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WORLD MARITIME UNIVESITY
Malmö, Sweden

**ENHANCEMENT OF MARITIME SAFETY IN THE
PHILIPPINES**

By

BADAJOS JOSEPH B.

PHILIPPINES

A dissertation submitted to the World Maritime University in partial fulfilment of the
requirements for the award of the degree of

MASTER OF SCIENCE

in

MARITIME SAFETY AND ENVIRONMENTAL PROTECTION

1999

ABSTRACT

Title of Dissertation: **Enhancement of Maritime Safety in the Philippines**

Degree: **Master of Science**

This dissertation is an analysis of the Maritime Safety Improvement Projects in the Philippines specifically the country's aids to navigation (ATON) system as a pillar in the enhancement of safety of the shipping industry. Their levels of implementation, component mix and overall effect in the enhancement of maritime safety were carefully scrutinised, leading to a careful study of their viability and appropriateness.

The background of the projects was carefully studied to determine if the justification presented was viable or not. One overriding factor that was identified is the limiting cost of the projects. The analysis presented is that the continuous operation and maintenance of the country's ATON system hinges on the capability of the government to subsidise the activity from its own coffers. However, since maritime transport is a shared activity between the government, the public and private sectors, there is an identified imbalance on the provision of the services necessary to protect this shared interest. The shipping industry and, consequently, the public must therefore be made to account for some of the costs involved in the protection of their interests in the activity.

A cost-sharing scheme was therefore conceived to correct this imbalance and ensure the continuous operation and maintenance of the ATON systems. A comparative analysis on the cost recovery program of other countries was presented to show how the country should benefit from such a scheme. The recommendation for the adoption of such a cost recovery scheme aims to help the three sectors achieve their common goal of ensuring the safety of the activity in which they are all involved.

KEYWORDS: ATON, maritime safety, cost-sharing, cost recovery

TABLE OF CONTENTS

Abstract		1
Table of Contents		2
List of Tables		5
List of Figures		5
List of Abbreviations		6
1	Introduction	
1.1	Background	9
1.2	Aims and Objectives	12
1.3	Relevance to the Field	13
1.4	Methodology	13
1.5	Scope and Limitation	14
2	An Overview of the Philippine Maritime Transportation System	
2.1	Philippine Maritime Transportation Outline and Framework	15
2.2	Maritime Transportation Infrastructure	17
2.2.1	Sea Routes, Ports and Harbours	18
2.2.2	Aids to Navigation	19
2.2.3	Search and Rescue	20
2.2.4	Maritime Communications	21
2.3	The Shipping Industry	21
2.3.1	Condition of the Shipping Industry	22
2.3.2	Maritime Transportation Market	23
2.3.3	Passenger-Cargo Traffic	23

2.4	Future Trends for Maritime Transportation	24
2.5	Developmental Policy, Planning and Investment	25
3	Maritime Accident Analysis	
3.1	Anatomy of Maritime Accidents in the Philippines	27
3.2	Analysis of the Occurrence of Maritime Accidents	28
3.3	Summary of Maritime Accidents	29
4	The Comprehensive National Maritime Safety Plan	
4.1	Conceptual Framework of the National Maritime Safety Plan	31
4.2	Aids to Navigation as an Integral Part of the Plan	33
4.2.1	The Role of the Philippine Coast Guard	34
4.2.2	National and International Commitments of the National Lighthouse Authority (PCG)	35
4.2.3	ATON Master Plan of the PCG	38
4.3	The Maritime Safety Improvement Projects and their Levels of Implementation	42
4.3.1	MSIP-I	43
4.3.2	MSIP-IB	45
4.3.3	MSIP-IC	46
4.3.4	MSIP-II	47
4.3.5	MSIP-IIB	48
4.3.6	MSIP-III	49
4.3.7	MSIP-IV	49
5	Cost Benefit Analysis and Effectiveness of the MSIP	
5.1	Performance Standards and Effectiveness of Aids to Navigation	51

5.1.1	Analysis of the MSIP Component Mix	52
5.1.2	Factors Affecting Performance and Effectiveness	53
5.1.3	Viability of the MSIP vis-à-vis Maritime Accidents	56
5.2	Safety Versus Economy	57
6	Recommendations for Cost Recovery	
6.1	Factors Affecting the Institution of Lighthouse Dues	58
6.2	Comparative Study of International Practices for Cost Recovery	60
6.2.1	Philippines	60
6.2.2	United States of America	62
6.2.3	Sweden	62
6.2.4	Finland	63
6.2.5	United Kingdom	63
6.2.6	Australia	64
6.3	Safety Recommendations	64
6.4	Proposed National Legislation on the Collection of Lighthouse Dues	67
	Bibliography	69
	Appendices	
Appendix 1	Definition of Sea Routes	71
Appendix 2	Republic Act No. 7471	72
Appendix 3	Presidential Decree No. 760, as amended by Presidential Decree No. 1711	78
Appendix 4	Executive Order No. 314	82
Appendix 5	Republic Act No. 5173	85
Appendix 6	Proposed Executive Order Authorizing the Collection by the PCG of Lighthouse Dues	90

LIST OF TABLES

Table 2.1	Cumulative Ship Calls in Philippine Ports	13
Table 3.1	Total Maritime Accidents for the First Ten Months of 1998	20
Table 3.2	Maritime Accidents Categorised by Cause	20
Table 4.1	Annual PCG Subscription to the IALA	28
Table 5.1	Component Mix of the MSIP's	44
Table 6.1	Cost Sharing Scheme for the Cost Recovery Of Marine Services	58

LIST OF FIGURES

Figure 2.1	Framework of Maritime Transportation	8
Figure 2.2	Primary Sea Routes	10
Figure 3.1	Total Maritime Accidents	19
Figure 4.1	ATON Concept	30
Figure 4.2	International Landfalls	32
Figure 4.3	Domestic Landfalls	33
Figure 4.4	MSIP-I Rehabilitation Project	36
Figure 6.1	Comparative Matrix on International Practices for Cost Recovery	57

LIST OF ABBREVIATIONS

AF	Armed Forces (Meaning the Armed Forces of the Philippines)
AMSA	Australian Maritime Safety Authority
AOR	Area of Responsibility
ARPA	Automatic Radar Plotting Apparatus
ATON	Aids to Navigation
CGS	Coast Guard Station
CGSD	Coast and Geodetic Survey
DFID	Department for International Development (UK)
DND	Department of National Defense
ECDIS	Electronic Chart Display and Information System
EO	Executive Order
FAD	Fundo de Ayuda al Desarrollo (Spain)
FMA	Finnish Maritime Administration
GDP	Gross Domestic Product
GNP	Gross National Product
GPS	Global Positioning System
gt	Gross Tonnage
IALA	International Association of Lighthouse Authorities
ICC	International Coordination Committee
IMO	International Maritime Organization

JICA	Japan International Co-operation Agency
KfW	Kreditanstalt fur Wiederaufbau (Germany)
LGU	Local Government Unit
MARINA	Maritime Industry Authority
MBCS	Meteorburst Communications Systems
MSIP	Maritime Safety Improvement Project
MTBF	Mean Time Between Failures
MTTR	Mean Time To Repair
NAMRIA	National Mapping and Resource Information Authority
NAVAIDS	Navigational Aids
NEDA	National Economic Development Authority
NMSCC	National Maritime Safety Coordinating Council
nt	Net Tonnage
NtM	Notice(s) to Mariners (IALA Abbreviation)
ODA	Overseas Development Agency (UK)
OECD	Overseas Economic Development Fund (Japan)
PAGASA	Philippine Atmospheric, Geographic and Storm Advisory
PCG	Philippine Coast Guard
PD	Presidential Decree
PISA	Philippine Inter-Island Shipping Association
PN	Philippine Navy
PPA	Philippine Ports Authority

RA	Republic Act
SART	Search and Rescue Transponder
SMA	Swedish Maritime Administration
USCG	United States Coast Guard
VTMS	Vessel Traffic Management System
VTSS	Vessel Traffic System
WMU	World Maritime University

INTRODUCTION

1.1 BACKGROUND

In the earliest days of navigation at sea when voyages would have been mainly coastwise (Naish, 1985), man depended on natural landmarks to sail his ship safely along the route he intended to take. These landmarks were in the form of bold headlands or white cliffs and later on, church towers or steeples prominent even far out to sea as settlements grew along the route particularly frequented by ships. These landmarks served as reference points for the ship's navigator to maintain a safe distance from the shoreline.

In later years when the shipping industry grew because of trade and expansionism, voyages got even longer as ships sailed across continents. In the middle of the great oceans where there are no landmarks available, navigators had to make use of other implements available on board their ships to prosecute their voyages. The most prominent of these implements is the sextant which was used to fix the position of a ship on the earth's surface based on the relative position of a celestial body like the sun or a prominent star.

Even as early as in that era of navigation, a very clear distinction could have been made between navigational aids (NAVAIDS) and aids to navigation (ATON).

According to Mukherjee (1999), NAVAIDS are shipborne implements that are used by the navigator to establish his position at sea. In the early days, these included a compass, a nautical chart, and a sextant. The latter he used for determining the relative position of the sun and other celestial bodies like stars he could identify and later, translating these to his chart through mathematical calculations to fix his position on the earth's surface. More modern forms of NAVAIDS equipment include radars, automatic radar plotting apparatus (ARPA), and global positioning system (GPS).

On the other hand, ATON are either natural or man-made devices external to a vessel that can be utilized by a navigator to determine his position at sea or steer clear of an obstruction. Early types include fire-lit lighthouses and natural topographic features like steep rocks and hills. Others include castle or church towers that can be seen prominently from far out to sea. More modern ATON equipment include buoys, beacons, racons, and unmanned lighthouses powered by solar batteries.

Despite the development of these various devices to enhance safety of navigation, ships continue to founder and run aground that contribute largely to loss of life and property at sea. This comes as no surprise, however, because no matter the form of the aid, whether ATON or NAVAIDS, the human element always surfaces as a significant factor.

External aids are under the control of shore-based personnel and their (external aids) operation or non-operation can surely affect the navigator. In the same manner, shipborne NAVAIDS are under the control of the navigator; yet, his equipment can give him the wrong signals that will affect his decision in navigating his ship.

In terms of development, recent trends show that NAVAIDS are getting more attention vis-a-vis ATON. Various regimes regulating shipping safety tend to be

more focused on enhancing shipborne NAVAIDS i.e., the introduction of the ARPA, electronic chart display and information system (ECDIS), and search and rescue transponders (SARTs), to name a few. To some extent, even the vessel traffic (VTS) system is appearing to be like a substitute for the pilotage scheme rather than an augmentation to improve overall navigational safety.

For these very reasons including the unprecedented growth of the world shipping industry, efforts have been made to establish a universally accepted system of providing ATON. The whole world, through the International Maritime Organization (IMO), began to conform to the International Association of Lighthouse Authorities (IALA) unified system of providing ATON only in 1981.

On the part of the Philippines, the development of the country's ATON system was underdeveloped. It only gained attention when the function of maintaining the lighthouse system was transferred from the Bureau of Public Works to the Philippine Coast Guard (PCG) when the latter was established as a unit of the Philippine Navy (PN) in 1967. The Philippines had already been a member of the IALA but even then, little support was directed to the development of the country's lighthouse system.

In August 1992, the Philippine government commissioned the Japan International Cooperation Agency (JICA) to undertake a study and propose for a Master Plan on Maritime Safety in the Republic of the Philippines. This was precipitated by the frequent maritime accidents that the country had suffered in the years previous to the study.

The master plan highlighted, among others, the need to commission 1,500 lighthouses nationwide in order for the country to meet international standards of maritime safety. This is in addition to the 418 light stations already in the PCG inventory. This gave birth to the various Maritime Safety Improvement Projects (MSIPs), some of which have already been completed while others are still in their

implementation phases. Yet the Philippines is a developing country and it can hardly bear the cost of undertaking such a project in one whole package. The projects then were broken into smaller components and financing was obtained through soft loans from developed countries such as Japan and the United Kingdom.

1.2 AIMS AND OBJECTIVES

The MSIPs deal mainly with the upgrading of the country's ATON infrastructure including the strengthening of the PCG's capability to maintain and operate them. The objective is to enhance safety of shipping and navigation and thus reduce the occurrence of maritime accidents in Philippine waters.

Inasmuch as one of the buzzwords in the shipping industry today is 'quality', this dissertation aims to analyze the 'fitness for purpose' of the projects and draw conclusions as to how they can be further enhanced. Specifically, the objectives of the study are as follows:

- .1 Determine the need for the improvement of maritime safety in the Philippines through the establishment and maintenance of lighthouses and other aids to navigation.
- .2 Determine the country's national and international obligations in the improvement of maritime safety along its coastlines.
- .3 Examine the current level of implementation of the maritime safety improvement projects.
- .4 Study the cost-benefit effectiveness of the maritime safety improvement projects.
- .5 Make recommendations for a cost recovery program.

1.3 RELEVANCE TO THE FIELD

Before they achieved their successes as world maritime powers, Japan, Singapore, South Korea and Hong Kong invested heavily on the development of their maritime industries. With the development of their shipbuilding and ship repair capabilities, these countries also upgraded their port infrastructures to cope with the ever-growing need for safe and efficient carriage of cargo to and from their ports. Economies of scale play a vital role in world seaborne trade and shipowners and shipping companies look favorably to a well-developed port to protect their interests.

Ports are, in most cases, located inside protected harbours and waterways. A ship has to navigate safely along these harbours and waterways before it can enter a port to load and unload its cargo or passengers. This has to be done in all kinds of weather and at any time of the day or night.

A well-developed port must therefore include an efficient ATON system to ensure the safety of shipping and navigation along the routes leading to that port. Maritime administrations are in fact mandated by national and international regulations to provide for such a system.

Aside from the objectives of enhancing safety of shipping and reducing the occurrence of maritime accidents, the MSIPs can also find relevance in projecting the country's ports as reliable hubs of world seaborne trade activities. A close study of the method of implementing the projects and drawing conclusions on how they can be further enhanced can serve as a guide to other maritime administrations in the improvement of their maritime infrastructures.

1.4 METHODOLOGY

The study was conducted initially through the gathering of documents and data from the various sectors involved in the MSIPs. These agencies include the PCG,

the Philippine Ports Authority (PPA), the Maritime Industry Authority (MARINA), the JICA, and the Department of Transportation and Communications (DOTC). Information on the ATON systems of other countries was sought through personal interviews by the author with resident World Maritime University professors. The author also relied heavily on previously published materials and related literature to get more insight on ATON systems.

1.5 SCOPE AND LIMITATION

This dissertation deals primarily with the study and analysis of the maritime safety improvement projects in the Philippines. Some of these projects are already in place or are being implemented while some are still on the drawing board. The focus is on the appropriateness of the projects and how they can be further enhanced. Corollary to this, the materials used in the study are mostly published sources from which comparisons and conclusions were drawn and adopted.

This dissertation does not represent a finality of the study and analysis of the MSIPs. The perceived end-users of the projects i.e. the shipping industry at large were not consulted especially on the nature of ATON systems needed by the seafarers themselves or if the shipowners are willing to share the cost of upgrading the country's ATON infrastructure. Future studies can therefore still be done specifically focusing on the side of the end-users.

Chapter 2

AN OVERVIEW OF THE PHILIPPINE MARITIME TRANSPORTATION SYSTEM

2.1 PHILIPPINE MARITIME TRANSPORTATION OUTLINE AND FRAMEWORK

Over 7,100 islands constitute the Republic of the Philippines the combined land area of which amounts to 300,000 sq km (115,831 sq miles) (Demaine, 1998, 950). Of these multitudinous islands, some 880 are inhabited and 462 have an area of 2.6 sq km (1 sq mile) or more (Ibid.). This archipelagic nature of the country makes it inevitable that people make use of the intervening seas as an alternative means of transportation for both people and commercial goods. While land transportation makes up the bulk of intra-island transportation, long-haul transportation is dominated by maritime transportation. In terms of transportation allotments (in tons/km and people/km), roads accommodate 65% and 90%, respectively while maritime transportation makes up 35% and 7% (JICA, 1992, II-1).

The country's maritime transportation system basically involves two sectors: the shipping industry (private sector) which is the common carrier, and the government (public sector) which supervises, protects and promotes the shipping

industry. If viewed in terms of its evolutionary concept, the framework of the maritime transportation system can be illustrated as shown in Figure 2.1.

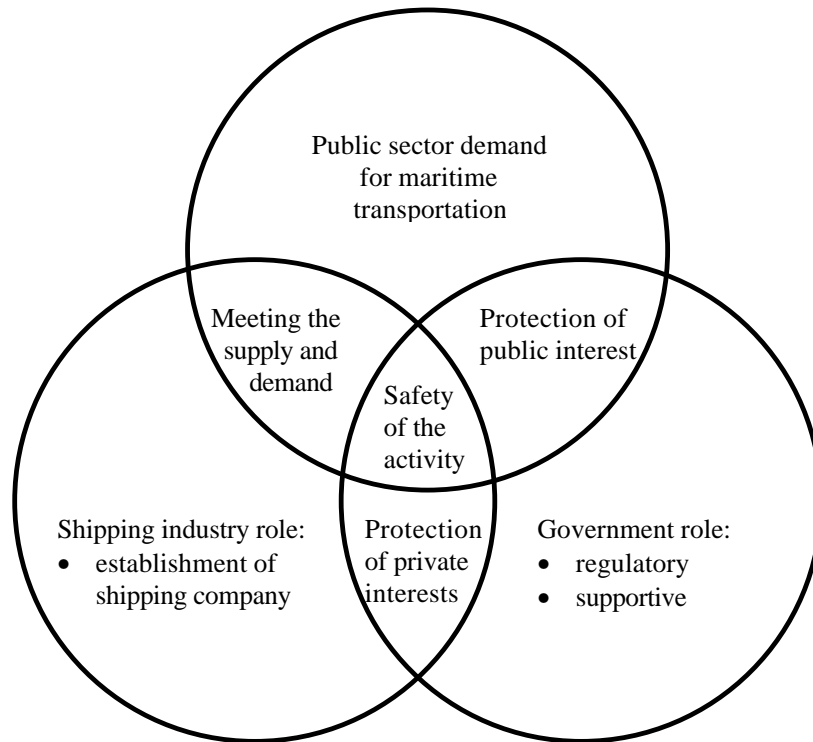


Figure 2.1 Framework of Maritime Transportation.

As in any market economy, there is initially a demand for a specific activity (maritime transport, in this case). Because of its perceived profitability, this demand gives birth to the establishment of a shipping company. The establishment of the company involves investment in the acquisition of vessels and seafarers to operate the vessels. Since there are two sectors involved, i.e., the public (who demanded the activity) and the private sector (who is willing to provide the supply for the activity), the government enters the framework in order to protect the interests of both.

Essentially, the framework embodies the responsibilities of each sector involved in the activity vis-a-vis their inter-relationships in society. In the representative figure of three overlapping rings, each of the sectors involved have twofold

responsibilities. The public must make full use of the services offered by the shipping industry in response to the former's demand for maritime transport. It also has to abide by the rules set by the government regulating the conduct of the activity. The shipping industry has to provide the appropriate number of seaworthy vessels and competent seafarers to carry the passengers and cargoes safely to their destinations. It also has to abide by the rules set by the government regulating the activity. The government has to protect the interests of both the public and private sectors by regulating rules for the activity and providing support where necessary.

For example, tax incentives as well as financial assistance should be provided to the shipping industry to encourage their investment in the activity. Maritime infrastructure in terms of ports and sea routes, aids to navigation and SAR facilities should be provided in order to ensure the safe carriage of people and cargo from one destination to another.

Ultimately, the framework should be able to sustain a safe environment for the conduct of the activity.

2.2 MARITIME TRANSPORTATION INFRASTRUCTURE

Stopford (1997) claims that 'ports are the crucial interface between land and sea.' He is obviously referring to that particular phase of a ship's voyage where the goods are safely delivered to their final destination - another port. However, before the ship can enter a port and unload its cargo, it has to be guided safely along the waterways leading to the port. This makes sea routes, ATON systems, SAR facilities, and maritime telecommunications equipment equally important in ensuring the safe transport of the goods from one point of the globe to another.

2.2.1 SEA ROUTES, PORTS AND HARBOURS

Sea routes are classified into primary, secondary, tertiary, and developmental (Abinoja, 1997, 27). (For the full definition of sea routes as applied to this dissertation, see Appendix 1.) The primary sea routes link Manila and the main ports of Cebu, Puerto Princesa, Zamboanga and Davao (Figure 2.2). This is considered as the country's axis of maritime traffic flow because the ports are located in national (Manila) and regional centres of industrial activity. The secondary routes branch out from these ports to other sub-ports while the tertiary and developmental routes are mainly feeder routes. There are currently 215 sea routes designated by the MARINA under its franchise system: 6 primary, 9 secondary, and 200 tertiary/developmental.

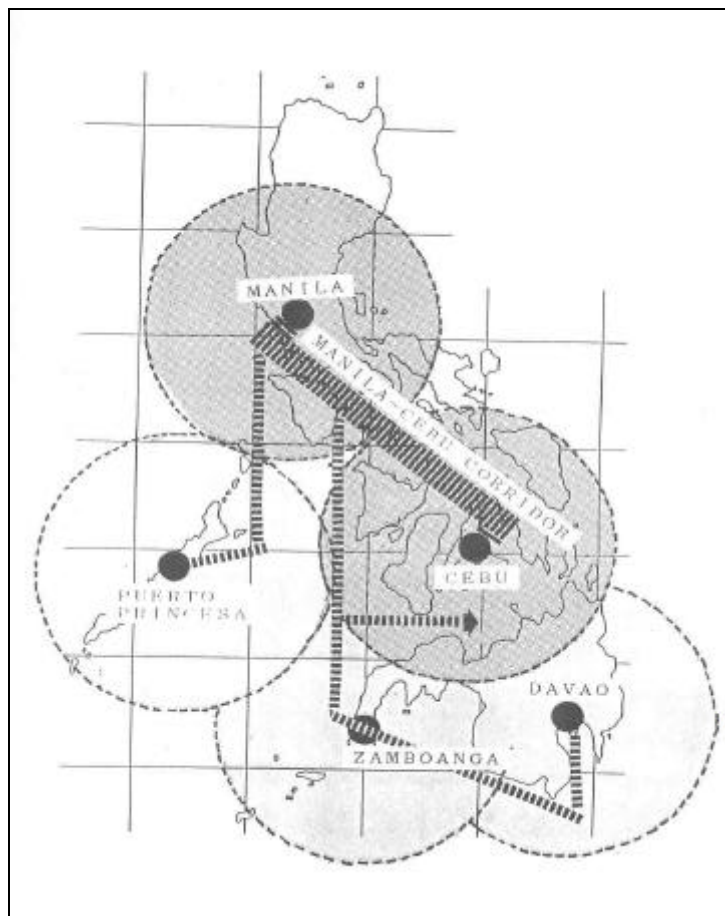


Figure 2.2 Primary Sea Routes. (Source: Reproduced from Abinoja, 1997.)

As of 1997, there were 624 national and municipal ports and some 300 private ports (Source: PPA). National ports are under the direct control and supervision of the national government through the PPA while municipal ports are under the local government units (LGUs). Private ports are, in most cases, owned by private individuals or organizations and are used as berthing space for pleasure craft or yachts. In terms of development, each entity is responsible for the port/s under its care. Among the three port categories, municipal ports are lagging because LGUs can hardly subsidize their development due to restricted budget.

2.2.2 AIDS TO NAVIGATION

The ATON infrastructure in the country is not limited to the provision of light stations, buoys and beacons. They also include the provision of nautical charts and meteorological information.

Aids to Navigation

As of 1997, there were 418 light stations distributed along the coastline of the Philippines. Of this total, 388 were operating and 30 were not operating (Source: PCG). This gave an operational efficiency of 93%. The percentage is very significant because it marks the first time that the PCG was able to raise the operational efficiency of the light stations to above 90%. This was largely due to the completion of the first MSIP that was funded by soft loans from the Government of Japan.

Nautical Charts

With only one aging vessel dedicated to the conduct of surveys of the entire country's navigable waterways, it is a regrettable fact that merchant mariners in the domestic trade have to contend with nautical charts dating back to the 1950's and 1960's.

This is a classic example of how fragmented the country's maritime administration is. On the one hand, the National Mapping and Resource Information Authority (NAMRIA) through its Coast and Geodetic Survey Department (CGSD) administers and supervises the conduct of all surveys of the country's navigable waterways. Based on these surveys, the NAMRIA is then supposed to publish regularly updated nautical charts for use of merchant mariners. On the other hand, the PCG administers and supervises the operation and maintenance of the country's light stations and beacons. Along the years, the PCG had already installed a number of additional light stations along the coasts of the navigable waterways but these have not been included in the CGSD's nautical chart publications. As a stop gap measure, merchant mariners have to rely on the Notice to Mariners (NtM) issued regularly by the PCG to update their charts.

Meteorological Information

The Philippine Atmospheric, Geographic and Storm Advisory (PAGASA) agency is in charge of providing weather forecasts on land and at sea alike. They broadcast twice daily in calm weather and issue storm warnings a a four-hour basis. These meteorological reports are broadcast generally by public radio and by fax and telex to affiliate agencies like the PCG.

2.2.3 SEARCH AND RESCUE

The PCG is mandated to conduct SAR of persons distressed at sea. With its very limited resources, however, the PCG had to draw on the services of other government agencies like the Department of National Defence (Air Force and Navy) as well as non-governmental organizations like the PCG Auxiliary to be able to enforce its mandate. A PCG SAR Plan was also formulated to serve as a guide to all PCG units nationwide (Districts and Stations) on how to develop and implement a SAR contingency plan in their respective areas of responsibility. The

SAR contingency plan includes the involvement of privately owned vessels and craft in the conduct of SAR when necessary.

2.2.4 MARITIME COMMUNICATIONS

Large vessels involved in the domestic trade are generally equipped with adequate communications equipment. These are largely used by vessels to maintain contact with their companies and for navigation purposes. On the other hand, the communications equipment under the inventory of the PCG are mainly used for official communications, meaning the radio traffic is restricted between PCG and other Armed Forces (AF) units.¹ As such, merchant vessels cannot access the PCG channels and request assistance during emergencies at sea. To remedy the situation, some radio equipment with civilian channels compatible with commercial frequencies were procured and issued to the shore-based PCG stations but these were of limited ranges and operational capabilities (line of sight) that they have proven to be useless during emergencies.

2.3 THE SHIPPING INDUSTRY

The annual traffic in the shipping industry is a mix of domestic and foreign vessels (Table 2.1). Domestic or inter-island ships outnumbered foreign ones as they comprised more than 95% of the vessel statistics. The deregulation of the local shipping industry proved to be a boon to this sector as maritime observers noted the sustained double-digit growths in the annual domestic shipping statistics.

SHIPCALLS	TOTAL
Domestic	327,565
Foreign	14,498
	342,063

Table 2.1 Cumulative Shipcalls in Philippine Ports. (Source: PPA)

The deregulation of the local shipping industry was promulgated through Republic Act (RA) No. 7471 (see Appendix 2 for full text) that provided, among others, the exemption from import and export duties and taxes in the acquisition and financing of vessels (Malaluan, 1998, 11). This effectively brought about an influx of more bottoms for the coastwise trade.

On the negative side, more bottoms afloat could translate to more maritime accidents especially if the conditions of the acquired vessels are not properly checked for their seaworthiness. Some unscrupulous investors who are after fast and easy money could easily acquire an aging cargo vessel under RA 7471, insure it, sail it one or two times then sink or lose it. They know they can recover more than what they invested through their insurance claims.

2.3.1 CONDITION OF THE SHIPPING INDUSTRY

Based on 1992 statistics, there were an estimated 9,392 domestic vessels registered in the Philippines (JICA, 1992, II-11). Of this total, 4,975 are fishing boats mostly of wooden hull construction ranging from below 3 gt to 45 gt. The larger vessels employed in the long haul coastwise trade are mostly second-hand vessels with an average age between 8-15 years. The latter is the age limit set by the Bareboat Charter Act of the Philippines, Presidential Decree (PD) No. 760, as amended by PD No. 1711 (see Appendix 3 for full text).

In both conditions of construction and acquisition of the vessels, problems arise regarding their overall safety and seaworthiness. The smaller vessels (usually fishing boats) are constructed at local shipyards. Their construction is done without weight and stability calculations and experiments and the plans are totally dependent on the shipbuilder's experience. On the other hand, a larger vessel upon being registered domestically almost always undergoes a major conversion to increase its cargo and/or passenger carrying capacity but without the corresponding correction to its draft, loadline and stability diagrams. Accordingly,

the vessels' stability and seaworthiness are extremely jeopardized thus making them susceptible to accidents.

While regulations are in place to control and prevent such malpractice, it is the author's own experience as a former PCG Station Commander that can attest to this breach in regulations.²

2.3.2 MARITIME TRANSPORTATION MARKET

Notwithstanding the Asian currency turmoil and the El Niño phenomenon, the Philippine economy fared better than expected as barometers of economic growth managed to pull off respectable growth rates in 1997 (PPA, 1997). The gross national product (GNP) adjusted for inflation grew by 5.8%. Growth in domestic production as measured by the gross domestic product (GDP) rose by 5.1%.

On the maritime transport sector, inbound and outbound cargoes were broadly classified as either domestic or foreign. Domestic cargo that accounted for more than one half of 1997-cargo traffic grew markedly by 6.42%. Domestic cargo handled in 1997 was pegged at 76.15 million metric tons (mt). Foreign cargo, on the other hand, grew at a sluggish pace as its reported volume rose by a mere 0.82 million mt to peak at 68.34 million mt by year end.

2.3.3 PASSENGER-CARGO TRAFFIC

The deregulation of the transport industry in recent years delivered better service, upgraded passenger facilities and amenities, faster transit times and competitive fare rates. These positive developments added to the growing confidence and reliance of passengers on ship transport. In 1997, some 41.41 million passengers availed of sea transport in going to and from the various islands of the country. This total is broken down into 21.41 million disembarking and 20 million embarking passengers. Ideally, total passenger embarkation should more or less equal total

disembarkation. However, it will be observed that total disembarking passengers were 1.41 million more than disembarking ones. This was due in part to the common practice of certain shipping operators of allowing passengers to board their vessels after exit clearance have been issued. These passengers were not listed in the submitted passenger manifests and were only accounted for during disembarkation.

This unscrupulous practice arises from the operator's desire for more profit. The lesser the number of passengers that they include in their manifests, the lesser the dues that they are assessed. This practice, however, creates a very significant impact in terms of safety. It leads to the inevitable overloading of the ship, thereby affecting its stability. Ultimately, the unmanifested passengers could not be accounted for when the ship meets an accident at sea.

The heavy volume of cargo traffic flow is concentrated in between the major ports. Cargoes traded mainly in between the various islands consist of: mining and fuel resources (30.3%), natural resources (20.1%), food products and animals (18.3%), and industrial products (15.7%). The first three categories are mostly bound for Manila and other international ports like Batangas for further shipment either inland for local consumption or outward as the country's exports. The fourth category (industrial products) is mostly shipped southward to the other major cities to support their development.

2.4 FUTURE TRENDS FOR MARITIME TRANSPORTATION DEMAND

Stopford (1997) lays down three variables where a country's pattern of seaborne trade depends: GNP, natural resources and population. This could not be truer in a developing country like the Philippines that is dependent on maritime transport. As the country's domestic production grows, more goods become available for trade in the market. On the other hand, this growth has to be sustained by tapping the country's natural resources to their full potential. These natural

resources have to be brought to the major industrial centres for processing before they are released to the market as finished products.

Alongside this growth in economic activity is the inevitable growth in population. Industries need manual labour and this will induce the migration of people to the industrial centres. As each industrial centre is regionally distributed in the country, the demand for maritime transport will also increase to convey people and products in between the hubs of economic activity. Using GDP and population as variables, JICA reported in 1992 that the freight and passenger volume would increase steadily by 4 to 6% annually. This translates into demand for more vessels to accommodate this sector of economic activity.

2.5 DEVELOPMENTAL POLICY, PLANNING AND INVESTMENT

The increasing trend in the demand for maritime transport (and more vessels as a consequence) as discussed in the previous section can result in serious problems with the country's existing shipping policy. While local shipbuilding is slowly growing, Malaluan (1998) contends that shipowners have a higher probability of ship acquisition from the second hand market. Donner (1998) sets out the reasons for this option as follows: (a) fixed price is often lower for second hand vessels than newbuildings; (b) the vessel is readily available; (c) the purchase is more attractive to financing institutions; and (d) performance of the vessel could be estimated based on previous operations.

The reasons set out by Donner, however, mask the overriding public concern over the safety of the vessels purchased as second hand. A vessel newly built to the specifications and standards set by safety regulatory regimes possesses a higher element of safety than a second hand vessel. The shipping industry should therefore be encouraged to invest on newbuildings by further deregulating the restrictive financing costs allied to the purchase of the vessel. On top of this, the industry should also be provided with adequate maritime infrastructure equipment

to conduct their trade within the safety parameters established in the maritime transport framework discussed in Section 2.1.

Notes:

¹ This is a direct consequence when the PCG was activated as a special unit of the PN under the Department of National Defense (DND). It had to operate along military lines while performing civilian functions.

² The author is the former PCG Station Commander of Coast Guard Station (CGS) Basco in the province of Batanes, the northernmost province of the Philippines. The primary means of transport in between the three main islands of the province is by wooden-hulled motorized boats of 8-12 gt. The boats are constructed in the province and the PCG District Maritime Safety Engineer based in San Fernando, La Union prepares their plan approval for registration (with a corresponding fee). The plans are based on the sketches of the boat builder and the boats were never really actually tested for their weight and stability.

MARITIME ACCIDENT ANALYSIS

3.1 ANATOMY OF MARITIME ACCIDENTS IN THE PHILIPPINES

Figure 3.1 shows the total number of maritime accidents that occurred for the period 1990-1997. From its peak level in 1990, the figure generally indicates an erratic although somewhat decreased yearly occurrence of maritime accidents in the country.

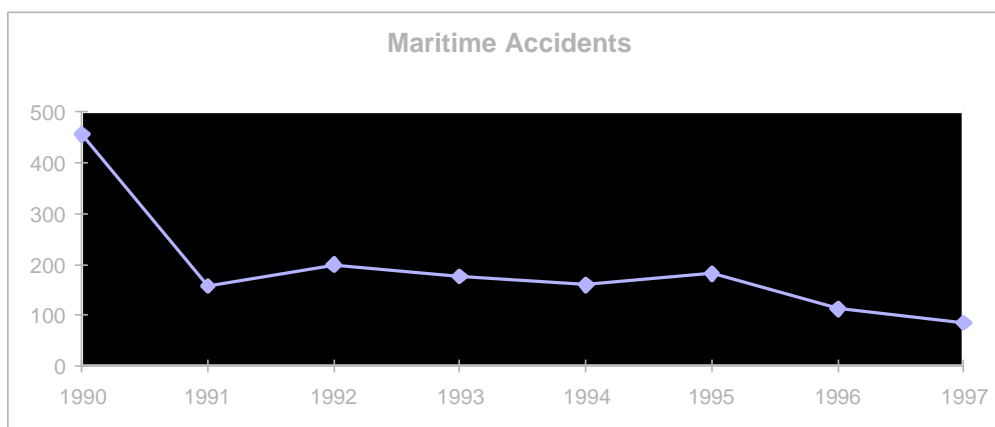


Figure 3.1 Total Maritime Accidents. (Source: PCG)

This is further illustrated in Table 3.1 where the maritime accident occurrence for the first ten months of 1998 had already exceeded the total number recorded in

1997. The same table also indicates that there is a peak occurrence in the month of September when the typhoon season affecting the country is at its fullest. As to the major types of accident occurrences, grounding is most prevalent with 32% of the total reported for the period. This is followed by capsizing at 27%, sinking at 21% and collision at 10%.

NATURE OF ACCIDENT	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	TOT
Grounding	5	2	3	3	1	2	4	1	8	5	34
Sinking	1	1	3	5	1	1	2		11	1	22
Collision		3	3	1	2		2				11
Fire		1	1	1		1	1		1		6
Capsizing	2	1	3	2	8	3	3	1	3	2	28
Missing			1								1
Drifting			3								3
Total	8	8	14	12	11	7	12	2	23	8	105

Table 3.1 Total Maritime Accidents for the First Ten Months of 1998. (Source: PCG)

3.2 ANALYSIS OF THE OCCURRENCE OF MARITIME ACCIDENTS

Looking at the causes of the incidents for the same 10-month period, they can be categorised according to force majeure or operational. Force majeure is when the vessel is subjected to adverse weather conditions like strong wind and waves during storms, typhoons and strong squalls. Operational is when the vessel loses its navigational and propulsion capability due to system failure including human factor. Table 3.2 lists the number of accidents attributable to each category.

NATURE OF ACCIDENT	FORCE MAJEURE	OPERATIONAL	TOTAL
Grounding	15	18	33
Sinking	16	7	23
Collision		11	11
Fire		6	6
Capsizing	24	4	28
Missing	1		1
Drifting		3	3
Total	56	49	105

Table 3.2 Maritime Accidents Categorised by Cause. (Source: PCG)

As can be seen from the figures in Table 3.2, accidents caused by force majeure slightly outweigh operational causes. This is especially true for smaller vessels (below 100 gt) including fishing vessels. The most commonly used vessels of this type are motor launches for inter-island transport and motorised boats with outriggers for fishing (and sometimes transport) purposes. Most of these vessels are of wooden hull construction and therefore are more vulnerable to the full force of the elements.

For the larger vessels, operational causes are prevalent in the accidents reported. These could be steering casualties, engine failure, missing a dangerous turn or simply unfamiliarity with the area being navigated.

3.3 SUMMARY OF MARITIME ACCIDENTS

Romer, Styhr Petersen & Haastrup (1995, 420-421) concluded in their paper: 'Marine Accident Frequencies - Review and Recent Empirical Results' that the parameters which have been found to have a significant effect on the accident frequencies are in alphabetic order: A, Age; B, Brightness; C, Geographical environment; D, Size of vessel; E, Visibility. They based their conclusion on the results of their studies of accident occurrence in some of the world's busiest waterways like the Dover Straits and Tokyo Bay.

The JICA report of 1992 offers a tangential conclusion in that it attributes the occurrence of maritime accidents in the country to several factors including but not limited to the age and size of vessels as well as weather condition (good or bad weather affects brightness and visibility)¹. The report further cites aids to navigation (mainly the lack of it) as the primary cause of accidents involving large vessels. This is disputable in light of the fact that collision and grounding involving large vessels occur mostly inside ports and harbours or the entrances to the ports and harbours. In most cases, errors in navigation and manoeuvring difficulties induced by bad weather are the reported causes.

The collision between the M/V Cebu City and M/V Kota Suria occurred inside Manila Bay in 1995, an event that could have been prevented by a VTS system. The M/V Doña Paz and the M/V Princess of the Orient both sunk in waters far from the nearest shore. The lack of aids to navigation had nothing to do with these tragedies. In all cases, the predominant cause was human error. The M/V Doña Paz collided with the M/V Vector at night before it sank indicating navigational error on one or both ships. The M/V Princess of the Orient sailed in bad weather and some of its vehicular cargoes shifted while the ship was being battered by big waves causing it to list and take in water until it sank.

Notes:

¹ Brightness refers to the luminosity of the lighting equipment of a light station, which could be affected by good or bad weather especially at night. It could be a clear night but the visibility of the light could be poor due to fog or other atmospheric phenomena.

CHAPTER 4

THE COMPREHENSIVE NATIONAL MARITIME SAFETY PLAN

4.1 CONCEPTUAL FRAMEWORK OF THE NATIONAL MARITIME SAFETY PLAN

The country's maritime transportation framework was discussed in Section 2.1 where the activity - sea transport - and the sectors involved were identified. In order to protect the interests of all concerned in the activity, a very essential element of the framework was also identified, i.e., the role of each sector in providing for the safety aspects of the activity.

Accordingly, JICA identified in its study in 1992 some basic concepts that would enhance maritime safety in the country. These are:

- .1 raising the safety standards of vessels;
- .2 improving the quality of the seafarers that operate the vessels;
- .3 upgrading the maritime transport infrastructure (like ports and harbours, sea routes, communications systems, ATON systems and SAR equipment and facilities) in support of the activity.

There is, however, a missing link in the above concepts for maritime safety to be fully realised, i.e., the role of the public who use the vessels as passengers (otherwise referred to as the riding public).

To illustrate the necessity of the role of the riding public in the enhancement of maritime safety, let us take a close look at what is really happening in almost all ports in the country during a peak passenger season. This is usually the week before the start of the holiday breaks in December. Normally, shipping companies have their booking outlets to accommodate requests for passage on board their ships. But this system is normally availed of only by the educated few who know enough about regulations to book their passage in advance. Others may not be aware of such a system or they simply don't care and think they can pay for their passage on board anyway. And since it is a peak season, a ship can be fully booked even at the booking outlets alone.

When the ship is due to depart, practically thousands of passengers crowd the port where the ship is, taking that slim chance of getting on board even without a reservation. They know that the ship is fully booked, meaning it is already full to its capacity. But they have to get to their destinations to celebrate the holidays with their loved ones - at all cost! So bribes change hands either with a dockhand, a porter or a member of the ship's crew. Some just give the crew a slip and get on board surreptitiously.

Now comes a PCG officer who, taking one look at the ship, determines that it is overloaded. So he asks the Master of the vessel to disembark the excess passengers or the ship will not be allowed to depart. But with more than a hundred, or even a thousand (like the case of the M/V Doña Paz) excess passengers crying and begging (and even threatening) not to be disembarked, what could the Master do? So he says to the PCG officer, "We're sailing in good weather anyway, so why don't we just leave it. And I'll take care of you when we come back."

So the ship sails. And it sinks. And the relatives of those excess passengers who perished turn their accusing fingers to the government for not protecting them enough. And they cry to the high heavens for remuneration. Then they do it again come the next peak season.

This also illustrates how each of the three sectors involved in the activity, i.e., the riding public, the shipowners and their representatives, and the regulatory authorities (government), could totally jeopardise the framework of the transport system they have created as discussed in Section 2.1.

Vessel safety standards can be easily elevated with stricter enforcement of the regulations plus the co-operation of the shipowner or operator. Seafarer quality and competence can be easily improved - again with stricter regulations. Maritime transport infrastructure can be easily upgraded with more funding support. But what is to be done with the nature and character of the riding public as illustrated above? In order for the framework to remain solid and achieve its ideals, the role of the riding public should therefore also be emphasised.

The National Maritime Safety Coordinating Council (NMSCC) created by Executive Order (EO) No. 314 (see Appendix 4) in 1996 was in the right track in proposing that an information campaign be conducted nation-wide for the education of the riding public on their role in safe sea transport. The task was delegated to community leaders; however, the government and private sectors should also be mandated to conduct their own information campaign directed to the riding public. Funds for this activity should therefore be provided.

4.2 AIDS TO NAVIGATION AS AN INTEGRAL PART OF THE PLAN

Aids to navigation systems have already been identified in Section 1.1 as valuable tools external to a ship to ensure the safe navigation of that ship from one point to another. As Englesou, Lekakou & Tzannatos (1998) succinctly put it:

‘Among the many primary causes which lead to a shipping casualty, those of wrecking, stranding or coming into contact with fixed coastal structures depend (although not exclusively and only under specific conditions of visibility) upon the efficiency of the lighthouse and navigating lights network of a national coastline.’

The efficiency and perhaps reliability of a nation’s lighthouse system is highlighted as an integral part of any attempt to reduce the risk of the occurrence of maritime accidents. However, Colchester (1993) cautions that ‘...the needs and requirements should first be established and should then be fulfilled according to the facilities and funds available.’

In establishing the National Maritime Safety Plan after the presentation of the JICA study, the country is therefore in the right track in enhancing maritime safety in its waterways. The facilities are there and the right agency had been in place albeit minimally supported to effectively operate the facilities.

4.2.1 THE ROLE OF THE PHILIPPINE COAST GUARD

The PCG was created in 1967 in recognition of the need for a guardian of sea safety. It was mandated to promote safety of life and property at sea, protect the marine environment, and enforce all applicable laws within the high seas and waters subject to the jurisdiction of the Republic of the Philippines. To avoid heavy expenditures, the PCG was initially placed under the PN with the original intent of establishing it as a distinct civilian agency once it had developed its own resources.

In its creation, one of the many mandates of the PCG is ‘...to develop, establish, maintain, and operate aids to maritime navigation.’ (RA 5173, see Appendix 5). This function was actually transferred from the defunct Philippine Lighthouse Board that formerly administered the lighthouse system of the country.

The original vision of establishing the PCG as a civilian agency did not materialise, however, as it remained as a unit of the PN. As such, it has to make do with whatever budget and assets the PN can throw its way. Basically, its annual operating budget has to be utilised primarily in support of the Navy's mission that is defence oriented. It hardly managed to maintain its own resources let alone upgrade them. This is the primary reason why the country's lighthouse system has lagged behind in development.

The country had been a member of the IALA since 1964 but it wasn't able to conform to the standards set by that organisation. This is mainly due to the budgetary constraints imposed on the country's lighthouse Authority, the PCG, because of its attachment to the Navy.

In this situation, the PCG was not able to effectively carry out its mandate of promoting safety of life and property at sea because it lacked the necessary support in maintaining one of the pillars of safety - aids to navigation.

4.2.2 NATIONAL AND INTERNATIONAL COMMITMENTS OF THE NATIONAL LIGHTHOUSE AUTHORITY (PCG)

Regulation 14, Chapter V of the SOLAS Convention of 1974 (as amended) provides:

'The Contracting Governments undertake to arrange for the establishment and maintenance of such aids to navigation as, in their opinion, the volume of traffic justifies and the degree of risk required, and to arrange for information relating to these aids to be made available to all concerned.'

The Philippines is a Party to the 1974 SOLAS Convention and is therefore mandated, through the PCG as the country's lighthouse Authority, to enforce its provisions including the part on aids to navigation. Since the provision of the SOLAS Convention is very general in nature, the country (and other states Party

to the Convention) had practically no commitment as to whether its ATON system is sufficient or not. RA 5173, which created the PCG with its mandate on the establishment and maintenance of aids to navigation is the enabling law giving effect to this particular provision in the SOLAS Convention.

It was only during the International Maritime Organisation's (IMO, hereinafter referred to as the Organisation) 13th Assembly that this provision in the Convention was expanded through its adoption of Resolution A.529. This came about as the Organisation started to recognise the IALA standards in the provision of aids to navigation. Since the country had already been a member of the IALA since 1964, it had already attempted to conform to the standards set by that organisation albeit poorly because of the constraints cited in the previous section.

As a member of the IALA, the Philippines is obligated to pay an annual subscription fee as laid down by the organisation. Table 4.1 lists the annual subscription paid by the PCG to the IALA for the period 1990 to 1998.

CALENDAR YEAR	AMOUNT	
	FRENCH FRANCS	PESOS
1990	3,200	75,383.81
1991	3,200	67,086.48
1992	3,400	69,910.40
1993	17,500	108,102.90
1994	29,000	162,813.03
1995	36,125	196,036.05
1996	43,250	241,703.60
1997	50,375	242,000.00
1998	57,500	412,160.64

Table 4.1 Annual PCG Subscription to the IALA. (Source: PCG)

The amount involved is drawn from the International Commitments Fund of the DND, which the PCG asks yearly for release. When asked by the DND in 1997 to provide a cost-benefit analysis as a justification of the PCG's continued payment

of the subscription (read: continued membership to the organisation), the PCG listed the following:

- .1 the opportunity of representing the Philippine Government on issues related to maritime safety participation on navigational safety that affects the shipping industry;
- .2 the opportunity to receive updates on technological advances on aids to navigation;
- .3 the opportunity to attend training and seminars related to the fields of aids to navigation;
- .4 the opportunity to manifest that the Philippines is complying and observing the standards recommended by international organisations.

The points listed above do not justify the amount the PCG has to pay for its membership with the IALA. While the PCG continues to receive periodicals from conference proceedings of the organisation as well as technical journals, the latter could be acquired practically anywhere especially with the proliferation of aids to navigation equipment manufacturers who are bent on selling their products. Besides, attendance to conferences called for by the organisation is not free to any member. The costs of representing the country to these conferences have to be provided for by the member government.

Perhaps the most important factor that the PCG should consider in terminating its membership with the IALA is the IMO's recognition of the standards being set by the IALA. It's like adhering to standards set by one organisation and adopted by another. As a state Party to the SOLAS Convention, the country could just wait for the IMO to update its regulations on aids to navigation based on IALA recommendations. Why pay for something that you could get free from another source. This way the high subscription cost could be channelled to other priorities like maintenance of aids to navigation.

4.2.3 ATON MASTER PLAN OF THE PCG

In authoring the ATON Master Plan of the PCG, Abinoja (1997) defined the ATON concept as shown in Figure 4.1. Since ATON is a service-oriented activity, the first parameter that must be defined in the concept is the customer's needs and preferences. In this case, the term customer combines the riding public and the shipping service that provides the transport service.

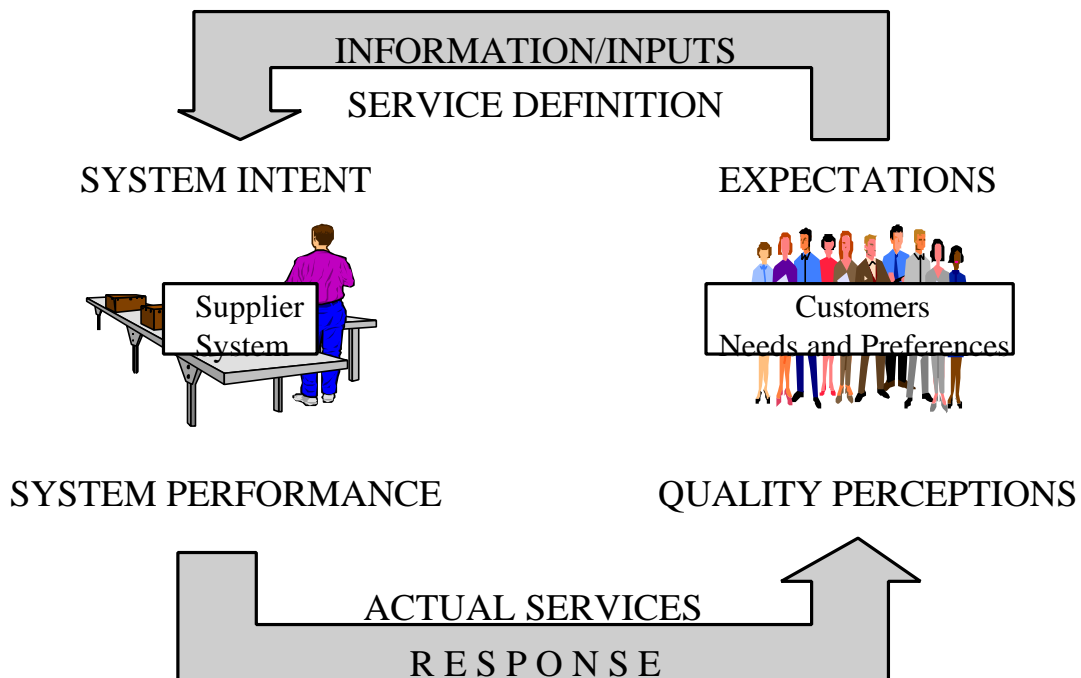


Figure 4.1 ATON Concept. (Source: Reproduced from Abinoja, 1997)

Valuable information and inputs are then gathered from the customers' expectations of the level of service that must be provided. Invariably, these expectations are based on the level of safety that the government sector can provide in order to protect their interests in the activity. Since ATON has been identified as one of the contributory factors to maritime safety, the level of service along this variable must be defined.

From the definition of the level of service expected, the system intent for the whole concept is then designed by the PCG, which is the supplier of the service expected by the customers. A performance indicator is also established to measure the sufficiency and efficiency of the service being provided. As the service is delivered to the customers, the level of response is measured through the performance indicator as well as the perceptions from the customers whether the service being delivered meets their needs and expectations. The concept includes a feedback system from both the customers and the service providers to determine if the quality of the service offered is satisfactory to the customers' expectations and the provider's intent. The entire concept is cyclic in nature, which guarantees the continuous evaluation and improvement of the level of service provided.

With the concept so defined, a most responsive ATON system was designed based on the sea routes frequently used by the customers. The ATON system incorporates a lighthouse system, a buoyage system, and a vessel traffic management system (VTMS).

The lighthouse system aims to provide lighthouses in the country' international and domestic landfalls and along the coastlines as well. The categorisation of landfalls into international (Figure 4.2) and domestic (Figure 4.3) determines the number of light stations required in specific areas. For example, a light station erected in an international landfall area will only be used to confirm the position of an international sea-going vessel. Whereas a light station in a domestic landfall area will be used for cross bearing by vessels in the coastwise trade to determine their positions. These have been identified as priority areas of concern owing to the density of maritime traffic and having due regard to the larger size of vessels that ply these areas.

The buoyage system and VTMS are designed to enhance safety in restricted areas like narrow channels and port and harbour entrances. These areas have been identified as high-risk areas because of the heavy density of vessels entering and leaving them. The systems should be able to aid navigators on the safest route to follow at minimum safe speed.

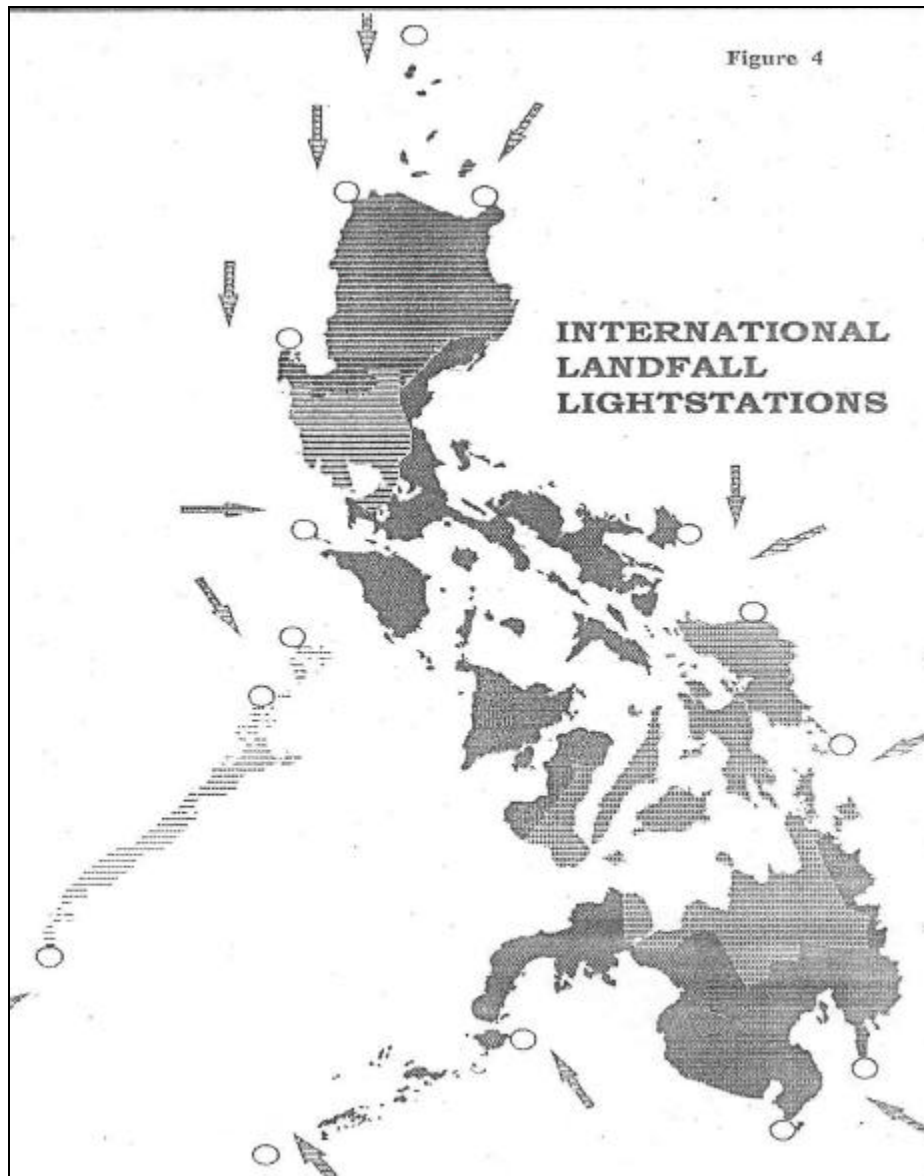


Figure 4.2 International Landfalls. (Source: Reproduced from Abinoja, 1997.)

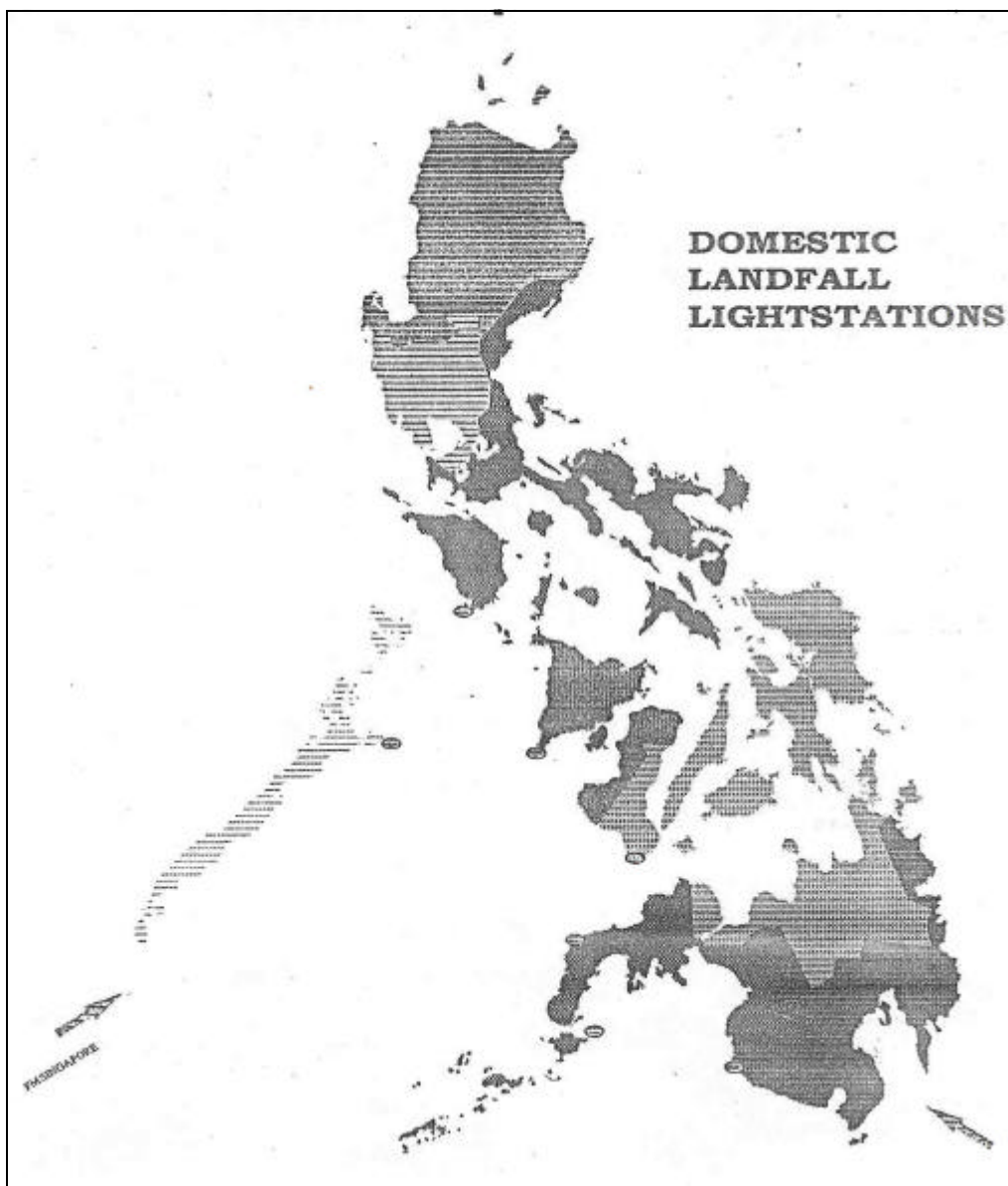


Figure 4.3 Domestic Landfalls. (Source: Reproduced from Abinoja, 1997.)

The ATON concept envisions reducing the risk of the occurrence of maritime accidents in the country's waterways. This is only one of the identified activities that the government sector is expected to provide in order to enhance the safety of shipping activity. The provision of this kind of service, however, needs a huge amount of capital outlay. The ATON Master Plan of the PCG fulfills the requirement laid down by Colchester (1993, 131) of first determining the needs for

this kind of service and then fulfilling the service according to the funds and facilities available.

4.3 THE MARITIME SAFETY IMPROVEMENT PROJECTS AND THEIR LEVELS OF IMPLEMENTATION

Mejia (1998, 20) points to the sinking of the M/V Doña Paz in 1987 as the turning point in the recognition of the country's state of maritime safety affairs. The M/V Doña Paz collided with M/T Vector on a clear night and subsequently sank. More than 4,000 passengers perished, most of whom were not manifested in the ship's passenger list. Apart from landing on the Lloyd's List statistics as being among the worst sea disasters of this century, the tragedy gained hardly any attention from the IMO, the international regulator and standard setter for maritime safety.

On the other hand, the sinking of the M/S Titanic on its maiden voyage in 1912 gave impetus to international safety agreements and the first SOLAS Convention in 1914. It also led eventually to the creation of IMO. This precedent established the reactive nature of the Organisation. The stranding of the Torrey Canyon in 1967 and the Amoco Cadiz in 1977 gave birth to the Civil Liability Convention (CLC) in 1969 and the International Oil Pollution Compensation Funds Convention (IOPC) in 1971. Considering the severity of these incidents, the Doña Paz tragedy should not pale in comparison; yet, the latter was merely relegated to the statistical archives and no more was done about it.

What it did was to spur a concerted national effort to institute reforms in the enhancement of maritime safety in the country. The first step was taken through the commissioning by the national government of the Government of Japan to undertake a study and formulate a master plan for maritime safety in the Philippines. The resulting master plan formulated by JICA that undertook the study pinpointed the upgrading of the country's ATON system as one of the priority areas of concern. Since an ATON system was already in place albeit

insufficiently as pointed out by the study, the national government gave its green light to the DOTC to proceed with the project called the Maritime Safety Improvement Project.

Since the project involved a huge amount of capital outlay, MSIP was broken down into different components according to priority and depending on the availability of funds. The MSIP's are independent projects with different component mixes i.e., not only lighthouse rehabilitation and installation are involved but also the acquisition and improvement of SAR vessels and facilities. The numeral subscripts by which each project is identified indicate the implementation phase of the project while the letter subscripts indicate an adjunct project.

4.3.1 MSIP - I

MSIP-I was the first project implemented as a direct consequence of the JICA study. It involved the repair and rehabilitation of 29 lighthouses/beacons as well as the supply of ATON spares, tools and equipment to PCG Districts with areas of responsibility (AOR) along the Manila-Cebu shipping route. These lighthouses and beacons are located in Corregidor Island, Batangas, Fortune Island, Mindoro, Romblon, Tablas, Marinduque, Panay, Leyte and Cebu as shown in Figure 4.4.

The Manila-Cebu route is a primary route travelled normally by large vessels. This has been identified as an accident-prone area and MSIP-I was designed to raise the level of safety along this route. Subsequently, an additional 8 other lighthouses and beacons were included in the project in order to cover some gaps in the coverage of the first group of lighthouses.

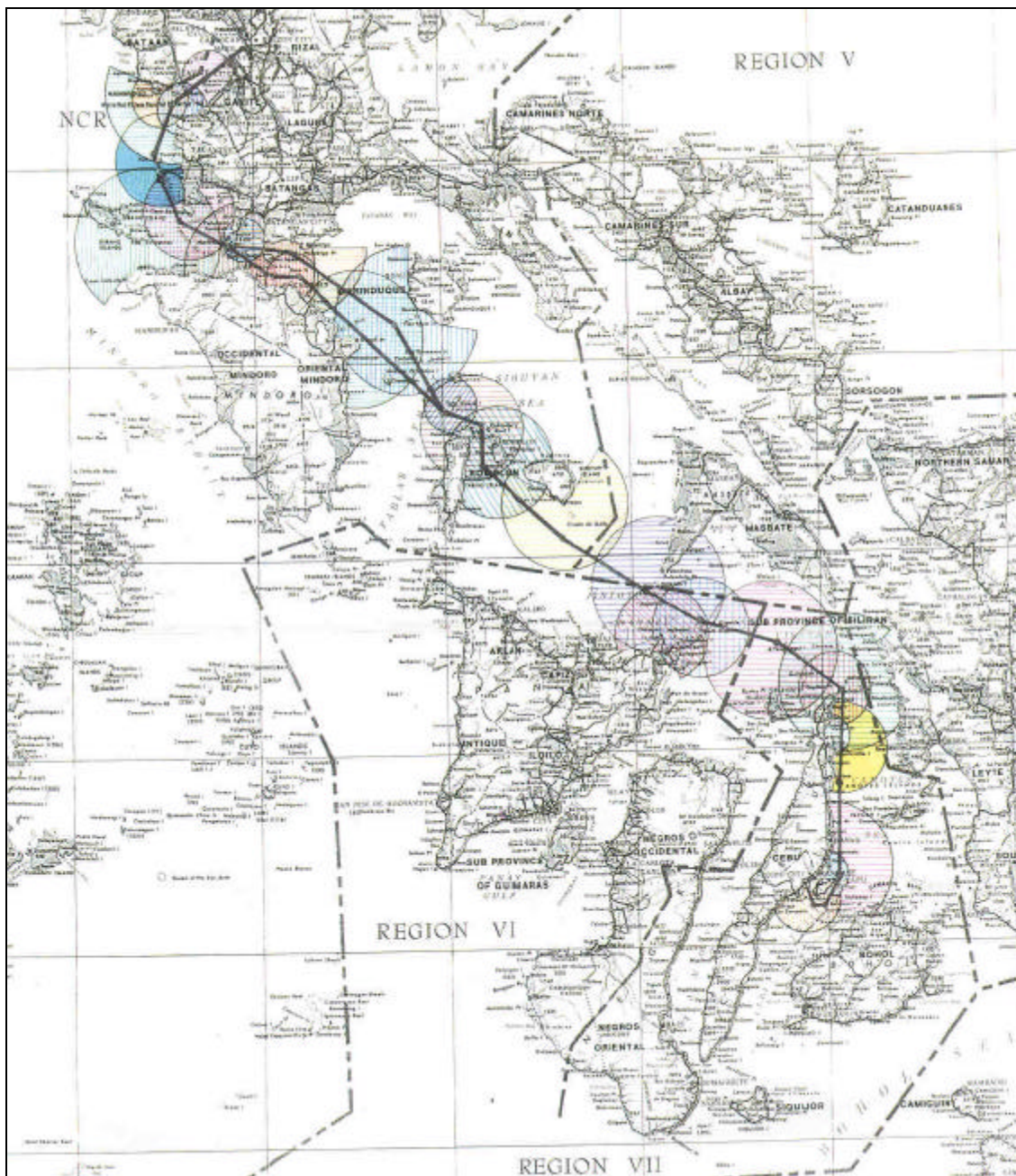


Figure 4.4 MSIP-I Rehabilitation Project Coverage. (Source: Marina)

The project enjoyed 100% funding support from the Overseas Economic Development Fund (OECF) of Japan that amounted to three billion yen. The project was awarded to a Kanematsu Corporation Consortium. The 37 light stations earmarked for rehabilitation have been completed at the end of 1997.

Since the high incidence of maritime accidents involving large vessels occur mostly in the primary routes, the MSIP-I was in the right track. However, since it has been already pointed out in Section 3.3 of this dissertation that the lack of aids to navigation is not the primary causation factor of these incidents, the project need not necessarily have involved the number of light stations targeted. The number could have been reduced and the differential amount used to establish a VTS system inside Manila Bay and in the Verde Island passage where the most number of collision and sinking accidents have occurred.

4.3.2 MSIP-IB

The MSIP-IB is a 5.6 billion-yen project funded by the OECF and was awarded to the John Hollands-Kanematsu Consortium. This is expected to be fully completed by the end of June 1999. The project components include the following:

- .1 Construction of one 56.9 meter lighthouse/buoy tender
- .2 Rehabilitation of 40 light stations
- .3 Supply and commissioning of 2 radar beacons
- .4 Supply and laying of 12 buoys
- .5 Construction of the Cavite Buoy Base

The construction of the lighthouse/buoy tender vessel was completed at the end of February 1998 at the Niigata Shipyards in Japan. Christened the M/V Corregidor (AE-891), the vessel was delivered to the PCG as the end user in April 1998 and had since then carried out numerous tasks including SAR and ferry missions and ATON runs in the Palawan and Central Visayas areas. The vessel has an overall length of 56.9 meters, a service speed of 17.5 knots with a cruising range of 4,000 nautical miles, and requires 37-45 officers and crew. The vessel will be utilised for the rehabilitation of the 40 light stations included in the project.

The rehabilitation of the 40 light stations have also started in 1998 and temporary lights have been installed in more than a dozen sites while awaiting the full

rehabilitation of the light stations. The construction of the Cavite Buoy Base is considered a very important part of the project. This calls for the construction of eight buildings at the present site of the Headquarters Aids to Navigation Command (HANC) in Sangley Point, Cavite City. The base shall serve as a modern storage, repair, maintenance, and rehabilitation centre for buoys and other ATON accessories.

The project has all the ingredients of a perfect component mix. Light stations need to be rehabilitated, buoys need to be planted and the provision of a lighthouse tender and an operating base to support these activities completes an ideal set up for such an activity.

4.3.3 MSIP-IC

The project involves the acquisition of two marine disaster response vessels, two helicopters and the construction of a support base in Mactan Island, Cebu. The marine disaster response vessels will also be equipped with shipboard fire fighting capability and facilities to accommodate a helicopter during SAR operations.

The project cost is estimated at 6.7 billion yen, which is presently being negotiated with the OECF of the Government of Japan. When approved, the project will commence in the year 2000 and end in 2004.

A new dimension has been incorporated in the conception of MSIP-IC, i.e., the acquisition of the marine disaster response vessels. While they are intended to function also as SAR and buoy tending vessels, their acquisition is seemingly out of place in the MSIP scheme. As marine disaster response vessels, they would have to be fitted with oil spill combating capability like boom and skimmer laying equipment. Also, their speeds would have to be designed to suit this primary purpose. This effectively restricts the vessels' capability of responding to SAR operations where speed is a paramount necessity.

4.3.4 MSIP-II

MSIP-II was supposed to be the second phase in the implementation of the entire MSIP; however, it got first approval over MSIP-I through the grant of an 18.4 million pounds sterling loan from the Overseas Development Agency (ODA) of the Government of the United Kingdom. The project was completed in 1996. AB Pharos Marine Ltd. of England undertook the project that included the commissioning of 98 new light stations and the acquisition of two buoy tender vessels.

However, the contract was amended to replace the value of the two vessels with a corresponding number of tertiary light stations. This is in line with the DOTC-PCG concept of providing the most number of light stations as a preventive measure against maritime accidents. Hence, the number of light stations commissioned under the project came to a total of 122. This included 12 new tertiary light stations and the delivery and subsequent installation of a further 12 complete but disassembled (knocked-down) light stations.

A unique feature was integrated into the operation of the newly commissioned light stations - a remote monitoring system. The Meteorburst Communications System (MBCS) provides the master station established in each Coast Guard District with the operational status of each light station covered under the project. These include the lantern rotation speed, status of the lamp, photocell and battery. The system is also capable of providing information when there is a fire or an intruder in the light station.

To date, however, not one of the MBCS master stations are fully operational due to the following contributory factors:

- .1 Most of the light stations are unmanned and remotely located. As such, they can hardly be reached on time for necessary repairs especially after they have been vandalised or damaged by natural causes.
- .2 The computer hardware installed in the master stations were inadvertently used for other purposes.
- .3 The spare parts for the MBCS proved very costly.

4.3.5 MSIP-IIB

Provisionally set at 4.411 million pounds sterling, the proposed project for the construction and rehabilitation of up to 84 light stations is still under study by the British government through its Department for International Development (DFID).

While the data was not readily available on the location of the light stations to be constructed or rehabilitated, a re-study should be undertaken on the necessity of the project with regards to the number really required and who are to be benefited. Further, the following factors should be evaluated:

- .1 Route category
- .2 Volume of maritime traffic (large and small vessels, including type)
- .3 Predominant maritime activity (fishing, passenger-cargo transport, recreational)
- .4 Frequency of maritime accidents

The above factors should determine the level of risk - high or low - of the occurrence of maritime accidents in each of the proposed locations. This is if the risk is associated with the inefficiency or non-availability of the ATON infrastructure in the area. Otherwise, the project should be diverted to something else like port development or SAR facility improvement.

4.3.6 MSIP-III

The project is currently undergoing the bidding process having met the approval of the National Economic Development Authority's (NEDA) Investment Co-ordination Committee (ICC). The project's US\$14 million fund requirement is to be granted through loan by the Fondo de Ayuda al Desarrollo (FAD) of the Spanish Government.

Under the project, 120 light stations - 9 primary, 34 secondary, 77 tertiary - are to be supplied, meaning the installation and erection of the light stations are to be undertaken by the PCG and DOTC. This is a unique project undertaking and it should save the country a lot of capital outlay because the construction materials for the light station towers are to be procured locally. However, an evaluation of the locations as discussed in the previous section should be undertaken to determine the appropriate number of light stations necessary.

4.3.7 MSIP-IV

The MSIP-IV project is still on the drawing boards but funding provisionally set at ten (10) million deutschemark has already been assured by the Government of Germany's Kreditanstalt für Wiederaufbau (KfW).

There are three component mixes that are being deliberated upon:

- .1 Enhancement of ATON system along the San Juanico Strait,
- .2 Rehabilitation of 7 and construction of 39 tertiary lights and 24 pole beacons around the Visayas region,
- .3 Acquisition of 2 SAR vessels, SAR communications equipment, aircraft, and the establishment of a VTS.

The San Juanico Strait is a narrow strait that joins Samar Sea in the north and Leyte Gulf in the south. While it lies along the primary sea route between Manila

and Tacloban, the strait has not been characterised as a major risk area in terms of maritime accidents. However, near misses in the area between large vessels have been reported; hence, the clamour for the improvement of its ATON system. While this could be considered as a priority area, careful study should be undertaken to determine whether a buoyage system will suffice or a VTS system needs to be established.

COST BENEFIT ANALYSIS AND EFFECTIVENESS OF THE MSIP

5.1 PERFORMANCE STANDARDS AND EFFECTIVENESS OF AIDS TO NAVIGATION

Generally, two main reasons for the requirement of aids to navigation have evolved from the discussion of the previous sections:

- .1 Position fixing
- .2 Accident (stranding/grounding) avoidance

A lighted beacon or buoy at a port entrance at night provides the navigator with a direct (and most reliable) means of ascertaining the ship's position relative to the port entrance and enables him to decide on the safest course of entry (Englesou et al., 1998, 422). On the other hand, a ship traversing along a coastline at night can rely upon a lighthouse to avoid wandering in shallow waters.

The performance standards and effectiveness of an aids to navigation system should therefore be measured in terms of the identified necessity of utilisation. However, a third factor becomes necessary when considering the ability of a

country (particularly a developing country) to provide for such a system - the number or sufficiency of the component mix of the system.

5.1.1 ANALYSIS OF THE MSIP COMPONENT MIX

Table 5.1 shows the component mix of the different MSIP's. Of the seven projects, MSIP-I, MSIP-IB and MSIP-II have been completed and implemented.

MSIP	COMPONENT							COST (mil USD)
	L/HSE*	BUOYS	BEACONS	VESSELS**	VTS	AIR CRAFT	BUOY BASE	
MSIP-I	37							25.4
MSIP-IB	40	12	2	1			1	47.5
MSIP-IC				2		2	1	56.8
MSIP-II	122			(2)				32.4
MSIP-IIB	84							7.8
MSIP-III	120							14
MSIP-IV***	46		24	2	1	1		5.3
TOTAL								189.2

*Lighthouse rehabilitation includes new installation, height (tower) adjustment, and change of power source and lighting equipment.

**Vessels due for acquisition include buoy tenders, SAR ships and marine disaster response vessels.

***The component mix of this project is still under study and may change completely.

Table 5.1 Component Mix of the MSIP's.

The 37 light stations identified for rehabilitation in MSIP-I are scattered along the Manila-Cebu route that is considered as a high-risk area for maritime accidents. Most of the rehabilitation works included the replacement of the lighting apparatus and power source. This was deemed necessary to increase the luminous intensity of the light so as to offer vessels traversing the route to have at least one signal light from a light station at any point or at least two signal lights at important turning points and/or narrow passage.

The other MSIP's are more or less aimed at the same objective of rehabilitating and providing more lighthouses to coastal areas along the major navigation routes. The construction of another buoy base which is to be located in Mactan Island in Cebu shall serve the very important role of a logistics center for the maintenance of the lighthouses due for construction and rehabilitation.

However, the planned acquisition of two marine disaster response vessels that could double as buoy tenders is questionable. It runs counter to the basic principle of having the right equipment for the right task. A buoy tender cannot be effective as an oil spill response vessel and vice versa. An oil spill response vessel needs to be fitted with oil spill containing equipment and it has to be run at a certain minimum speed during oil spill containment operations for maximum effectiveness. The minimum speed could be from 2-4 knots. If a buoy tender having a designed economical speed of 17.5 knots is run at low speeds during oil spill response operations, its engines will ultimately depreciate and incur derangements.

If the country wants to obtain the maximum benefits from the MSIP's, the number of lighthouses due for construction and rehabilitation in MSIP-IIB and MSIP-III should be reduced and the resultant savings can be programmed for the acquisition of another buoy tender. The acquisition of the two marine disaster response vessels can then go ahead as planned in MSIP-IV. In this manner, the vessels can be utilised solely for what they are intended for.

5.1.2 FACTORS AFFECTING PERFORMANCE AND EFFECTIVENESS

Since the MSIP's are generally aimed at enhancing the country's lighthouse system, the performance and effectiveness of these visual aids should therefore be taken into consideration. As IALA (1993,7-1) points out, authorities must ensure as far as possible that the aids continue to function and to exhibit their correct characteristics. This is aside from determining the type of aids to navigation required.

IALA (Ibid.) introduces the use of the 'availability' parameter as a good method for defining the level of service that can be expected from an aid to navigation. This

is the probability that an aid to navigation is operating at any randomly chosen time or, by extension, an estimate of that probability.

The availability of an aid to navigation may be calculated by dividing the mean time between failures (MTBF) by the sum of the mean time between failures and the mean time repair (MTTR). Availability may also be calculated by dividing the total time during which the aid has been operating correctly by the total time during which the function to be performed by the aid should have been fulfilled. Both methods are further illustrated by the following examples:

a) *Where an aid has an MTBF of 499 days and an MTTR of 1 day, availability is equal to:*

$$499/(499+1) = 0.998 \text{ or } 99.8\% \text{ (MTBF)/(MTBF+MTTR)}$$

b) *Where an aid required to operate for 1,000 days is out of action for 2 days, availability is equal to:*

$$(1000-2)/1000 = 0.998 \text{ or } 99.8\% \text{ (Up Time)/(Total Time)}$$

The first method highlights the necessity of providing adequate facilities and equipment for the care, maintenance and repair of an ATON system. These can be in the form of buoy tender vessels, enough spares, technical personnel and a strategically located buoy base. The clear intent here is to reduce the period of MTTR in order to ensure a high level of availability for the system.

The second method illustrates the importance of the quality of the ATON system to be fitted. The ATON system has to operate fully up to the maximum time when it is expected, by design, to fail. Ideally, the failures should not come in between the designed operation time.

The up time and the MTBF denote two uncontrollable factors that affect the overall performance of the ATON system. These are severe weather phenomena

and vandalism. These two factors are much prevalent especially with regard to remotely located and unmanned systems. Measures must therefore be instituted in order to mitigate the effects of these two factors. The following are recommended:

- .1 system design improvement
- .2 personnel capability development
- .3 ancillary equipment availability
- .4 local community involvement

System design improvement refers to the entire engineering concept of the aid system. This includes the design of typhoon-resistant towers, power source and lighting equipment. This is aimed to ensure that the system will continue to provide service even in bad weather. The technical capability of repair and maintenance personnel should also be developed along the lines of the new system.

Authorities must also ensure the provision and availability of enough ancillary equipment like buoy tenders and land vehicles. This is to ensure that a downed system is expeditiously restored to its operating condition.

Lastly, the local community must be directly involved in the protection of remote and unmanned systems from vandalism. Quite commonly, local residents perpetrate this act. Information campaigns should therefore be conducted emphasising the importance of the aid system and the equally important role and responsibility of the local populace in ensuring that the aid system continues to operate and thus promote safety of life and property at sea.

5.1.3 VIABILITY OF THE MSIP VIS-À-VIS MARITIME ACCIDENTS

The MSIP's are in direct response to the recommendation contained in the JICA study of upgrading the country's ATON system as a means of enhancing maritime safety. However, it has been pointed out in Section 3.3 that the lack or inefficiency of ATON is not the main causal factor for maritime accidents. In each of the accidents cited, the seaworthiness of the vessels are suspect, compounded by the incompetence of the crew that manned them.

Aggravating the resultant loss of life (the dead and missing included) and property from these incidents is the inadequate response from the concerned agencies, the PCG being in the lead, in the conduct of search and rescue operations. In this, the PCG itself cannot be totally faulted because it does not have a functional vessel in its inventory that is solely dedicated for the conduct of SAR operations.

Looking back at the component mix of the MSIP's in Table 5.1, the cases mentioned in Section 3.3 renders the priority of rehabilitating the country's lighthouses impracticable. In fact, their rehabilitation does not meet the overall objective of preventing the occurrence of maritime accidents.

Since MSIP-IC up to MSIP-IV are still under review, their component mix should zero in on the prevention aspect of the safety plan. These should include, among others:

- .1 establishment of VTS systems in the Manila Bay area and Verde Island Passage
- .2 acquisition of SAR vessels and aircraft for the PCG
- .3 stricter regulations on vessel seaworthiness vis-à-vis acquisition and operation
- .4 stronger emphasis on maritime education and training of seafarers

5.2 SAFETY VERSUS ECONOMY

In his paper 'The Economics of Maritime Safety,' Garcia (1998, 29) cited the JICA figures on human lives lost to maritime accidents in the country for the year 1990 alone as equivalent to PESOS148-million. Further, cargo loss was estimated at PESOS302-million and loss of ship's hull at PESOS905-million. This brings the aggregate total loss from maritime accidents for the year 1990 to PESOS1.355-billion, approximately USD\$35.7-million. Were this trend to remain constant for a ten-year period, the country would incur a total loss of USD\$350.7-million from maritime accidents.

When completed, the MSIP's will cost a total of approximately USD\$189.2-million, not adjusted for inflation (see Table 5.1). They are all expected to be operational by the year 2005. Spreading the total amount over the 10-year period since their inception, the country will be spending approximately USD\$18.92-million per year. This is slightly more than one-half of the loss figure the investment is intended to prevent. Theoretically, the investment should match what it is intended to prevent in order to declare it effective.

As the figures indicate, more funds are needed to offset the predicted losses from maritime accidents. But it seems that the line has been drawn at that halfway mark. If one-half of the loss figures can be invested to prevent half of the accidents, it seems that it becomes tolerable enough. But a life is a life and anything that comes short of preventing the loss of a life becomes intolerable.

The economic aspect of preventing the loss of life and property at sea must therefore be seen in this light. If the national government can only afford to invest in saving one-half of the predicted loss, the other half of the investment to save the total lot must be provided from other sources. This is where a cost recovery program becomes necessary to be instituted. Half of the investment necessary to completely offset the predicted total loss from maritime accidents can be sourced from the institution of a Lighthouse Dues system.

CHAPTER 6

RECOMMENDATIONS FOR COST RECOVERY

6.1 FACTORS AFFECTING THE INSTITUTION OF LIGHTHOUSE DUES

What is fair? This is how Hodgson (1999) sums up the difficulties faced by Administrations in trying to recover the costs of operating and maintaining an ATON system. The end-users or customers have a varying degree of dependence on the utilisation of the ATON system.

In the Philippines where there are two general classification of vessels – coastwise and fishing vessels – the resistance to the imposition of light dues is based mainly on economic factors. Small- to large-scale shipping companies who own the coastwise vessels are more financially stable than fishing vessels; hence, they are more capable of shouldering the additional cost imposed by light dues to their operations. On the other hand, fishing vessels far outnumber the larger vessels and they are usually clustered in one particular locality. And since they operate not too far from shore, they are more in need of aids to navigation. Their sheer number presents a strong voice in their clamour for the provision of aids to navigation. However, their capability to pay the new charges is severely limited by the meagre income that they derive from their operations.

There are a variety of systems by which vessels can be assessed lighthouse dues. In one, ships are assessed dues according to the number of lights they had passed on their voyage. The Sound Dues payable to the Crown of Denmark by all ships passing through the narrows of Elsinore and Copenhagen is perhaps the

earliest example of this systematic taxing (Naish, 1985, 178). Another system assesses ships on an annually adjusted scale, which is based on the amount needed to finance the maintenance and operation of the ATON system. Payments are assessed per ton of registered tonnage per voyage, not on the number of lights passed.

The rapid growth and development of shipborne nav aids technology, however, has rendered the first system irrelevant. Vessels merely passing through a country's territorial waters but are not actually making way to any of that country's ports can argue that they did not make use of the lights provided along the coasts to fix their positions. They have advanced positioning systems on board to do that so they don't have to be assessed light dues during their passage. This is probably one reason why Denmark has stopped levying light dues on ships merely passing through their waters in and out of the Baltic sea area (Liljedahl, 1999). Hodgson (1999) corroborated this situation in an interview with the author. The recently passed Canada Shipping Act levies light dues only on ships calling at their ports.

However, this practice leaves the domestic and international trading ships calling at a country's ports as the primary targets for recovery of the cost of maintaining an ATON system. The question that arises from this situation can be both economic and political.

Economic in the sense that the shipping sector would want to know what benefits they are likely to gain for what they would be made to pay, is very hard to quantify. And should government subsidy meet the expenses halfway or completely saddle the industry? Any government subsidy sourced from foreign loans is a drain on the country's coffers. On the other hand, taxing the shipping industry completely can scare world trade away from the country, leaving the local industry to shoulder all or part of the cost of the recovery scheme. In the words of former Philippine Inter-Island Shipping Association (PISA) President Agustin Bengzon (Tio, 1992, 19-20), "While we agree to contribute to the maintenance of

lighthouses, we hope that it is a contribution which means not only us but the government should also contribute some money.”

In the end, the rate imposed should be a compromise between what the Authorities believe they need and what the shipping industry is prepared to pay.

6.2 COMPARATIVE STUDY OF INTERNATIONAL PRACTICES FOR COST RECOVERY

Ships calling at any port are normally levied dues for making use of the port facilities in loading and unloading their cargo and for other purposes. These dues are used basically to support the attendant services provided by the port like dredging of waterways, construction of berths, piers and landings – the so-called marine services. Some ports include the maintenance of ATON systems while others do not. This is where international practices differ on the method of cost recovery for marine services. What follows is a comparative summary of some selected international practices.

6.2.1 PHILIPPINES

The PPA imposes charges or fees for the use of port premises, works, appliances or equipment belonging to the Authority. It is empowered to collect such dues so as to provide a satisfactory return on the Authority’s assets, and may adjust the schedule of such dues so as to reflect the costs of providing the services.

The current port charges being imposed by the Authority are as follows:

- .1 Harbour Fee
- .2 Berthing/Anchorage Fee
- .3 Usage Fee
- .4 Wharfage Fee
- .5 Storage Fee

The first, harbour fee, is a one-time charge assessed against vessels engaged in the international trade every time they call at any port. The second, berthing/anchorage fee, is the amount assessed against a vessel engaged in international trade for berthing or making fast to a berthed vessel. When a vessel does not berth but drops anchor at the anchorage area, it is charged the anchorage fee.

Thirdly, usage fee is the amount assessed against a vessel engaged in coastal (domestic) trade for berthing, for making fast to a berthed vessel or for mooring at an anchorage area. The fourth, wharfage fee, is the amount assessed against the cargo loaded or discharged by the vessel based on revenue tonnage for non-containerised cargo or number of boxes for containerised cargo received or discharged by such vessel. Lastly, storage fee is the amount assessed on cargoes for storage in either the cargo sheds, warehouses or in the open storage area.

Aside from the above fees, the PPA also earns a share from all cargo handling contractors and port-related service operators. The rate of the share is not less than 10% of the gross income earned from such services. However, the Authority does not impose a levy on fairway and light dues because these services are not included in their charter. The ATON systems located inside ports are under the purview of the PCG who operates and maintains them. The PCG, however, does not have a share of the revenue the PPA earns in its operations.

6.2.2 UNITED STATES OF AMERICA

The first Congress authorised the United States federal ATON system over 200 years ago. This system of aids to navigation now comprises nearly 50,000 federal marks providing ATON service throughout the country's navigable waters under the purview of the United States Coast Guard (USCG).

The U.S. levies no charges for the provision of marine services. However, it does levy two taxes to recover costs provided to marine transportation. The Harbour Maintenance Tax is levied on all exporters, importers, and in the case of domestic cargo, shippers. The tax is set at a rate of 0.125% of the value of cargo transported by water and is applicable to all ports where the Army Corps of Engineers has carried out dredging.

The Inland Waterways Tax is levied in the Mississippi system and a number of other inland waterways. Vessels subject to this tax are exempt from the harbour maintenance tax.

6.2.3 SWEDEN

Fairway dues, light dues and pilotage dues mainly finance the activities that are performed by the Swedish Maritime Administration (SMA). These dues cover about 80% of the total costs. The dues are levied on merchant shipping and recover the cost of fairway maintenance (including dredging), aids to navigation, pilotage, icebreaking and hydrographic services.

Fairway and light dues are levied on all vessels in foreign traffic calling at a Swedish port to load or unload goods or to embark or disembark passengers.

Fairway dues are based on the amount of loaded or unloaded goods in tons. The level of the due varies depending on the type of goods and on the length of the fairway to the port. Light dues are based on the vessel's gross tonnage (gt) and are charged a maximum of 12 times per year.

6.2.4 FINLAND

Port dues in Finland are separate and are carried by the municipal ports. However, ports maintain their own aids to navigation that constitute less than 10% of the total number of aids to navigation. This situation is explained by the fact that fairways in Finland are rather long and have to be marked all the way. A

fairway may serve several harbours and there are fairways along the coast that cannot be attributed to a specific port.

This part of the aids to navigation including icebreaking and dredging is performed by the Finnish Maritime Administration (FMA) and is mainly financed by fairway dues. The fairway dues are calculated on the basis of the Net Tonnage (nt) of the vessel and have no distance component. The fees are structured according to the nt and ice class of the vessel.

The rates cover approximately 70% of the cost of aids to navigation and icebreaking. The remaining costs are funded by the State through general taxation.

6.2.5 UNITED KINGDOM

Under the Merchant Shipping Act of 1995, the three General Lighthouse Authorities in the British Isles: Trinity House, the Northern Lighthouse Board and the Commissioners of Irish Lights, manage the lights, beacons and buoys around the coasts of their respective areas. The Authorities' costs are met from the light dues levied on shipping using ports in the British Isles. The structure and level of light dues are determined by the Secretary of State for Transport.

The charge is levied per net ton (nt) and is charged per voyage to a maximum of two per month or seven per year. There is no distance component. The limit of seven per year is intended to minimise the charges paid by regular traders, which are usually smaller vessels. The charges also apply to commercial fishing. Commercial fishermen pay an annual flat fee of about USD\$33.60 per ten metres of boat length. Pleasure boaters are not charged.

6.2.6 AUSTRALIA

The federal government is responsible for marine aids provided to assist international and main coastal movements while the individual States are responsible for entry to ports and harbours, inner ports and inland marine aids, and aids for local and inshore traffic. The Australian Maritime Safety Authority (AMSA) is responsible for the operation and maintenance of the Federal government's coastal marine aids to navigation network.

The costs of aids to navigation are recovered from commercial shipping through the Marine Navigation Levy. Fishing vessels, Department of Defense vessels and pleasure craft are exempt from the levy.

The Marine Navigation Levy is established to recover 100% of the USD\$25-million cost of operating the aids to navigation system. It is government policy that all costs are recovered. The levy is payable each quarter in the case of coastal trading vessels and upon arrival at an Australian port in the case of overseas trading vessels. A certificate, valid for three months, is issued on the occasion of each payment.

6.3 SAFETY RECOMMENDATIONS

Figure 6.1 further illustrates the comparative matrix of the international practices for the cost recovery of marine services. Of the six countries compared, Only the Philippines and the U.S. do not levy light or fairway dues as a means of cost recovery. While this may be inconclusive, the other four countries are considered major world traders and must therefore have more than enough reason to tax their shipping industries for the cost recovery of their ATON system operations.

CRITERIA	COUNTRY					
	PHILS	USA	SWE	FIN	UK	AUS
Agency/Authority responsible for ATON	DOT/PCG	DOT/USCG	SMA	FMA	Gen. Lighthouse Authorities	AMSA
Light/Fairway dues levied	No	No	Yes	Yes	Yes	Yes
Rate basis	-	-	GRT (max. 12/year)	NRT	NRT (max. 2/mo or 7/yr)	Coastal-quarterly Overseas-upon arrival in port
% of cost recovered	-	-	80%	70%	Sliding	100%
% of government subsidy	100%	100%	-	30%	-	-

Figure 6.1 Comparative Matrix of International Practices for Cost Recovery.

It has already been discussed in Section 5.2 that the Philippines needs to spend at least USD\$35.7-million per year on maritime safety enhancement projects. This is equivalent to the aggregate total loss for one year from maritime accidents. This figure is very substantial for a developing country and the government cannot continue to produce this amount from its own coffers. A cost-sharing scheme is therefore necessary to provide the government and the industry the means to stop the occurrence of maritime accidents.

From the figures in Section 2.3.1, there were 9,392 domestic vessels registered in 1992 of which 4,975 were fishing vessels ranging from below 3GT (undocumented) to 45GT. Low-income families or small fishing companies mostly owns these. To burden them with a large share in the cost-sharing scheme would severely affect their only means of livelihood.

On the other hand, the small vessel to large vessel ratio of accidents documented by JICA in 1990 was 75%: 24%. Apart from their large number, the ratio is indicative of the higher risk faced by smaller vessels against maritime accidents. This would merit the smaller vessels a larger measure of protection, but to dedicate a bigger portion of the cost recovered for this purpose would be unfair to the larger vessel operators. This is especially if the larger vessel operators are made to shoulder a bigger part of the cost.

This dilemma of sorts can be resolved by factoring in foreign vessels calling at the country's ports. From the number of cumulative ship calls in Table 2.1, it can be seen that domestic ship calls far outnumber foreign ship calls. This is quite normal because domestic ships have a faster turnaround than foreign ships. The latter may visit the country only once or twice in a year depending on the nature of its trade.

With the working figure of USD\$35.7-million a year dedicated to maritime safety enhancement, a good compromise for a cost-sharing scheme is arrived at as shown in Table 6.1. This is based on the government agreeing to bear at least one-half of the cost, as evidenced by its funding the activity with the same amount through foreign loans.

SOURCE	% SHARE OF COST	AMOUNT (mil USD\$)	% SHARE OF COST RECOVERY UTILIZATION
Government subsidy	50%	17.850	
Coastwise shipping	15%	5.355	35%
Small/Fishing vessels	10%	3.570	40%
Foreign shipping	25%	8.925	25%
Total	100%	35.700	100%

Table 6.1 Cost-Sharing Scheme for the Cost Recovery of ATON Services.

Foreign shipping will bear the larger part of the cost because they are more financially secure than the struggling domestic and small/fishing vessels. On the utilisation of the cost recovered, however, a large part will go to the enhancement of maritime safety of small vessels because they are more at risk than larger vessels.

The method of levying these dues can be determined later as to whether it should be based on gt, nt, or number of voyages. The sliding rate adopted by the U.K. is further recommended in determining the increase or decrease of the rates to be levied through the years. A sliding rate depends largely on the actual cost needed

by the PCG in operating and maintaining the country's ATON system yearly. The advent of modernisation increases the efficiency and availability of the ATON system. This will eventually reduce the operation and maintenance costs of the system, thus lowering the dues that need to be levied to recover these costs.

6.4 PROPOSED NATIONAL LEGISLATION ON THE COLLECTION OF LIGHTHOUSE DUES

There are several ways by which laws consistent with the national Constitution can be promulgated in the Philippines. The first is through the enactment of a law by both houses of Congress, the same law to be signed by the President for promulgation. The second is through a Presidential Decree, and the third through an Executive Order by the President. The latter two are actually under the prerogative of the President if he wants to fast track some measures designed for the good order of the general public.

The law mandating the full separation of the PCG from the PN and its subsequent attachment as a specialised agency or bureau under the DOTC is still pending in both houses of Congress. In this light, the way of the Executive Order by the President is recommended to legislate the collection of light dues by the PCG.

The following are the salient features of the proposed EO, the full text of which is reproduced in Appendix 6.

- The title gives a direct and distinct purpose for the proposed legislation. In this manner, there can be no doubt as to the utilisation of the funds to be collected.
- In Section I, the PCG is identified as the Authority to collect light dues. It is also empowered to prescribe the rates to be collected and from whom the dues will be collected.

- The Shipping and Ports Advisory Council (SPAC) under the auspices of the PPA will approve the rates prescribed by the PCG. The same body will also ensure that a public hearing with the participation of all sectors concerned is conducted prior to approval of the schedule of rates. This is to ensure that the shipping industry pays no more than its share of the cost of operating and maintaining the country's ATON system.
- The light dues must be subject to audit in accordance with existing Commission on Audit rules and regulations.
- Authorised General Expenditures from the funds collected include printing of forms and certificates directly related to the services for which the fees are derived.
- Specifically, the light dues fund must be used to augment government funds for the establishment, operation and maintenance of the country's ATON system.

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APPENDIX 1

SEA ROUTES

Maritime shipping routes are classified in the primary, secondary, tertiary and/or developmental routes. The authorized route of a vessel is indicated on its Special Permit (SP), Provisional Authority (PA), or Certificate of Public Conveyance (CPC) granted specifically by MARINA to a particular vessel. These routes are defined as follows:

Primary Route

This is defined as a route whose domestic passenger and freight volume is of national significance. Generally, the route has an existing volume demand that is very high, links major (primary and secondary) ports and serves a major portion of the population of the country and commercial/industrial centers.

Secondary Route

Domestic passenger and freight volume along this route is of regional significance. The route has a sizeable volume demand and links main regional or inter-island centers (secondary and tertiary ports).

Tertiary Route

This is considered a feeder route with passenger and cargo traffic concentrating to and dispersing from a primary or secondary port.

Developmental Route

A developmental route is one with a low volume of domestic passenger and cargo traffic destined to a limited number of specialized (e.g., mining/manufacturing) activities. Shipping services along this route are also necessary if the area to be served has agricultural potentials or if it needs to be linked with developed regions. Operations along this type of route are economically necessary but may not be financially viable.

APPENDIX 2

H. No. 4251
S. No. 963

***Republic of the Philippines
Congress of the Philippines
Metro Manila***

Fifth Regular Session

Begun and held in Metro Manila, on Monday, the twenty-second day of July, ineneteen hundred and ninety-one.

REPUBLIC ACT NO. 7471

**AN ACT TO PROMOTE THE DEVELOPMENT OF THE
PHILIPPINE OVERSEAS SHIPPING**

Be it enacted by the Senate and the House of Representatives of the Philippines in Congress assembled:

SECTION 1. *Title.* - This Act shall be known and cited as the "Philippine Overseas Shipping Development Act."

SECTION 2. *Declaration of Policy.* - It is hereby declared the policy of the Government of the Philippines to:

(a) Develop and maintain a Philippine Merchant Marine composed of well equipped, safe and modern vessels most suited for Philippine requirements and conditions, manned by qualified Filipino officers and crew, and owned and operated under the Philippine flag by citizens of the Philippines, at least sixty percent (60%) of the capital of which is owned by citizens of the Philippines;

(b) Assist in the development, recovery and expansion of Philippine overseas shipping capable of meeting the requirements of the expanding international trade of the Philippines;

(c) Provide assistance to Philippine shipping enterprises and encourage the long range vessel acquisition, development, modernization and expansion through private investments without direct government financial assistance; and

(d) Create a healthy climate to attract private enterprises.

SECTION 3. *Definitions.* - As used in this Act:

(a) "Philippine overseas shipping" means the transport of goods and/or passengers by a ship owned and operated under the Philippine flag by a Philippine shipping enterprise, except when the ship is operated solely between ports in the Philippines;

(b) "Philippine shipping enterprise" means a citizen of the Philippines or an association or corporation organized under the laws of the Philippines, at least sixty percent (60%) of the capital of which is owned by citizens of the Philippines and engaged exclusively in Philippine overseas shipping;

(c) "MARINA" means the Maritime Industry Authority;

(d) "Monetary Authority" means the Central Bank of the Philippines and any other agency in charge of foreign exchange controls; and

(e) "Regulations" means the rules and regulations promulgated pursuant to Section 10 hereof.

SECTION 4. *Foreign Exchange Requirements.* - Foreign exchange requirements of shipping enterprises for the purchase of ocean going vessels for registration under the Philippine flag, for repair and improvement of vessels, for importation of engines, spare parts, accessories, supplies, containers and for other expenses required for the operation of vessels in foreign ports or in the high seas, when recommended by the MARINA, shall be made available to the Philippine shipping enterprise subject to the regulations.

SECTION 5. *Acquisition of Ocean Going Vessels.* - Philippine shipping enterprises may likewise acquire ocean going vessels for Philippine overseas shipping upon approval by the MARINA, subject to the guidelines prescribed in the regulations: *Provided, That:*

(a) The funds utilized in the acquisition of the vessel are financed from sources other than the Philippine banking system;

(b) No guaranty of the monetary authority or any Philippine government or private financial institution is granted or extended for the purpose;

(c) The vessel serves as the sole collateral for the financing of the vessel and no other asset of the Philippine shipping enterprise is pledged, mortgaged, or used as security in case of default;

(d) All foreign exchange requirements for the servicing of the loan, the operation, maintenance and repair of the vessel, the purchase of supplies and related equipment shall be financed solely from earnings derived from the operation of the vessel and no foreign exchange shall be made available by the monetary authority and the Philippine banking system for these purposes;

(e) Mortgage documents and/or other financial agreements shall be filed with the monetary authority and such other government agencies in charge of such mortgage formalities; and

(f) Any excess foreign exchange earning shall be inwardly remitted and surrendered to the Philippine banking system.

SECTION 6. *Exemption from Import Duties and Taxes.* - The importation by a Philippine shipping enterprise of ocean going vessels for registration under the Philippine flag shall be exempt from the payment of import duties and taxes. The spare parts for the repair and/or overhaul of vessels shall likewise be exempt from the payment of import duties and taxes; *Provided, That* such items are destined or consigned either to:

(a) A Philippine dry-docking or repair facility, accredited by the MARINA and registered as a customs-bonded warehouse, which will undertake the necessary repair and works on the vessel; and

(b) The vessel in which the items are to be installed: *Provided, That*, if such items are found in locations other than the two (2) aforementioned ones or in places not authorized by customs, the person or entity in possession of such items shall be subject to full duties and taxes, including surcharges and penalties.

Local manufacturers or dealers who sell machinery, equipment, materials and spare parts to a Philippine shipping enterprise shall be entitled to tax credits for the full amount of import duties and taxes actually paid thereon, or on spare parts or components thereof subject to the approval of the Secretary of Finance, upon the recommendation of the MARINA.

SECTION 7. *Exemption from Income Tax.* - A Philippine shipping enterprise shall be exempt from payment of income tax or income derived from Philippine overseas shipping for a period of ten (10) years from the date of approval of this Act: *Provided, That:*

(a) The entire net income, after deducting not more than ten percent (10%) thereof for distribution of profits or declaration of dividends, which would otherwise be taxable under the provisions of Title II of the National Internal Revenue Code, is reinvested for the construction, purchase, or acquisition of vessels and related equipment and/or in the improvement or modernization of its vessels and related equipment in accordance with the regulations; and

(b) The cumulative amount so reinvested shall not be withdrawn for a period of ten (10) years after expiration of the period of income tax exemption or until the vessel or related equipment so acquired have been fully paid, whichever date comes earlier.

Any amount not so invested or withdrawn prior to the expiration of the period stipulated herein shall be subject to the corresponding income tax, including penalties, surcharges and interests.

SECTION 8. *Registration and Deletion of Vessels.* - All vessels owned by Philippine shipping enterprises and availing of the incentives under this Act shall be registered under the Philippine flag. Said vessels can only be deleted from the Philippine registry after the MARINA has determined that:

- (a) No other Philippine shipping enterprise is interested in acquiring the vessel; or
- (b) The vessel has to be scrapped.

SECTION 9. *Requisition of Vessels.* - The President of the Philippines may, in times of war and other national emergency, requisition, absolutely or temporarily, for any naval or military purpose, any and all vessels of Philippine registry. The Government shall pay the owner or operator of the vessel, based on normal conditions at time of requisition:

- (a) The fair market value, if the vessel is taken absolutely; or

- (b) The fair market value, if the vessel is taken temporarily.

In case of disagreement, such fair value shall be determined by an arbitration committee composed of:

- (a) One (1) member to be appointed by MARINA;
- (b) One (1) member to be appointed by the owner or operator of the vessel; and
- (c) One (1) member to be appointed by the two (2) members so appointed.

The decision of the arbitration committee shall be final and binding on both parties.

SECTION 10. *Rules and Regulations.* - The MARINA, in consultation with the monetary authority and the Department of Finance, shall jointly formulate and promulgate the rules and regulations necessary for the implementation of this Act taking into consideration the policies and programs of the Government for the development of the Philippine overseas shipping.

SECTION 11. *Annual Report.* - The MARINA, in coordination with the monetary authority and the Department of Finance, shall submit an annual report to the President of the Philippines and the Congress of the Philippines on the implementation of this Act, which report shall include:

- (a) The amount of foreign exchange earned, acquired and spent by Philippine shipping enterprises;

- (b) The amount of income tax and import duties and taxes for which exemptions have been granted;

- (c) The additional ocean going vessels constructed, purchased or acquired, the improvements made thereon and the additional related equipment procured; and

- (d) Such other information as the MARINA may deem necessary or the President of the Philippines may require.

SECTION 12. *Penal Provisions.* - Violations of this Act or the rules and regulations promulgated to implement the same shall be punished by a fine of not

more than Ten Thousand Pesos (P10,000) or imprisonment for not more than five (5) years or both such fine and imprisonment, at the discretion of the court.

If the violation is committed by a government official or employee, he shall, in addition to the penalties prescribed hereunder, be dismissed from the government service with all administrative penalties accessory thereto.

SECTION 13. *Repealing Clause.* - All laws, executive orders, regulations, or parts thereof, inconsistent with the provisions of this Act are hereby repealed, amended and modified accordingly.

SECTION 14. *Effectivity Clause.* - This Act shall take effect fifteen (15) days after its publication in at least two (2) newspapers of general circulation.

Approved,

(SGD)
NEPTALI GONZALES
President of the Senate

(SGD)
RAMON V MITRA
*Speaker of the House
of Representatives*

This Act, which is a consolidation of House Bill No. 4251 and Senate Bill No. 963 was finally passed by the House of Representatives and the Senate on December 12, 1991 and January 23, 1992, respectively.

(SGD)
ANACLETO D BADOY, JR.
Secretary of the Senate

(SGD)
CAMILO L. SABIO
*Secretary General
House of Representatives*

Approved: May 05, 1992

(SGD)
CORAZON C. AQUINO
President of the Philippines

APPENDIX 3

Malacañang *Manila*

PRESIDENTIAL DECREE NO. 760

ALLOWING THE TEMPORARY REGISTRATION OF FOREIGN-OWNED VESSELS UNDER TIME CHARTER OR LEASE TO PHILIPPINE NATIONALS FOR USE IN THE PHILIPPINE COASTWISE TRADE SUBJECT TO CERTAIN CONDITIONS.

WHEREAS, in the interest of the national economy, it is imperative that Philippine domestic shipping be expanded to meet the ever increasing inter-island cargo and passenger traffic;

WHEREAS, due to the heavy capital requirements of the shipping industry, local shipowners and operators cannot raise sufficient financial resources to acquire new tonnage to replace their uneconomic and overaged fleet; and

WHEREAS, in order to alleviate the present plight of domestic shipping, it is necessary to temporarily relax certain aspects of the restrictive and constrictive legal framework under which vessels may be registered in the Philippines;

NOW, THEREFORE, I, FERDINAND E. MARCOS, President of the Republic of the Philippines, by virtue of the powers vested in me by the Constitution, do hereby order and decree the following as part of the law of the land;

SECTION 1. Any provision of law, decree, executive order, or rules and regulations to the contrary notwithstanding, any foreign-owned vessel under time charter or lease to a Philippine national, as the term is defined in Section 3 of Presidential Decree 474, may be issued a temporary certificate of Philippine registry by the Maritime Industry Authority: *Provided*, That the said charter or lease (1) has had the prior approval of the Maritime Industry Authority, (2) shall be

valid and effective for a period of not less than five years, and (3) shall be used exclusively in the coastwise trade in the Philippines: *Provided, further*, That the operation of the vessel shall be entirely in the hands of Philippine nationals and free from any participation or interference from the alien owner, as owner thereof: *Provided, finally*, That the registered vessel shall be manned completely by Filipino crew, except in case of specialized fishing vessels.

The effectivity of any charter or lease contract entered into pursuant to this Decree shall not extend beyond the year 1990, unless otherwise extended by the President of the Republic of the Philippines.

SECTION 2. Any vessel issued a temporary certificate of Philippine registry as provided for in the Section immediately preceding shall be entitled to all the rights and privileges of a vessel of Philippine registry, as well as the protection of Philippine law so long as its temporary certificate of registration is valid and subsisting. Correspondingly, the vessel shall also be subject to all requirements, limitations and all the duties and obligations imposed upon vessels of Philippine registry.

SECTION 3. The Maritime Industry Authority shall promulgate the rules and regulations, together with the procedures and guidelines, for the implementation of this Decree, subject to the approval by the Office of the President.

SECTION 4. Any provision of law, decree, executive order, or rules and regulations inconsistent with this Decree is hereby repealed, amended or modified accordingly.

SECTION 5. This Decree shall take effect immediately.

Done in the City of Manila, this 31st day of July, in the Year of Our Lord, Nineteen Hundred and Seventy-five.

(SGD)
FERDINAND E. MARCOS
President of the Philippines

By the President:

(SGD)
ALEJANDRO MELCHOR
Executive Secretary

**Malacañang
Manila**

PRESIDENTIAL DECREE NO. 1711

FURTHER AMENDING PRESIDENTIAL DECREE NO. 760, AS AMENDED, BY FURTHER ENCOURAGING THE CHARTERING OF SPECIALIZED OCEAN-GOING VESSELS AND BY EXTENDING THE EFFECTIVITY OF THE DECREE UNTIL 1999.

WHEREAS, it is the declared policy of the Philippine government to accelerate the expansion and modernization of the Philippine overseas fleet and further increase the generation of foreign exchange earnings as well as maritime employment,

WHEREAS, there is a recognized need to broaden the legal framework under the present law such that the incentive granted under P.D. 760 is extended to overseas shipping projects including the temporary registration of specialized vessels; and

WHEREAS, long term investment in shipping requires a corresponding long term incentive in the availment of temporary Philippine flag registration;

NOW, THEREFORE, I, FERDINAND E. MARCOS, President of the Republic of the Philippines, by virtue of the powers vested in me by the Constitution, do hereby order and decree the further amendment of Presidential Decree No. 760, as amended, as follows:

SECTION 1. Section 1 of Presidential Decree No. 760, as amended, is further amended to read as follows:

“Section 1. Any provision of law, decree, executive order, or rules and regulations to the contrary notwithstanding, any foreign-owned vessel under charter or lease to a Philippine national, as the term is defined in Section 3 of Presidential Decree No. 474, may be issued a temporary certificate of Philippine registry by the Philippine Coast Guard; *Provided,*

That said charter or lease, (1) has the prior written approval of the Maritime Industry Authority, (2) shall be valid and effective for a period not less than one year; *Provided, further*, That the operation of the vessel shall be entirely in the hands of Philippine nationals and free from any participation or interference from the alien owner, except insofar as such action shall be to directly protect his rights as owner thereof; *Provided, finally*, That the registered vessel shall be manned completely by Filipino crew except in the case of specialized vessels and subject to rules and regulations MARINA may prescribe in relation thereto.”

The effectivity of any charter or lease contract entered into pursuant to this Decree shall not extend beyond the year 1999 unless otherwise extended by the President of the Republic of the Philippines.

SECTION 2. The Maritime Industry Authority, in coordination with the Philippine Coast Guard, shall promulgate the rules and regulations together with procedures and guidelines, for the implementation of this Decree.

SECTION 3. Any provision of law, decree, executive order or rules and regulations inconsistent with this Decree is hereby repealed, amended or modified accordingly.

SECTION 4. This Decree shall take effect immediately.

Done in the City of Manila, this 15th day of August, in the Year of Our Lord, Nineteen Hundred and Eighty.

(SGD)
FERDINAND E. MARCOS
President of the Philippines

By the President:

(SGD)
JOAQUIN T. VENUS, JR.
Presidential Assistant

APPENDIX 4

***MALACAÑANG
MANILA***

BY THE PRESIDENT OF THE REPUBLIC OF THE PHILIPPINES

EXECUTIVE ORDER NO. 314

ESTABLISHING A NATIONAL MARITIME SAFETY COORDINATING COUNCIL

WHEREAS, the development of the maritime industry is vital to the attainment of the national developmental thrusts of people empowerment and global competitiveness;

WHEREAS, ensuring maritime safety at all times is vital to attain the growth and development objectives of the industry;

WHEREAS, the enhancement of maritime safety requires collective and coordinated efforts among and between government and the private sectors;

WHEREAS, there is a need for an effective and efficient mechanism to coordinate the formulation and implementation of policies and programs affecting maritime safety, including immediate resolution of issues and concerns related thereto;

NOW, THEREFORE, I, FIDEL V. RAMOS, President of the Republic of the Philippines, by virtue of the powers vested in me by law, do hereby order:

Section 1. Establishment of the National Maritime Safety Coordinating Council. There is hereby created the National Maritime Safety Coordinating Council, hereinafter referred to as the "Council," to serve as the coordinating body for the formulation and implementation of policies and programs affecting maritime safety.

Section 2. Composition. The Council shall be composed of the following:

Executive Secretary	-	Chairman
Secretary, DOTC	-	Co-Chairman
Secretary, DND	-	Vice Chairman
Secretary, DILG	-	Member
Administrator, MARINA	-	Member
Commandant, PCG	-	Member
General Manager, PPA	-	Member
Administrator, NAMRIA	-	Member
Commander, PNP/MARICOM	-	Member
Chairman, CHED	-	Member
Chairman, TESDA	-	Member
Chairman, Maritime Training Council	-	Member
Representative, NDCC	-	Member
One Representative each from Shippers, Ship Owners and Maritime Schools to be appointed by the Council Chairman	-	Member

Section 3. Powers and Functions. The Council shall have the following powers and functions:

1. Coordinate the formulation and implementation of policies and programs affecting maritime safety.
2. Recommend policies toward enhancing safety of lives and properties in the seas, including their implementing strategies.
3. Provide an effective and efficient mechanism for coordination, complementation and collaboration in the resolution of issues and concerns affecting maritime safety.
4. Monitor the implementation of the programs and policies on maritime safety.
5. Discharge other functions which may be deemed necessary by the President.

Section 4. Initial Activity. The Council shall immediately review the existing National Maritime Safety Plan towards its updating to include the present concerns and developments on maritime safety. In this regard, the Committee shall submit to the President, not later than thirty days (30) from the issuance of

this Order, a Comprehensive National Maritime Safety Plan which shall include, among others, the delineation of duties and responsibilities on ensuring maritime safety, strategies on preventing and responding to maritime incidents/accidents, the timely disposition of cases involving violation of rules and regulations on maritime safety.

Section 5. Secretariat/Technical Support. The Maritime Industry Authority (MARINA) shall provide technical and administrative support to the operation of the Council. Whenever necessary, however, the Council may tap other government agencies and/or create appropriate committees to ensure the attainment of its objectives.

Section 6. Funding. The yearly budgetary requirement for the operation of the Council shall be drawn from the contribution of its member-agencies. For its initial year, the MARINA shall provide ONE MILLION PESOS (P1,000,000.00) from its unprogrammed funds for 1996, subject to existing auditing rules and regulations.

Section 7. Reporting. The Council shall provide the President a quarterly report on its activities. It shall also review and submit its findings, not later than fifteen (15) days from the issuance of this Order, on the doability of the recommendations adopted during the Maritime Safety Conference held on 27-28 March 1996, including their implementing instruments.

Section 8. Private Sector and Local Government Unit Participation. The Council shall tap private sector and local government units in pursuing its functions and responsibilities, including the monitoring of the implementation of maritime safety policies and programs.

Section 9. Effectivity. This Order shall take effect immediately.

Done in the City of Manila, this 28th day of March in the Year of Our Lord, Nineteen Hundred and Ninety-Six.

(SGD)
FIDEL V. RAMOS

By the President

(SGD)
Ruben D. Torres

Executive Secretary

APPENDIX 5

REPUBLIC ACT NO. 5173

AN ACT CREATING A PHILIPPINE COAST GUARD, PRESCRIBING ITS POWERS AND FUNCTIONS, APPROPRIATING THE NECESSARY FUNDS THEREFORE, AND FOR OTHER PURPOSES

Be it enacted by the Senate and House of Representatives of the Philippines in Congress assembled:

Section 1. *Coast Guard: Objectives.* - There is hereby created in the Philippine Navy a major unit to be known as Philippine Coast Guard which shall have the following general objectives:

(a) To enforce or assist in the enforcement of all applicable laws upon the high seas and waters subject to the jurisdiction of the Republic of the Philippines;

(b) To enforce laws, promulgate and administer regulations for the promotion of safety of life and property within the maritime jurisdiction of the Philippines; and

(c) To develop, establish, maintain and operate, with due regard to the requirements of national defense, aids to maritime navigation and rescue facilities for the promotion of safety on and over the high seas and waters, subject to the jurisdiction of the Philippines.

Section 2. *Board of Visitors.* - A Board of Visitors is created which shall have visitorial and policy-making powers to be composed of the Flag Officer-In-Command of the Philippine Navy, the Commissioner of the Bureau of Internal Revenue, the Commissioner of the Bureau of Customs, the Secretary of the Department of Foreign Affairs, the Commissioner of the Bureau of Immigration, the President of the Filipino Shipowners Association, and the Commandant, Philippine Coast Guard who will act as *ex-officio* member.

Section 3. Specific Functions. - The Philippine Coast Guard shall perform the following functions:

(a) To prevent and suppress illegal entry, smuggling, other customs frauds and violation of other maritime laws that may be committed within the waters subject to the jurisdiction of the Republic of the Philippines, and for this purpose surveillance by the Philippine Coast Guard may be made on vessels entering and/or leaving Philippine territory;

(b) To assist in the suppression of fishing by means of dynamite, explosives or toxic substances or other methods as may be declared destructive by the proper authorities;

(c) To promulgate and enforce rules for lights, signals, speed, steering, sailing, passing, anchorage, movement and towlines of vessels and lights and signals on bridges;

(d) To approve plans for the construction, repair, or alteration of vessels; approve materials, equipment and appliances of vessels; approve the classification of vessels; inspect vessels and their equipment and appliances; register all types of motorized watercraft plying in Philippine waters; issue certificates of inspection and/or permits indicating the approval of vessels for operation; issue certificates of Philippine registry of vessels; administer load line requirements; promulgate and enforce other provisions for the safety of life and property on vessels: *Provided*, that certification and approval of any plans, equipment and any vessel by internationally known classification societies which are recognized by the Philippine Government shall be deemed to have complied with this section;

(e) To issue licenses and certificates to officers, pilots, major and minor patrons and seamen, as well as suspend and revoke such licenses and certificates;

(f) To investigate marine casualties and disasters including those arising from marine protests filed with the Bureau of Customs relative to the liability of shipowners and officers;

(g) To enforce laws, rules and regulations governing manning, citizenship and mustering and drilling of crew requirements, control of logbooks, shipment, discharge, protection and welfare of merchant seamen;

(h) To enforce laws requiring the performance of duties of shipowners and officers after accidents;

(i) To prescribe and enforce regulations for out-fitting and operation of motorboats and the licensing of motorboat operators;

(j) To regulate regattas and marine parades;

(k) To render aid to distressed persons or vessels on the high seas and on waters subject to the jurisdiction of the Philippines, and, in this connection, the Philippine Coast Guard may perform any and all acts necessary to rescue and aid persons, furnish clothing, food, lodging, medicine and other necessary supplies and services to persons succored; protect, save and take charge of all property saved from marine disasters until such property is delivered to persons authorized to receive it or is otherwise disposed of in accordance with law or applicable regulations; and collect and take charge of bodies of those who may perish in such disasters;

(l) To develop, establish, maintain, and operate aids to maritime navigation. In the performance of these functions, the Philippine Coast Guard is authorized to destroy or tow in port sunken or floating dangers to navigation;

(m) To supervise nautical schools with reference to activities relative to navigation, seamanship, marine engineering and other allied matters, in coordination with the Department of Education;

(n) To perform functions pertaining to maritime communications which are not specifically delegated to some other office or department; and

(o) To assist, within its capabilities and upon request of the appropriate authorities and other Government agencies in the performance of their functions, within the waters subject to the jurisdiction of the Philippines, relating to matters and activities not specifically mentioned in this section: *Provided*, that in the exercise of these functions personnel of the Philippine Coast Guard shall be deemed to be acting as agents of the particular department, bureau, office, agency or instrumentality charged with the enforcement and administration of the particular law. Members of the Philippine Coast Guard are peace officers for all purposes of this Act and shall be, and shall act, as law enforcement agents of the Bureau of Customs, and the Bureau of Immigration, the Bureau of Internal Revenue, the Fisheries Commission, and such other departments, bureaus or offices in the enforcement of pertinent laws, rules and regulations.

Section 4. Organization; Administration. - The Philippine Coast Guard shall be headed by a Commandant who shall be a Flag Officer. Subject to the approval of the Secretary of National Defense, the Flag Officer-In-Command, Philippine Navy, shall organize the Philippine Coast Guard into operational units or

subordinate commands and equip the same as may be necessary for effective exercise of the functions and duties vested upon it by law, and shall promulgate rules and regulations necessary for its administration. The Philippine Coast Guard shall be administered and maintained as a separate unit of the Philippine Navy, and it shall be specially trained and equipped for the effective discharge of police duties at sea.

The Marine Safety Division, including the Naval Architecture and Engineering Section, the Maritime Safety Inspection Section, the Registration and Licensing Section, and the functions of the Hulls and Boilers Division, the Marine Board of Inquiry as existing in the Bureau of Customs, and all other agencies or instrumentalities of the Government presently performing any of the functions provided for in subparagraph (c) to (n), inclusive of Section three of this Act, are hereby transferred with their personnel, records, files, supplies, equipment, furniture, funds and other properties to the Philippine Coast Guard: *Provided*, that no person shall be deprived of his office, employment or rank, or suffer any diminution of his salary by operation of this Act. The Lighthouse Service of the Philippine Navy is likewise transferred to the Philippine Coast Guard. Personnel transferred to the Philippine Coast Guard shall continue to be governed by the Civil Service Law and other existing laws relating to their individual status, rights, emoluments and benefits.

Section 5. *Unauthorized Aids to Maritime Navigation.* - No person, association or corporation shall establish, erect, or maintain any aid to maritime navigation without first obtaining authorization from the Philippine Coast Guard in accordance with applicable regulations.

Section 6. *Interference with Aids to Navigation.* - It shall be unlawful for any person, association or corporation, to remove, change the location of, obstruct, willfully damage, make fast to, or interfere with any aid to maritime navigation.

Section 7. *Penal Provisions.* - Any person, association or corporation who violate any provision of this Act, or the rules and regulations made thereunder, shall upon conviction, be punished with a fine of not less than one hundred pesos nor more than five hundred pesos or by imprisonment of not less than thirty days nor more than six months or both: *Provided*, that, in case the violation is committed by an association or corporation, the penalty herein prescribed shall be imposed on the responsible officers or directors thereof: *Provided, finally*, that nothing in this Act shall prevent the Philippine Coast Guard from providing administrative penalties for violation of any regulation that it promulgates.

Section 8. Appropriation. - To carry out the purposes of this Act, there is hereby appropriated, out of any funds in the National Treasury not otherwise appropriated, the sum of fifteen million three hundred twenty-seven thousand five hundred pesos for the purchase of watercraft, personnel services, requirements for maintenance and other operating expenses: *Provided*, that sixty thousand pesos shall be used exclusively for the updating of the Philippine merchant marine regulations. To enable the Philippine Coast Guard to acquire the necessary vessel-requirement to accomplish effectively its mission, the sum of nine million pesos each year for the first two years after the passage of this Act and thirteen million pesos each year for the succeeding three years shall be included in the annual General Appropriation Act.

Section 9. All laws, executive orders, rules and regulations and parts thereof inconsistent with this Act are hereby repealed.

Section 10. This Act shall take effect upon its approval.

Approved, August 4, 1967.

SIGNED

APPENDIX 6

Malacañang Manila

EXECUTIVE ORDER NO. ____

AUTHORIZING THE COLLECTION OF LIGHT DUES TO PROVIDE FOR THE ESTABLISHMENT, OPERATION AND MAINTENANCE OF AIDS TO NAVIGATION

WHEREAS, the shipping industry has been identified as one of the catalysts for national development and the protection thereof from the increasing risks of maritime accidents must therefore be enhanced;

WHEREAS, aids to navigation in all its various forms has been identified in the National Maritime Safety Plan as one of the priority areas for improvement to enhance the country's maritime safety initiative;

WHEREAS, the development of the country's aids to navigation by the Philippine Coast Guard has been totally dependent on government subsidy through foreign loans payable through shares from local taxation;

WHEREAS, a cost-sharing scheme through government subsidy and the collection of Light Dues from the shipping industry presents a better alternative to ensure the continuous operation and maintenance of the country's aids to navigation system;

NOW, THEREFORE, I, JOSEPH E. ESTRADA, President of the Republic of the Philippines, by virtue of the powers vested in me by the Constitution, do hereby order:

SECTION 1. Authority to Collect Light Dues. – The Philippine Coast Guard (PCG) is hereby authorized to collect from ships in the Philippine registry and foreign trading vessels entering and/or calling at any Philippine port an amount to

be prescribed under the Light Dues Fund; *Provided*, That the schedule of light dues shall be approved by the Shipping and Ports Advisory Council (SPAC), which shall ensure that a public hearing is conducted with the participation of shipowners and other interested parties prior to approval of the said schedule.

SECTION 2. The Light Dues Fund shall be established as a distinct PCG Fund totally separate from the dues assessed by the Philippine Ports Authority (PPA). The Funds shall be deposited in full in an authorized depository bank and audited in accordance with existing Commission on Audit (COA) rules and regulations.

SECTION 3. Authorized General Expenditures. – The PCG is authorized to use receipts derived from the Light Dues Funds for the following general expenditures:

a. Printing of forms and certificates directly related to the services for which the dues are derived.

b. Provision for other supplies and services directly related to the proper administration and operation of the function for which the dues are collected.

SECTION 4. Specific Expenditures. – Aside from the general expenditures, the Funds shall be used exclusively for the improvement, operation and maintenance of the country's aids to navigation system.

SECTION 5. Rules and Regulations. – The Secretary of Transportation and Communications shall issue rules and regulations that will effectively carry out the provisions of this Executive Order subject to the recommendation of the Philippine Coast Guard and the concurrence of the Shipping and Ports Advisory Council.

SECTION 6. Effectivity. – This Executive Order shall take effect one month after publication in three (3) newspapers of general circulation.

Done in the City of Manila, this ___ day of _____ in the Year of Our Lord, Nineteen Hundred and Ninety-nine.

JOSEPH E. ESTRADA
President of the Philippines

By the President: