the domestic shipping industry; and
- d. To develop a schedule of compliance for domestic vessels and recommend an implementation strategy for MARPOL 73/78.

Scope and Limitations of the Study

The target vessels for this survey were tankers 150 grt and above and other vessels with a gross tonnage of 400 and above. The total number of vessels that were surveyed during the study numbered 303 vessels, which belonged to four service types: tanker, passenger cargo, general cargo and container.

The study focused on the equipment requirements of MARPOL Annex I, which are believed to greatly affect the domestic shipping industry in terms of cost considerations. Survey questionnaires were administered to safety officers and/or operations/fleet managers of shipping companies. The PCG inspection report on MARPOL 73/78 Convention compliance was also included in the analysis of the data gathered.

Highlights of the Study

Below are the findings of the study:

- a. Based on 1995 records of the MARINA, the Philippine domestic fleet numbered 10,072 vessels. The merchant fleet comprise 49.84% while the fishing fleet comprise 50.16%. However, only 13% of the total merchant fleet population are Convention vessels and will be affected by the implementation of MARPOL 73/78 regulations.
- b. The status of compliance with the equipment requirements of Annex I revealed that:
 - ◆ Sixty-three percent of tankers are equipped with the 100 ppm oily-water separating (OWS) equipment and 3% are fitted with the 15 ppm oil filtering equipment (OFE). Only 8% are fitted with an oil discharge monitoring and control system.
 - ◆ For other types: 40% of passenger cargo vessels are equipped with OWS and 19% with OFE, 53% of container vessels are fitted with OWS and 33% with OFE. For general cargo vessels, 74% are equipped with OWS and 5% with OFE, respectively.
- c. Two means of retention and disposal of oily residues were identified in the study: the use of incinerators to dispose of the oily residues and the use of drums to store oily residues for disposal ashore.
- d. The cost of achieving compliance with the equipment requirements of Annex I of the convention is estimated to be P99,575,000.00 (US\$2,903,061.22 at P34.30 per dollar).
- e. The cost of achieving compliance with Annex I equipment requirements, as specified in the 1992 Amendment, is estimated to be P170,645,000.
- f. Majority of vessels complied with the documentary requirements of the Convention particularly the maintenance of an Oil Record Book and Shipboard Oil Pollution Emergency Plan (SOPEP).
- g. Reception facilities in ports were identified as a vital element in the full implementation of the regulation.

Conclusions and Recommendations

The study revealed that the majority of the domestic merchant marine fleet have complied with the basic equipment requirements of Annex I. However, with the MARPOL 1992 amendments, which will enter into force on 6 July 1998, the reduced oil content for discharges from machinery spaces to less than 15 ppm will result in a large number of domestic vessels being out of compliance.

The survey showed that the country will need to implement a compliance schedule that can be reasonably addressed by the shipowners. Based on the results of the study, the following actions were recommended:

1. Implement a compliance schedule.

Two options were presented in the survey which may be considered by the Administration in the implementation of a compliance schedule. The first option is to schedule enforcement according to type of vessel and its corresponding risk to the environment. This would mean that the equipment requirements for oil tankers would be enforced within a year from ratification while enforcement for ships 400 grt and above would begin two years after. However, full compliance would be required from all new ships and tankers.

The second option is to schedule enforcement according to age and tonnage. Under this scheme, vessels below 26 years of age (representing 78% of covered vessels) would be the first to be required to comply with the requirements, while vessels above 26 years would be required partial compliance or may be subject to waiver depending on the remaining years of service life. Full compliance would be required immediately for new ships or tankers.

2. Consider granting of waivers.

Under MARPOL 73/78, the Administration may grant waivers to ships engaging exclusively in voyages 72 hours or less and within 50 miles from the nearest land. This is subject to the condition that there are reception facilities adequate to receive the wastes accumulated during such voyages. Many domestic vessels would qualify for this waiver, thus, its use could alleviate the burden of compliance on the domestic fleet.

The study also noted that shore reception facilities were a vital component of the compliance requirements of MARPOL. At present, there are no shore reception facilities available in public ports in the Philippines.

A Study on the Status of Compliance of the Philippine Domestic Merchant Fleet with the MARPOL 73/78 Convention

I. Introduction

The 1973 International Convention for the Prevention of Pollution from Ships which was modified by the 1978 Protocol (MARPOL 73/78), entered into force on 2 October 1983. Its compulsory Annexes I (Oil) and II (Noxious Liquid Substances in Bulk) took effect on 6 April 1987 while optional Annexes III (Harmful Substances in Packaged Form) and V (Garbage) entered into force on 1 July 1992 and 31 December 1988, respectively. However, Annex IV (Sewage) has not yet entered into force. This Convention is regarded as one of the most important in the field of marine pollution prevention.

The adoption of MARPOL 73/78 was a consequence of the increasing international concern regarding marine environmental threat from oil and other pollutants from routine ship operations and tanker accidents.

However, it is also evident that developing countries like the Philippines may have difficulties in ratifying the Convention because they are not yet prepared to comply with the requirements of the international regulation which requires financial commitments from the government and the private sector—the shipowners in particular.

Nevertheless, realizing that international regulations have a direct bearing on the shipping industry and the Philippine economy as well, various sectors in the maritime industry are now pushing for the ratification of the MARPOL 73/78 Convention. This move is in support of the International Maritime Organization's (IMO) objective of promoting safety in navigation and protection of the marine environment.

In this regard, the GEF/UNDP/IMO Regional Programme for the Prevention and Management of Marine Pollution in the East Asian Seas (MPP-EAS) convened a national workshop in June 1997 on the Ratification and Implementation of MARPOL 73/78 in the Philippines. The workshop aimed to develop a consensus among stakeholders on the problems and issues, options for addressing such problems and steps to be taken for implementing MARPOL 73/78 in the country.

The workshop concluded that the Philippine overseas fleet is already in compliance with MARPOL 73/78. The status of compliance of the domestic fleet could not be established due to lack of baseline data or information from concerned government agencies.

Hence, the workshop participants felt the need to conduct a baseline study to determine the status of compliance of domestic vessels to MARPOL 73/78. The Philippine Coast Guard (PCG) was identified as the lead agency for the project. The study was specifically aimed to:

1. Conduct an inventory of Philippine registered domestic vessels including information on gross tonnage (grt), service type and age;
2. Determine the status of compliance of domestic vessels with MARPOL 73/78;
3. Make an estimate of the cost for achieving compliance, the time required and overall impact of such action on the domestic shipping industry;
4. Develop a schedule of compliance for domestic vessels and recommend an implementation strategy under MARPOL 73/78.

II. Methodology

The study proceeded from a review of available data on the domestic fleet from the Maritime Industry Authority (MARINA). The number of vessels above 150 grt for tankers and above 400 grt for other types were determined and considered as the target sample for the survey.

In the absence of sufficient data to determine the status of compliance of domestic vessels particularly with the equipment requirements of the Convention, a checklist type of survey questionnaire was developed and administered to safety officers and/or operations/fleet managers of the shipping companies of the targeted samples. Due to limited time, purposive sampling was done, giving priority to companies with the highest number of vessels that are covered by the provisions of MARPOL 73/78. The survey was conducted from 15 October 1997 to 14 November 1997.

The inspection reports from the Philippine Coast Guard (PCG) district offices were also included in the analysis of the status of compliance of domestic vessels with the Convention's equipment requirements. This is necessary to achieve a representative number of the total population of vessels covered by the Convention—above 150 grt for tankers and 400 grt for other types of vessels.

A total of 303 vessels were covered in the study belonging to four major service types: passenger cargo, general cargo, container and tanker. These types of vessels are considered to be greatly affected by the implementation of MARPOL 73/78 because majority of these vessels fall under the category of above 150 grt for tankers and above 400 grt for other types. Other service types were not included in the survey because only a minimal number of the vessels are above 400 grt and are covered by the MARPOL 73/78 requirements. Barges and lighterage are mostly non-propelled.

Information needed to determine the capacity of shipbuilding and ship repair yards was based on secondary data sources from the MARINA.

Limitations of the Study

The survey on shipping companies and inspection of PCG were limited to Annex I equipment requirements only because they have more impact in terms of cost considerations for the industry. Annex II and III do not have equipment requirements while Annex IV is not yet in force. The issue on garbage management of ship generated wastes and the provision of reception facilities are not dealt with in detail.

Because of limited time, fishing vessels were not included in the target sample. However, it does not imply that they are exempted from the provisions of MARPOL 73/78.

III. Presentation of Findings

A. MARPOL 73/78 Convention and the 1992 Amendments

MARPOL 73/78 imposes certain obligations that ratifying countries must comply with in its implementation. One of the important provisions that has a direct implication on the Philippine domestic shipping industry is compliance with the equipment requirements of the Convention. Regulation 16 requires that "all ships of 400 grt and above other than oil tankers must be equipped with oily-water separators (OWS) or an oil filtering equipment (OFE) for discharges from machinery space bilges, together with onboard tanks for retention of oily residues from separators and purifiers". Oily wastes resulting from tank cleaning operations and machinery space bilges should have an oil content not exceeding 100 parts per million. This was amended in 1992 and reduced to 15 ppm. The new standard shall apply to all ships 400 grt and above which were built after 6 July 1993 and for existing ships it shall apply on 6 July 1998. Vessels above 10,000 grt are also required to be equipped with an oil discharge monitoring and control system.

Oil tankers 150 grt and above are also required to be fitted with an oil discharge monitoring and control system and a slop tank or any cargo tank (for existing oil tankers) for storage of dirty ballast residue or tank washings from cargo tanks.

Vessels covered by MARPOL 73/78 are also required to be equipped with a standard shore connection on deck connected by a suitable pumping and piping arrangement to the waste oil tank.

Thus, the main concern of the study was to determine the status of compliance of existing inter-island vessels with the aforementioned equipment requirements of MARPOL 73/78.

B. Profile of the Philippine Domestic Fleet

The profile of the Philippine domestic fleet was taken from the MARINA vessel information system of 1995. Table 1 reveals that the merchant fleet, which is composed of 10 service types, constitutes approximately 50% or 5,020 of the total domestic fleet while fishing vessels represent the remaining 50% of the domestic fleet population. Furthermore, it was also revealed that 61% of the merchant fleet belong to the less than 100 grt category.

A further review of the available data from the MARINA on the tonnage category of domestic vessels revealed that 1,292 vessels or 26% of the merchant fleet population belong to the 100-499 grt category. However, upon individual examination of the tonnage of vessels in this particular category, the following statistics on the number of vessels above 400 grt for non-tanker vessels and 150 grt for tanker vessels were derived:

Passenger Cargo	=	140 vessels are above 400 grt
General Cargo	=	277 vessels are above 400 grt
Container	=	35 vessels are above 400 grt
Tanker	=	160 vessels are above 150 grt
Passenger Ferry	=	less than 10 vessels are above 400 grt
Towing/Salvaging	=	above 100 grt but below 400 grt
Pleasure	=	below 400 grt
Pilotage	=	below 400 grt
Barging and Lighterage	=	non-propelled vessels

Based on the above results, it can be concluded that an estimate of 13% of the merchant fleet population are covered by MARPOL 73/78 requirements.

In terms of age category, Table 2 indicates that majority or 63% of passenger cargo vessels belong to the 21-25 age category. For container vessels, most are in the 16-20 (24%) and 21-25 (36%) age categories.

The country's general cargo vessels mostly belong to the 11-15 years (25%), 21-25 years (20%) and 16-20 years (16%) age categories.

B. Status of Compliance of Vessels above 150 grt for Tankers and 400 grt for Other Types

It should be emphasized that compliance does not only mean having the equipment fitted to the vessel. Conforming to the standards set by the Administration and having the equipment operational is vital to the effective implementation of the regulation.

Table 3 shows the profile of vessels covered in the study in terms of average age and average grt. Tanker vessels 150 grt and above have an average grt of 1,687.12 and an average age of 14 years while container vessels have an average age of 16 years and the highest tonnage average of 4,916.90 grt.

The status of compliance of tanker vessels based on the equipment requirements of MARPOL 73/78 revealed that 63% of the vessels are equipped with OWS (100 ppm) and only 3% are fitted with the 15 ppm OFE (Table 4). It was also revealed that only 8% of tanker vessels have complied with the requirement on oil discharge monitoring and control system. Noteworthy is the fact that the majority of tankers plying the domestic route are product carriers with an average tonnage of 1,039 grt.

On the other hand, compliance status for other types of vessels indicated that container vessels have the highest compliance percentage—33% of the vessels are equipped with the 100 ppm OWS and 53% with the 15 ppm OFE. On the other hand, 74% of general cargo vessels are equipped with OWS (100 ppm) while only 5% are fitted with the filtering equipment (15 ppm). Passenger cargo vessels have 40% and 19% compliance with OWS and OFE, respectively (Table 5).

Moreover, it was also revealed by interviewed respondents that the issue is not only the acquisition or installation of the equipment required under the Convention but also the cost of maintaining the equipment for the prevention of marine pollution.

In this respect, the enforcement function of the PCG is very important to ensure compliance with the provisions of the Convention. An inspection program that will ensure that equipment required under the regulation is in place and functional should be established.

Results of the interview on existing practices in the retention and disposal of oily residues onboard identified two means, namely, the use of incinerators in disposing of oily residues and use of drums in storing oily residues which are collected by private companies.

In terms of compliance with the documentary requirements of the Convention, the majority of the surveyed vessels indicated compliance with the Oil Record Book and Shipboard Oil Pollution Emergency Plan (SOPEP).

D. Capacity of Shipbuilding and Ship Repair Yards (SBSR)

The 1996 MARINA Situationer Report on the Shipbuilding and Ship Repair Sector indicated that, as of December 1996, a total of 233 enterprises engaged in shipbuilding, ship repair, afloat repair, boat building and shipbreaking activities were licensed by the MARINA. Twenty-one percent or 86 of the 233 enterprises are small shipyards, 10 are medium shipyards and 14 are large shipyards. The rest are enterprises without facilities. Table 6 presents the number of licensed SBSR enterprises by category.

Facility Profile

Only 96 shipyards with a total number of 204 drydocking facilities are presently operating in the country. These facilities include marine railways, graving docks, floating docks and liftdocks primarily used for the construction and repair of vessels. It is worth mentioning that these shipyards are strategically located all over the country. The rest are licensed afloat ship repairers and ship repairers equipped with only tools and machines rather than drydocking facilities and supply contract to the shipyards.

With regard to capacity, the existing shipyards have varying capacities ranging from 59 dwt to 300,000 dwt. The Keppel group of shipyards (Subic Shipyard and Engineering, Inc., KEPPHIL Shipyard, Inc. and Cebu Shipyard and Engineering Works, Inc.) occupy 81% share of the total tonnage capacity of the top 10 shipyards. Table 7 shows the top 10 shipyards ranked according to size. They represent 90% of the total tonnage capacity offered by the 96 shipyards with drydocking facilities having a combined capacity of 1,460,690 dwt.

Personnel Profile

The Shipbuilding and Ship Repair Sector registered a total of 34,061 personnel strength. Seventy-four percent of the employed workforce are skilled workers, 1-1% are personnel at the managerial and administrative level and the smallest portion (7%) are the semi-skilled workers.

The above data show the profile of shipbuilders and ship repair yards with regard to existing facilities and manpower complement. They merely show that in cases where major repairs are required for vessels to comply with MARPOL 73/78 requirements, the services can be provided within the country.

On the other hand, it was also revealed that it is not necessary to bring vessels to shipyards to install OWS or OFE. An interview with a supplier revealed that these equipment can be installed while the vessel is on voyage. The supplier can provide the personnel to install the equipment or the ship's engineer can be trained for such task. It will only take an average of two days to install the equipment or another two weeks if the ship needs piping and pumping arrangements.

IV. Estimated Cost of Achieving Compliance

In order to determine the cost of achieving compliance with the requirements of the Convention, the price quotation of equipment required under MARPOL 73/78 was surveyed. The average costs of equipment are as follows:

Oily-water separating/filtering equipment	----- P 200,000
Cost of installation	----- P 30,000
Oil discharge monitoring and control system	----- P 275,000
Cost of installation	----- P 30,000

In the computation of cost involved in achieving compliance with MARPOL 73/78, the number of vessels fitted with the equipment which are operating was used rather than the total number of vessels equipped with the equipment regardless of whether it is operating or not.

Hence, the data on the status of compliance of inter-island vessels with the equipment requirement of Annex I are summarized as follows:

Type of vessel	Status of compliance
Tanker vessel	OFE - 3%
	OWS - 63%
	ODMS - 8%
Passenger Cargo	OFE - 19%
	OWS - 40%
General Cargo	OFE - 5%
	OWS - 74%
Container	OFE - 53%
	OWS - 33%

*OWS - oily-water separating equipment

OFE - oil filtering equipment

ODMS - oil discharge monitoring and control system

In order to determine the number of vessels that are out of compliance with the equipment requirements of Annex I, the following computations were made:

Tanker vessels ---P58,405,000

Other types (passenger cargo, general cargo and container) --- P41,170,000

However, if the Administration will strictly enforce the 15 ppm standard for OWS/OFE, the amount involved in bringing the domestic merchant marine fleet into compliance will double. Hence, the following estimates were also drawn:

-The cost involved for tankers to achieve compliance with oil filtering equipment and oil discharge monitoring and control system is P80,485,000.

-For other types of vessels, it was revealed that 392 vessels still have to comply with the requirement on 15 ppm filtering equipment which will amount to P90,160,000.

V. Proposed Schedule of Compliance

Based on the results of the study, it can be concluded that the country has been implementing the basic equipment requirements of Annex I of MARPOL 73/78. However, with the enforcement of the 15 ppm standard for ships 400 grt and above, a large number of the existing merchant marine fleet will be considered to be out of compliance with MARPOL 73/78.

The cost involved in achieving compliance was presented in the previous section of this study and indicated that the estimated cost to comply with the basic equipment requirements of the Convention will amount to more or less P99,575,000, and will almost double if the 15 ppm effluent standard will be strictly enforced. However, the above estimate may be reduced if a free standing process unit to convert the existing 100 ppm OWS to 15 ppm OFE is available locally. At the moment, local suppliers have not ventured into acquiring this type of equipment for lack of demand.

It is therefore proposed that the Administration adopt a compliance schedule that will pose less burden on the part of the shipowners and will be more practical to implement. The following options are therefore recommended:

Option A: Compliance based on vessel type and risk to the environment

Oil tankers have to comply with a great number of provisions compared with other ship types because they carry vast quantities of oil and therefore pose greater threat to the marine environment. The threat that oil tankers pose can best be appreciated by considering normal tanker operations. The different stages involved in normal tanker operations such as loading, unloading, ballasting and tank cleaning are likely to produce

waste oil or residues which are harmful to the marine environment when directly discharged into the sea. Although product tankers are likely to change products, they have to clean not only tanks for clean ballast but all other tanks where product contamination may occur.

With this in mind, the Administration may implement a schedule of compliance according to vessel type and require existing tankers to fully comply with the provisions of the Convention within a year and two years for other types of vessels as indicated below:

- | | |
|--|---|
| Existing tankers | - full compliance one year from date of ratification |
| Other existing ships 400 grt and above | - full compliance two years after date of ratification. |
| New ships or new tankers | - full compliance from date of ratification |

As indicated in regulation 15(5) of Annex I of the Convention, the Administration may grant waivers to oil tankers which engage exclusively in voyages of only 72 hours or less in duration and within 50 miles from the nearest land, and provided that oil tanker is engaged in trade between ports and terminals within a state party to the Convention. The regulation further states that “any such waiver is subject to the requirement that oil tanker shall retain all oily mixtures for subsequent discharge to reception facilities and to the determination by the Administration that facilities available to receive such oily mixtures are adequate”. This waiver may be utilized to mitigate the burden of compliance by the domestic fleet.

Option B: Compliance based on age and tonnage of vessels

Based on MARINA statistics, the combined gross tonnage of vessels under the four service types covered in the study represents 76% of the total gross tonnage of the domestic merchant marine fleet. An average of 78% of these vessels are below 26 years old. For foreign-going ships, vessels above this age category are usually scrapped.

With this in view, the Administration may implement a compliance schedule whereby the age category of vessel and tonnage category are being considered. Below is a proposed schedule of compliance:

1. For new ships or new oil tankers - full compliance after the date of ratification

2. For existing ships

- a) Vessels with age category below 26 years - full compliance shall be one year after the date of ratification of the Convention.
- b) Vessels with age category above 26 years -
 - i) with still 5 years or more service life, partial compliance
 - ii) with less than 5 years service life, equipment and arrangement waivers may be granted by the Administration.

Vessels which qualify for partial compliance shall not be required to replace or convert their existing 100 ppm OWS to 15 ppm OFE.

The granting of waivers is subject to the conditions indicated in regulation 15(5) of MARPOL 73/78 Convention as previously stated in Option A.

VI. Conclusion and Recommendations

It is well stated in the Convention that granting of waivers by the Administration is subject to the availability of adequate reception facilities in ports or terminals to receive oily mixtures from vessels. Moreover, it is generally believed that the availability of reception facilities in major ports is the weakest link in the implementation of MARPOL 73/78. The government should therefore take this obligation seriously. If not, it will be impossible for the shipowners to comply with their obligations.

Studies should be conducted as to the type and capacity of reception facilities to be established in the major ports of the country. This should be done carefully so that the appropriate technology will be put in place rather than relying on the available technology offered by donor countries.

It should be emphasized that the "effectiveness of international conventions depends upon the degree to which they are obeyed and this in turn depends largely upon the extent to which they are enforced".

With this in view, the immediate ratification of MARPOL 73/78 is necessary in order for the country to upgrade the safety and environmental standards in the domestic shipping and gain a competitive advantage in the international shipping industry.

Table 1: Number of Domestic Operating Fleet by Type of Service and by Tonnage Group and Average grt, 1995.

Type of service	Total	% Share	Tonnage group									Ave. grt
			3 to 99	100 to 499	500 to 999	1,000 to 1,499	1,500 to 1,999	2,000 to 2,999	3,000 to 4,999	5,000 and over	No info	
Total	10,072	100.00	7,687	1,712	309	77	43	62	71	31	80	-
% Share	100.00	-	76.32	17.00	3.07	0.76	0.43	0.62	0.70	0.31	0.79	-
Merchant fleet	5,020	49.84	3,072	1,292	299	75	42	62	71	31	76	296.07
% Share	100.00	-	61.20	25.74	5.96	1.49	0.84	1.24	1.41	0.62	1.51	-
Passenger ferry	1,096	10.88	825	239	-	-	-	1	-	-	31	28.35
Passenger cargo	353	3.50	118	120	38	12	8	11	17	22	7	1,073.20
General cargo	2,145	21.30	1,573	387	89	32	6	22	17	4	15	203.89
Container	39	0.39	-	-	3	4	2	13	12	5	-	3,373.54
Liquid cargo/ Lighterage	20	0.20	7	12	1	-	-	-	-	-	-	239.02
Barging	546	5.42	41	330	136	18	9	4	7	-	1	485.73
Tanker	173	1.72	5	84	25	8	17	10	17	-	7	1,039.80
Towing/Salvage	444	4.41	338	94	4	-	-	-	-	-	8	82.82
Pleasure	54	0.54	44	10	-	-	-	-	-	-	-	45.93
Pilotage	12	0.12	10	1	1	-	-	-	-	-	-	108.04
Others	138	1.37	111	15	2	1	-	1	1	-	7	110.16
Fishing	5,052	50.16	4,615	420	10	2	1	-	-	-	4	36.00
% Share	100.00	-	91.35	8.31	0.20	0.04	0.02	-	-	-	0.08	-

SOURCE: MARINA, 1995

Table 2: Gross Tonnage of Domestic Operating Fleet by Type of Service and by Age Group and Average grt, 1995.

Type of service	Total	% Share	0-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	Above 40	No info	Ave. grt
Total	1,645,542	100.00	176,050	143,444	252,865	265,464	475,369	192,237	54,298	22,631	34,229	28,954	164.69
% Share	100.00	-	10.70	8.72	15.37	16.13	28.89	11.68	3.30	1.38	2.08	1.76	-
Merchant fleet	1,463,793	88.96	142,407	124,642	238,574	238,798	433,032	166,982	45,155	19,475	30,389	24,339	296.07
% Share	100.00	-	9.73	8.51	16.30	16.31	29.58	11.41	3.08	1.33	2.08	1.66	-
Passenger ferry	30,191	1.83	5,943	5,471	4,319	4,150	5,802	2,382	354	1,194	332	243	28.35
Passenger cargo	371,327	22.57	4,032	4,610	24,144	41,329	233,516	34,245	13,925	7,826	1,778	5,921	1,073.20
General cargo	434,278	26.39	45,792	37,595	107,731	69,920	87,325	60,651	10,930	3,944	3,741	6,650	203.89
Container	131,568	8.00	-	10,950	10,221	31,479	47,819	20,558	921	3,506	2,064	4,049	3,373.54
Liquid cargo/ Lighterage	4,780	0.29	600	134	964	1,392	985	294	-	158	181	72	239.02
Barging	264,724	16.09	63,387	44,975	51,569	44,630	18,877	27,749	6,476	2,637	3,978	447	485.73
Tanker	172,608	10.49	12,279	16,931	32,855	37,146	30,013	9,349	10,395	-	17,383	6,257	1,039.80
Towing/ Salvage	36,109	2.19	6,785	3,388	5,643	6,970	4,876	6,511	810	211	634	281	82.82
Pleasure	2,480	0.15	322	314	89	549	611	-	345	-	250	-	45.93
Pilotage	1,297	0.08	1,161	13	15	-	15	35	16	-	43	-	108.04
Others	14,431	0.86	2,107	260	1,025	1,232	3,194	5,207	983	-	4	420	110.16
Fishing	181,749	11.04	33,643	18,803	14,291	26,667	42,337	25,256	9,144	3,156	3,840	4,615	36.00
% Share	100.00	-	18.51	10.35	7.86	14.67	23.29	13.90	5.03	1.74	2.11	2.54	-

SOURCE: MARINA, 1995

Table 3: Profile of Sample.

Service type	Total number	Average age	Average grt
Tanker	74	14.28	1,687.12
Non-tanker			
*Passenger cargo	80	22.95	3,384.25
*General cargo	134	18.84	1,457.60
*Container	15	15.73	4,916.90
Total	303	17.95	2,861.46

Table 4 : Status of Compliance of Tanker Vessels.

Equipment requirement	No. of vessels with equipment						No. of vessels without equipment	
	Operational		Non-operational		Total		F	%
	F	%	F	%	F	%		
Oily-water separator	47	63.5	9.0	12.2	56	75.7	18	24.3
Oil filtering equipment	2.0	2.7	2.0	2.7	4.0	5.4	70	94.6
Oil discharge monitoring & control system	6.0	8.11	0	0	6.0	8.1	68	91.9

Table 5: Status of Compliance of Other Types of Vessels.

Equipment requirement	Number of vessels with equipment						Number of vessels without equipment	
	Operational		Non-operational		Total		F	%
	F	%	F	%	F	%		
Passenger cargo								
Oily-water separator	32	40.0	17	21.25	49	61.25	31	38.75
Oil filtering equipment	15	18.7	1	1.25	16	20.0	64	80.0
General cargo								
Oily-water separator	99	73.9	6	4.47	105	78.37	29	21.64
Oil filtering equipment	7	5.2	3	2.24	10	7.46	124	92.53
Container								
Oily-water separator	5	33.3	1	6.66	6	40	9	60
Oil filtering equipment	8	53.3	1	6.66	9	60	6	40

Table 6: Number of Licensed SBSR Enterprises by Category.

Category	1995	1996
Shipbuilder (SB)	-	-
Ship repairer (SR) with drydocking facilities	12	13
Shipbuilder/Ship repairer (SBSR)	79	86
Ship repairer (afloat/without drydocking facilities)	113	123
Boatbuilder	7	9
Shipbreaker	1	1
Shipbreaker/shipbuilder/or ship repairer	1	1
Total	213	233

SOURCE: MARINA, 1996

Table 7: Top 10 Shipyards in the Philippines in Terms of Facilities as of 1996.

Company name	Facility	Capacity (dwt)	Percent
1. Subic Shipyard & Engineering, Inc.	graving dock building/ repair berth	1,012,500	69.3
2. KEPPHIL Shipyard, Inc.	building/ repair berth floating dock liftdock	105,100	7.2
3. Cebu Shipyard & Engineering Works, Inc.	slipway shipbuilding way graving dock	61,800	4.2
4. Tsuneishi Shipyard (Cebu), Inc.	slipway floating dock	28,000	2.0
5. Mindanao Shipbuilding Corp.	slipway	23,250	1.6
6. A.G.&P Co. of Manila (Marine), Inc.	slipway shipbuilding way building/ repair berth	21,000	1.4
7. Mariveles Shipyard Corp.	slipway graving dock	16,500	1.1
Sandoval Shipyard, Inc.	slipway graving dock	16,500	1.1
8. Dansyco Marine Works & Shipbuilding Corporation	shipbuilding way building/ repair berth	15,000	1.0
9. Phil. Iron Const. & Marine Works, Inc.	slipway liftdock	13,500	0.9
10. F.F. Cruz & Co., Inc.	slipway launching pad	10,500	0.7