The development and integration of the extension program for marine deck officers and deck cadets of the Philippine Merchant Marine Academy

Herminio Pascual Pinto Estaniel Jr.
World Maritime University

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WORLD MARITIME UNIVERSITY
THE DEVELOPMENT AND INTEGRATION OF THE EXTENSION PROGRAM FOR MARINE DECK OFFICERS AND DECK CADETS OF THE PHILIPPINE MERCHANT MARINE ACADEMY

by

HERMINIO PASCUAL P. ESTANIEL JR
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 Education and Training.

1993
I certify that all material in this dissertation that is not my own work has been identified, and that no material is included for which a degree has previously been conferred on me.

The contents of this dissertation reflect my own personal views, and are not necessarily endorsed by the University.

Signature
Date 3-12-93

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ABSTRACT

This dissertation examines the performance of the maritime education and training system in the Philippines, making particular reference to the Philippine Merchant Marine Academy PMMA and its ability to adapt to the present day needs of the seafarer and the working environment.

A brief look is taken at how the system of maritime education evolved to its present day operations. The initial chapters discuss the unique system adapted by the PMMA in comparison with the general pattern of education followed by other maritime institutions. Growth and development of the maritime industry has led to the study of the significance of post-experience and post-graduate extension programs.

The dissertation studies the tertiary structure of the educational process and the range of new courses ensuing from technological advances in the industry that are now required by both national and international regulations. In addition, it defines categories that seek to integrate courses to existing ones and drafts new areas of study for others.

Methods on the creation of a foundation structure for higher maritime studies and standards for recognition of previous knowledge and experience gained are established. Recommendations are made on the need to redefine the existing extension program in its objectives and goals to meet the needs of the post-experience level as well as the development of the post-graduate studies with statutes for educational recognition.
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<td></td>
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<tr>
<td>---------</td>
<td>--------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>BHE</td>
<td>Bureau of Higher Education</td>
<td></td>
</tr>
<tr>
<td>BSMT</td>
<td>Bachelor of Science in Marine Transportation</td>
<td></td>
</tr>
<tr>
<td>DECS</td>
<td>Department of Education, Culture and Sports</td>
<td></td>
</tr>
<tr>
<td>IMO</td>
<td>International Maritime Organization</td>
<td></td>
</tr>
<tr>
<td>ILO</td>
<td>International Labour Organization</td>
<td></td>
</tr>
<tr>
<td>JICA</td>
<td>Japan International Cooperation Agency</td>
<td></td>
</tr>
<tr>
<td>MARINA</td>
<td>Maritime Industry Authority</td>
<td></td>
</tr>
<tr>
<td>PMMA</td>
<td>Philippine Merchant Marine Academy</td>
<td></td>
</tr>
<tr>
<td>PN</td>
<td>Philippine Navy</td>
<td></td>
</tr>
<tr>
<td>SOLAS</td>
<td>Safety of Life at Sea</td>
<td></td>
</tr>
<tr>
<td>STCW</td>
<td>Standards of Training, Certification and Watchkeeping</td>
<td></td>
</tr>
</tbody>
</table>
INTRODUCTION

Maritime education in the Philippines traces its formal beginnings back to the Spanish colonial period where, as with any form of education during that time, it was limited to an elite few. It was only during the American annexation of the country, when compulsory education was required for all, that maritime education significantly progressed. The step taken to make education a continuing process during that period gave maritime education a level which today is considered to be a vocational or technical course. Throughout this time, studies consisted mostly of pure sciences and navigational aspects. Later on, engineering subjects were introduced along with a new branch of studies called marine engineering.

Since it lent more to technical facets, maritime education was placed under Trade and Industry rather than under Education. It was only in the 1960's that maritime education came under the wings of the Department of Education giving it an equivalent educational award of an Associate degree then later on to a full Bachelors degree.

The legacy left behind by the colonial powers created an amalgam of two different educational approaches in maritime education. Conflicts on the validity of an education leading to a certificate of competency versus an education leading first to a degree caused many complications as to what would be the best approach to a suitable education pattern for the seafarer. A compromise was reached and to this day it is still being applied wherein a front-ended scheme of education leading to an educational award must first be met prior to sitting for a certificate of competency examination.

In the earliest days many skills of navigation and ship operation were acquired through their verbal transfer from traditional, experienced practitioners. In the colonial period, training proceeded through a pathway of vocational training levels, followed later by the developments of diplomas and degrees within an educational framework.
Thus maritime education in the Philippines has definitely evolved to address the ever changing maritime environment. In response to the changes, the Philippine Merchant Marine Academy, PMMA, created the Department of Extension Service Program.

Realizing the rapid development of technology along with the evolution of newer and more sophisticated vessels, plus a whole new range of shorebased related maritime activities, the present content of maritime education can be said to be sorely in need of a revision. The extension program seeks to supplement the existing knowledge gained during the tertiary level by providing continuing education for upgrading the seafarer and at the same time integrating the new developments and technological advances into the tertiary curriculum of the academy.

This dissertation presents a way to establish a base foundation for a whole new series of advanced studies in the maritime field and place it in the next level of academic achievements bearing in mind that certain new courses of study are best given as supplements in the existing structure of the educational process. This paper also puts forward further proposals on how the Extension Service program of the PMMA can expand its role by establishing a pattern that could be a forerunner of a Masters program on maritime matters. The idea of the Extension Service to go beyond the present baccalaureate degree for a more dynamic certificate of competency is realized by the proposals of accrediting post-experience and post-graduate courses gained by the further education of the Filipino seafarer.
CHAPTER 1 THE PHILIPPINES AS A MAJOR SOURCE OF SEAFARERS

The Philippines is located in South-east Asia and is comprised of over 7,000 islands. It is a democratic nation that follows a republican and federal form of government wherein the legislature is divided into two houses, namely the congress and the senate.

With a population of 62 million, roughly 10 million reside in the nation's capital metropolitan Manila, and 90% of the total population are Roman Catholics. Filipinos are seen as a major labor market source with more than half a million currently working overseas in over 100 countries. Over half of this work force belong to the maritime labor group. A cheerful disposition and good command of the English language have made the Filipinos attractive in the labor market.

1.1 Maritime Labor

Seafaring has been a long standing tradition owing to the archipelagic configuration of the nation and the Manila-Acapulco galleon trade in the sixteenth century which dealt with the transport of spices and precious materials as payment from all the colonies to the royal monarchy of the Spanish empire.

The build up of the demand for Filipino seafarers began in the mid-1970s. This increase, plus a domestic fleet of approximately 4,000 ships in the inter-island trade, assures that the maritime tradition continues. In a report by the Philippine Overseas Employment Agency POEA Planning branch, the number of deployed seafarers from 1984-1989 was:

<table>
<thead>
<tr>
<th>Year</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1984</td>
<td>50,504</td>
</tr>
<tr>
<td>1985</td>
<td>52,290</td>
</tr>
<tr>
<td>1986</td>
<td>54,697</td>
</tr>
<tr>
<td>1987</td>
<td>67,042</td>
</tr>
<tr>
<td>1988</td>
<td>85,913</td>
</tr>
<tr>
<td>1989*</td>
<td>76,432</td>
</tr>
<tr>
<td>Total</td>
<td>386,978</td>
</tr>
</tbody>
</table>

*January to Sept. figures

source: Planning branch, POEA
There are about 100,000 Filipino seafarers employed at any given time on both foreign and locally flagged vessels. This number includes those on vacation. An increase in 1988 of 85,913 seafarers showed a jump of more than 25% over the previous year. This increase was in part attributed to the demand from the Norwegian International Shipping Register NIS.

The trend for second registers caught on and with the inclusion of the Danish International Ship Register DIS, the seafarers labor market increased tremendously. There are an estimated 90,000 registered seafarers ready for employment. This figure, however, reflects also those who have not been at sea for a number of years, those who have the required skills gained through land experience but little or no seetime and new graduates from maritime institutions and training centres.

1.1.2 Bareboat Chartering

An overwhelming reason for the increase in tonnage of the Philippine fleet was the Bareboat Charter Decree enacted in 1975 and amended in 1976, 1980 and as recent as 1989. The main element of this decree enabled foreign owned vessels to be registered in the Philippine register provided the vessel was bareboat chartered to a Filipino company or national (i.e. dual registry). In 1975, the foreign going Philippine merchant fleet stood at 62 vessels with a total deadweight of 870,000 tonnes (Government and Private vessels). By 1986, the fleet had increased to 396 vessels with a total deadweight of 11.2 million tonnes. This affected the supply of Filipino seafarers because as part of the bareboat charter decree, a clause requires the bareboated vessel to be manned by a full Filipino crew.

By POEA report (1988), as of the last quarter of the same year, the number of vessels by type registered under the Philippine registry stood at:
TABLE 1. Philippine registered vessels

<table>
<thead>
<tr>
<th>Type</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gen. Cargo</td>
<td>3,106</td>
</tr>
<tr>
<td>Tanker</td>
<td>1,687</td>
</tr>
<tr>
<td>Container</td>
<td>618</td>
</tr>
<tr>
<td>Bulk Carrier</td>
<td>2,402</td>
</tr>
<tr>
<td>Passenger</td>
<td>354</td>
</tr>
<tr>
<td>Tug Boat</td>
<td>1,499</td>
</tr>
<tr>
<td>Reefer</td>
<td>294</td>
</tr>
</tbody>
</table>
| Driller         | 59     | source: EDP branch POEA
| Survey ship     | 53     |
| Fishing boat    | 417    |
| Ro/ro           | 165    |
| O.b.o.          | 127    |
| not specified   | 2,224  | total= 12,915

It is to be noted that the statistics include the Philippine owned and operated merchant fleets for foreign and domestic trades. Bareboat chartering continues to be supported by the government. New guidelines and circulars are being introduced to ensure that the bareboated vessels are being controlled and operated by Filipino nationals. One such memorandum is Circular no. 33-A (1990) of the Maritime Industry Authority MARINA. This circular provides a revised set of guidelines for the registration and accreditation of overseas shipping corporations as pre-requisites to Bareboat chartering. Another measure for the local industry, was Circular no. 42-A (March 1990). This memorandum gives incentives to local shipowners to invest through acquisitions of vessels for overseas operations. Other incentives such as tax relief for direct importation or under the lease-irrevocable purchase (LIP) lessens the burden of the shipowner in acquiring vessels for domestic use.

The developments in the registry have made the International Transport Federation ITF take action by declaring as Flag of Convenience Philippine registered vessels that are foreign owned and
operated. This however applies on a case-to-case basis.

1.1.3. Second registers: open registers; and Flag of Convenience

The trend over the past two decades for shipowners to flag out vessels from the traditional maritime countries to a growing list of open and second registers has caused a significant demand for cheaper but skilled labor. Open and International registers are considered as an economic advantage for shipowners given the lax rules on taxation and regulations on manning requirements. Accusations by labor unions and other maritime related organizations concerning work conditions, safety and compliance of international rules and regulation have made open registers revise legislation concerning the vessels flying their flag. The concern for sub-standard registers has pushed forward the introduction in 1987 of the Norwegian International Ship Register NIS which placed emphasis on rigid manning requirements and safety practices on board. The apparent success of the second register has prompted the Danish Shipowners Association to conclude a similar agreement with manning agencies for services on board ships under the Danish International Register, DIS.

1.2 THE POEA REPORT ON REGISTERED SEAFARERS

The total number of registered seafarers from September 1989 includes all officers and ratings who are presently upgrading certificates of competency under the revised system of examinations. Those seafarers after 1987 still have to undergo some form of upgrading for certain new courses that were not yet implemented during the revision.
<table>
<thead>
<tr>
<th>Deck Department</th>
<th>Engine Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Masters</td>
<td>Chief Engineers 2847</td>
</tr>
<tr>
<td>Chief Mates</td>
<td>1st Engineers 7724</td>
</tr>
<tr>
<td>Second Mates</td>
<td>2nd Engineers 6171</td>
</tr>
<tr>
<td>Third Mates</td>
<td>3rd Engineers 4693</td>
</tr>
<tr>
<td>Radio Officer</td>
<td>Electrician 2105</td>
</tr>
<tr>
<td>Major Patron</td>
<td>Motor Engineers 74</td>
</tr>
<tr>
<td>Minor Patron</td>
<td>Total 23,614</td>
</tr>
<tr>
<td>Total</td>
<td></td>
</tr>
</tbody>
</table>

**Skills Category**

<table>
<thead>
<tr>
<th>Deck Cadets</th>
<th>Engine Cadets 28,918</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deck Trainees</td>
<td>Engine Trainees 2914</td>
</tr>
<tr>
<td>Ordinary seaman</td>
<td>Wipers 6286</td>
</tr>
<tr>
<td>Able seaman</td>
<td>Fireman 286</td>
</tr>
<tr>
<td>Quartermaster</td>
<td>Greasers 69</td>
</tr>
<tr>
<td>Bosun</td>
<td>Motorman 1363</td>
</tr>
<tr>
<td>Carpenter</td>
<td>Oiler 8614</td>
</tr>
<tr>
<td>Storekeeper</td>
<td>Machinists 800</td>
</tr>
<tr>
<td>Total</td>
<td>Fitter 1810</td>
</tr>
<tr>
<td></td>
<td>Pumpman 605</td>
</tr>
<tr>
<td></td>
<td>Mechanic 227</td>
</tr>
<tr>
<td></td>
<td>Reefermen 98</td>
</tr>
<tr>
<td>Catering</td>
<td>Total 51,990</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Manpower registry, POEA
1.2.1 Skill levels

In the area of competence and skill, much depends on experience, background, education and training. Emphasis on the frequency of employment is also considered. All these factors cover both the officer and rating personnel.

**Officers**
The majority of the Filipino officers now serve as junior deck and engine officers on board foreign flag and overseas vessels and to a smaller extent, as senior officers. The system of vessel complement still follows the tradition of complete separation of departments (i.e. deck, engine etc.). Although there are studies underway on the dual multi-skilled ship personnel, it has not yet reached the officer level. The same traditional complement holds true for domestic trades. Certificates are the same for overseas and domestic trades. Standards of competency vary from excellent to poor. The certificate alone cannot guarantee standards particularly if it was obtained prior to 1987 when international standards were not yet placed in force by the government and examination procedures were quite lax.

**Petty Officers**
Skill levels are very high in this category particularly in the mechanical field. Many petty officers (i.e. bosun, fitter, pumpman etc.) are considered competent in their traditional duties but are somewhat limited in the more sophisticated and technical requirements of the newer generation of vessels.

**Ratings**
This group of seafarers composes the largest bulk both in the domestic and international fleets. Because of the huge number serving onboard, a wide range of experience from the different types of vessels is gained.
The education of seafarers from officers to ratings follows a tradition of separation of departments and there is no minimum guideline set for a maritime based curriculum. The ratification and entry into force of the Standards of Training and Certification of Watchkeeping in the Philippines changed the setting and left a large number of seafarers out of date or insufficiently trained and educated. The national government has initiated, with the help of other agencies, assistance to the seafarers in upgrading to standards set by the international regulations.

Although much attention has been given to the seafarers, government support has been lacking in one area, the domestic service seafarer and to some extent, the domestic shipping industry.

1.3 SUPPLY AND DEMAND OF SEAFARERS

Statistics on the number of graduating students from maritime schools, vis-a-vis board examinees for the period 1987-90, is shown with a breakdown of Deck and Engine departments. 1989 reveal that there was a significant decrease in the passing rate percentage. This could be attributed to the effect of the revised examination procedures. Based on the figures supplied, the total number of domestically operated vessels requirements for officers is derived from the number and type of vessels and the leave schedule. A table showing the distribution of the officers on the different types of vessels and number of officers per type can give an estimate of how many officers are needed to operate the domestic fleet. Fleet figure is the 1989 report on domestically operated vessels (inter-island).
<table>
<thead>
<tr>
<th>TYPE</th>
<th>NUMBER OF VESSEL</th>
<th>Officers per Vessel</th>
<th>Total number of Officers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liner Vessel</td>
<td>211</td>
<td>8</td>
<td>1,688</td>
</tr>
<tr>
<td>Tramp Sargus &amp; Tugs</td>
<td>331</td>
<td>6</td>
<td>1,988</td>
</tr>
<tr>
<td>Oil Tankers</td>
<td>97</td>
<td>8</td>
<td>776</td>
</tr>
<tr>
<td>TOTAL</td>
<td>1,144</td>
<td></td>
<td>8,310</td>
</tr>
</tbody>
</table>

1Domestic vessels of over 100 GRT.

2Includes the number of officers on leave.
26% is based on the two month leave for every one year of sea service.

TABLE 4
Assumed distribution of officers per vessel

<table>
<thead>
<tr>
<th>Officer Category</th>
<th>Total number of Officers</th>
<th>Distribution (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deck</td>
<td>3155</td>
<td>50 %</td>
</tr>
<tr>
<td>Engine</td>
<td>2516</td>
<td>40 %</td>
</tr>
<tr>
<td>Radio</td>
<td>639</td>
<td>10 %</td>
</tr>
<tr>
<td>Total</td>
<td>6,310</td>
<td>100 %</td>
</tr>
</tbody>
</table>

Distribution based on the experience level of the seafarer.
A Master Mariner and deck officers compose the largest percentage.

source: Marina Survey
1.31 Training demand (Officers)

To calculate the training demand for prospective officers, a normal rate of pulling out (i.e. retirement or resignation) from active sea service must be considered. Based on a survey, a total of 10% of the officers opted for retirement or resigned from active service. With this figure, future demand can be derived to determine the demand for the training of officers as shown in table 5.

<table>
<thead>
<tr>
<th>OFFICERS</th>
<th>PRESENT NUMBER</th>
<th>DEMAND</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deck Dept.</td>
<td>12,500+4,000</td>
<td>1,650</td>
</tr>
<tr>
<td>Eng. Dept.</td>
<td>10,000+3,200</td>
<td>1,320</td>
</tr>
<tr>
<td>Radio</td>
<td>2,500+800</td>
<td>330</td>
</tr>
<tr>
<td>Total</td>
<td>3,300</td>
<td>3,300</td>
</tr>
</tbody>
</table>

Notably, around 3,300 officers are required yearly to offset the need.

Statistics from the POEA show that the number of seafarers totalled 100,000. From a manpower point of view, officers required for service should be 25% of the total manpower (overseas).

<table>
<thead>
<tr>
<th>TYPE</th>
<th>OVERSEAS OFFICERS</th>
<th>DOMESTIC OFFICERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deck Off.</td>
<td>12,500</td>
<td>4,000</td>
</tr>
<tr>
<td>Eng. Off.</td>
<td>10,000</td>
<td>3,200</td>
</tr>
<tr>
<td>Radio Off.</td>
<td>2,500</td>
<td>800</td>
</tr>
<tr>
<td>Total</td>
<td>12,500</td>
<td>8,000</td>
</tr>
</tbody>
</table>
1.3.2 Points of issue

Given all the statistical data, a number of points may be arrived at concerning the imbalance of domestic and foreign seafarers. Particular attention to domestic shipping by the government is still sorely lacking. A general listing of points of issue includes:

Lack of government support on domestic shipping unions, on seafarers welfare and benefits.

High rate of turn-over of domestic trade crew to overseas fleet (foreign flag).

Insufficient monitoring of the education and training of the domestic seafarers in the maritime safety aspects of cargo, vessel and personnel.

Attractive wages, benefits and opportunities in the overseas foreign flag fleet. Low government incentives for local shipowners, operators and shipbuilders in terms of tax reliefs and regulations on tariffs in the domestic trade.

Because of the low priority of the government and its apparent lack of support for the education and training of seafarers, the private sector has taken the lead in establishing its own means of upgrading its personnel. With the exception of the PMMA, most of the seafarers who have graduated or finished schooling have come from the private maritime institutions. This has caused concern given the fact that most private institutions are supported by shipping organizations that have a different view of the system of education of seafarers. The implementation of the Standards of Training and Certificate and Watchkeeping, STCW, has affected a change in the system and has established itself as the baseline for the training of the seafarer.
CHAPTER 2 HISTORY OF MARITIME EDUCATION IN THE PMMA

The Philippine Merchant Marine Academy, originally named Escuela Nautica de Manila, is one of the oldest educational institutions in the Philippines. It was established on April 5, 1820 by virtue of a Spanish Royal Decree upon the recommendation of the Board of Commerce.

Founded as a school for merchant marine officers, it opened classes in a building on Calle Cabildo inside the walled city of Intramuros. It was destroyed by an earthquake in 1863. Before the end of the Spanish rule, the school was placed under the civil government with a Spaniard as its superintendent. The coming of the American Authorities recognizing the value and merit of the nautical school reopened it on December 15, 1899 and renamed it "Nautical School of the Philippine Islands". The school was moved to a US Navy warehouse in San Nicolas. Staffed with four American and one Filipino instructors, the medium of instructions and textbooks used were English. The Americans made provisions for the construction of a larger building to accommodate an average of 150 students. All facilities, equipment and other materials were also provided by the government in an effort to raise the standard of the institution.

After a short period, and assuming a new name Philippine Nautical School (PNS), it resumed classes on June 30, 1900. PNS was classified as an insular school and was headed by U.S. Navy Officers until it was closed in 1907 for lack of support. In 1913, the president of the Shipowners Association recommended that the school be reopened to answer the need for trained merchant marine officers. It was then integrated as a unit of the Philippine School of Arts and Trades. An American Master Mariner became its superintendent and worked hard to acquire a permanent site for the PNS. Some years before the outbreak of World War II, the school was headed by the First Filipino superintendent Francisco Castaneda, an experienced Master Mariner. Later he was joined by Lt. Andradá who had newly graduated from the US Naval Academy in Annapolis and became its first Filipino Executive Officer.

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At that time the Nautical course was a two-year residential program at PNS and a two-year apprenticeship at sea, in any order. With the imminent danger of war in the Pacific, supervision of the PNS was transferred from the Department of Education to the Department of National Defence. During WW II, the Japanese Forces did not close the PNS, rather, it was expanded into a bigger establishment that included not only the training of nautical officers but also of Marine Engineers and ordinary seamen. The significance of the Maritime school was recognized even by the occupational forces.

After the liberation and the early days of the Republic as an independent nation, the school continued but still under the Department of Defence. It was also in this period that the nautical course was shortened to two-year residential studies due to the acute need for Filipino Merchant Marine Officers to replace their American counterparts. This condition lasted to the 1950's. Due to the lack of facilities, residency requirements were waived so the cadets could live off campus. Aggravating this situation was the lack of legislative support from the government and the transfer of the PNS under the Vocational Division of the Bureau of Public Schools instead of the Bureau of Higher Education. This resulted in the deterioration of the school's standard of maritime education and training giving opportunities for private schools to flourish as business enterprises.

In 1963, Congress passed Republic Act No. 3680 converting the Philippine Nautical School into the Philippine Merchant Marine Academy (PMMA), conferring the degree of Bachelor of Science in Marine Transportation (BSMT), major in Navigation and Seamanship for the Deck Officers and major in Steam Engineering and Electricity for Engine Officers. With this came the automatic granting of the Third Mates licence and Fourth Engineer licence without board examinations. In line with this development, the residency requirements were restored. The cadets were required to live on campus during their first, second and fourth years at the PMMA. The third year was programmed for their
apprenticeship shipboard training. The regimental system was highlighted and was given a resemblance to the system used by the USMMA. This influence was brought about by the appointment of Cdr. E. Prieto as Academic Dean. Cdr. Prieto graduated from King's Point. Also instrumental in the change was the Appointment of Capt. R. Morales as superintendent and Capt. R. Moreno III as executive officer. The acquisition of the training ship RPLS Habagat proved to be an important asset in the further training of the cadets. Ten years after the conversion of the PNS, the new superintendent Capt. R. Moreno III revised the BSMT curriculum to meet the new developments in maritime technology. He brought about a modification of the course offering a BSMT major in Nautical Studies and BSMT major in Marine Engineering.

During the period 1981 to 1984, The International Maritime Organization (IMO), represented by Capt. M. Zakaullah and Engr. J. Rosenthal, implemented the three-year modernization of the PMMA training resources. This included the review and revision of some aspects of the curriculum. 1984 also saw the promotion of the PMMA superintendent to President PMMA and to a rank of Commodore along with 29 other officers to the next higher rank and the commissioning of 13 others by the President of the Philippines. This was done in recognition of the unprecedented growth of PMMA as a Maritime academy. The death of Commodore Moreno in Feb. 1989 paved the way for the appointment of Commodore G. Fernandez as the new PMMA President in May 1989. Upon his assumption as PMMA President, Commodore Fernandez reviewed the curriculum and subsequently revised some aspects of training such as placing the shipboard training on the second year. The curriculum was so designed as to set the preparatory stage during the first two years of the school program and professionalism during the last two years.

In compliance with Presidential Decree (PD 1437), the PMMA organization was also restructured changing the composition of the PMMA board of Trustees. Under this decree, the Maritime Industry
Authority (MARINA) board was replaced by the Department of Education, Culture and Sports (DECS) Board of Trustees. Also in line with the changes, Commodore Fernandez restructured the different departments and units of the Academy, including the creation of the Extension Program, clearly defining their functions and providing them with workable budgets for the achievement of educational goals. Efforts to produce a more responsible cadet was emphasized. This led to a re-emphasis of the regimental system where a workable Honor Concept was practised. Cadets were therefore left to run the day to day affairs with minimal supervision from the Tactical Group. Complementing the regimental system was the "return to basics" policy (refreshing the English comprehension and Mathematical abilities of the cadets) in order to supplement the educational quality.

With its status as the country's premier Maritime Institution, PMMA is faced with a growing challenge of providing qualified Filipino seafarers to man and manage both the National and International Merchant Marine fleet. PMMA under the present leadership knows this only too well. As such, it has taken the initiative in leading other maritime institutions in the country in establishing the substance, standards, techniques and processes of the maritime profession in relation to determining effective teaching methods and developing skills towards their application in the maritime industry.

2.1 Current Maritime Education System

The maritime education system in the Philippines is basically divided into two (2) main components, namely formal and non-formal. The formal education system covers seamen who have attended college courses in maritime schools and training centres. The non-formal education covers fishermen, boat builders, and personnel on domestic vessels (i.e., persons employed as non-officers on barges, tankers fishing boats, etc.) who virtually have no training at all except for their knowledge based on actual experience or information passed on from elders. Likewise, institutional personnel who work in maritime
related fields (e.g., Phil. Coast Guard PCG, Phil. ports authority PPA) who ensure maritime safety all over the country.

Formal education is classified into two (2), namely shore-based and sea-based. Each category is differentiated by corresponding curriculums in approach which are:

Deck licensed Officers
Engine Licensed officers
Ratings
Special Training

For Deck and Engineer Officers:

The pattern follows three years at school and one year at sea. This covers the whole theory and practical aspect of the whole curriculum. On successful completion of the required studies and sea time, a Degree in Bachelor of Science in Maritime Transportation (BSMT) is awarded. In the case of the PMMA, separate majors are awarded for Engineering as Bachelor of Science in Marine Engineering (BSME). The entry requirements for BSMT and BSME is for a student to pass the National College Entrance Examination (NCEE). Normal regulations dictate that a student must be physically and mentally fit for the career.

Upon completion of the program and receiving the Degree, the student is entitled to take qualifying examinations for the professional licence. The Professional Regulations Commission (PRC) is the national body authorized to issue deck and engine licences. The exception to this rule is the PMMA which does not require the initial grade examinations for its graduates provided that they pass the in-house validating examinations given by the school.

There is no difference in the manner of acquiring seafarer's licences for coastal and ocean going trade nor for domestic and
foreign going vessels.

Ratings (non-licensed seamen)

Basic Seaman Course BSC
This is a six-month course designed for ratings to acquire the basic knowledge of sea jobs. This course is conducted by schools and training centres and is the alternate route for high school graduates.

Basic Merchant Marine Course

This is a ten-month training course for deck, engine and catering personnel. This course can be credited for the first year of BSMT BSME study.

Special Training Courses

There are several training courses offered by maritime schools or independent training centres to meet the minimum standards stipulated in the national or international regulations particularly the STCW and various other recommendations and resolutions of the IMO. Some special courses are radar simulator course, automatic radar plotting aids etc.

Immediate solutions to address the deficiency of the undergraduate curriculum were summed up in the special training courses. This was a welcome relief for most maritime institutions as the rapid development of the industry was rendering most curriculums being used obsolete. The problem was that no time-frame was given for Maritime Education institutions to revise the existing curriculum to present day requirements, hence, the basic courses that are stipulated in International Standards (e.g., fire fighting, radar observers course) are treated as special training and are not included in undergraduate studies. This caused the proliferation of training centres that offer short non-degree courses. One would
wonder then what the undergraduate curriculum is offering.

The problem is so widespread now that even seamen who graduated after the 1987 implementation of the STCW spend at least one week of training for basic courses from their vacation time. MARINA has even gone to the extent of endorsing the certificates acquired instead of going to the main root of the problem by giving a mandatory deadline for all Maritime Institutions to revise and upgrade their curriculums.

2.1.1 Maritime Institutions

To date, there are 65 maritime institutions nationwide offering courses leading to the degrees of BSMT, BSME, NAVAL ARCHITECTURE and MARINE ENGINEERING (NAME), Associate in Marine Engineering (AME), and Basic Seaman Course (BSC). Of the total, only nine are government owned and the rest are private institutions and foundations. The following Table 6 lists all the institutions and the courses they offer.
### PHILIPPINE MARITIME SCHOOLS

#### Courses Offered

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<th>Maritime Schools</th>
<th>Courses Offered</th>
<th>Remarks</th>
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<td>Maritime Schools</td>
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<td>Iligan Capitol College</td>
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<td>Mindanao Inst. of Technology (Cotabato)</td>
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**Notes**

- BSMT(E) Bachelor of Science in Marine Transportation (Maritime Engineering)
- BSMT(N) Bachelor of Science in Marine Transportation (Nautical Studies)
- AME Associate in Marine Engineering
- BSC Basic Seaman Course
- NAME Naval Architecture & Marine Engineering
- Govt. Government School
- SC Special Courses only, no degrees
Locational Map of Maritime Schools Nationwide

[Diagram showing locations of maritime schools nationwide with their respective names and addresses.]
21.2 Philippine maritime schools and training centres.

The majority of the maritime schools operate under the guidelines and rules set out by the Department of Education, culture and sports. This means that for Baccalaureate degrees in the maritime field, the DECS- Bureau of higher education BHE sets out guidelines for qualifications similar to other tertiary level institutions. For the Basic Seaman's course and Basic Merchant Marine course, the classification is post-secondary and is considered a technical or vocational education. Training centres have been established to offer initially short courses to augment the skills not previously given during the formal phase of education. These centres fall under the guidance of the Maritime industry authority MARINA and the Maritime training council MTC. This present arrangement has caused confusion amongst the various maritime institutions as courses and subjects tend to be duplicated and sometimes given in an inadequate manner.

The slow response of the various government agencies in implementing revisions to the present setup of the educational system has left the seafarer with a diploma or degree still lacking the basic skills required by the STCW conventions. Recently, government action has led to measures to improve the system. While the action has been welcomed by the maritime industry, it would be worthy to note that more changes have to be made due to the late reaction of the concerned agencies. Some measures are:

- Creation of a technical panel on maritime education.

A technical panel was created under the Bureau of Higher Education of the DECS. The panel is composed of the various agencies (government and private) related to the maritime industry. Agencies such as the Philippine Coast Guard PCG, Philippine Association of Maritime Institutions PAMI, Conference of Interisland Shipowners CISO, Philippine Overseas Employment Agency POEA and the Maritime Industry Authority MARINA. The technical panel was made official by an Executive order issued on 30 January 1987. The mandate for the technical panel was to
develop, formulate and evaluate programs, projects and educational standards for higher education.

- Improvement of guidelines, policies and standards of maritime education.

On April 1991, the DECS issued order number 38 which dealt with the revision of the previous guidelines and renamed Enriched Guidelines, Policies and Standards for Maritime Education. This was made to make the policy and standards in line with the requirements set out in the Standards of Training, Certification and Watchkeeping, STCW convention. The move was in coordination with the technical panel and the other maritime education institutes.

- Jurisdiction on the supervision of the Board examinations to be transferred from the Professional Regulations Commission PRC to the MARINA.

As per Executive Orders EO 125-125A, the duty over the conduct of national board examinations was transferred to the MARINA. To this date, however, this has yet to be implemented.

2.2 HIGHER EDUCATION IN MARITIME STUDIES

The higher education for maritime studies in the Philippines covers the formal aspect from the Associate degree to the degree of Bachelor of Science. This, therefore, only encompasses the courses that have a time structure of two or more years of study. Since the DECS issues and controls policies and guidelines for education in all aspects, tertiary level studies leading to a degree require it to have a significant amount of liberal courses to be included as undergraduate studies. Higher education in the Philippines follows a similar pattern to the system used in the United States. Although there are a few variations in approaches to achieve the results, the general concept is the same.
2.2.1. Maritime curriculum content

The maritime curriculum generally divides itself into two courses of instruction, namely, directly related courses and indirectly related courses. In this sense, studies are further categorized into four components that make up the whole curriculum of maritime studies namely:

- Cultural or general liberal studies
- Support or professional-scientific studies
- Major or maritime studies
- Apprenticeship—on the job training or work simulation studies

Cultural studies

Studies given in this area constitute the majority of the indirectly related courses and include subjects such as History, Filipino Language and Literature, Rizal, Philippine Constitution etc. These courses are given a full credited merit and are given the same time of instruction equivalent to directly related subjects.

Support studies

These studies primarily contain the basic science skills necessary for the marine profession and include subjects such as Algebra, geometry, physics, trigonometry, drafting etc. These subjects would normally be taken by any student aspiring towards a career that is basically scientific in nature. They generally stand as prerequisites for the major courses.
Major studies

The Major studies pertain to the applied relevance of the support studies in the field of Navigation or Marine Engineering. Subjects such as terrestrial, celestial and electronic navigation, oceanography, cargo work, stability, strength of materials etc. This category is considered to carry the majority of the directly related studies.

Apprenticeship studies

Studies that fall under this category are considered to make the student apply the knowledge gained in actual work or through work simulations. Studies such as the cadet apprentice sea program, ship simulators, cargo simulator, engine control simulators etc. provide the hands-on experience needed by the student to fully interrelate the knowledge gained in the classroom with the work environment.

The structure of the training curricula in most maritime schools giving the baccalaureate degree contain all the four categories and usually follow a structure of three years of continuous land based education for an associate degree and one year of apprenticeship to acquire the Bachelor's degree. The exception to this case is the Philippine Merchant Marine Academy PMMA where the apprenticeship is given on the second year of studies as part of the academy's program of giving the education in two stages namely, the preparatory stage and the professional stage.
CHAPTER 3 MARITIME EDUCATION IN THE PMMA

The Dualistic Approach

The general objectives of the Philippine Merchant Marine Academy in its training and education of cadets is to prepare them for a career at sea in ships and, for those who manage, supportive and related industries on shore. For this, the educational system must base itself on a minimum level of skills knowledge and technology for positions onboard merchant vessels and under conditions that a mariner is faced with. The base level for such a program is the IMO STCW 1978 convention, and all its amendments and most recently, the IMO Model Courses.

The philosophy of education in the PMMA however is that of developing the cadets as a whole person intellectually, socially, physically and morally. This aspect is achieved by the inclusion of a liberal education curriculum in the Academy’s education process. The aim is not merely to impart knowledge and skill, to condition the cadets to an academic environment and to use discipline to conform. It goes further in making the cadet a whole being, conscious of his new stature in life, having gained habits promoting clear and logical thinking, accuracy in observation, critical of actions and firm in convictions.

The Dualistic approach in the education process of the cadet makes the PMMA unique in the Maritime Education System in the Philippine setting. By using this dualistic approach, an academic preparation in the maritime disciplines and an indoctrination on the way of life of a mariner, the Academy still ranks as a top Maritime school that produces quality graduates.

Academic Training

The academic preparation is undertaken by three Departments which are Marine Transportation, Marine Engineering and the Arts and Sciences. These Departments ensure that aside from imparting knowledge, the cadets must be assisted in their development of study habits, research methods, critical thinking, application of principles
and evaluation. English is the language of instruction. The ability to speak fluently, read and write in English is a requirement for all years. It is the educational process that the academy provides that will tap the potential of the cadet and make him actively participate in the learning process thereby developing his ability.

**Indoctrination Training**

The other half of the cadets life is indoctrination to a different kind of lifestyle, the one of a mariner. This part is undertaken by the Department of Cadet Midshipmen. Under this Department, the Dean, along with support staff and regimental officers follow a system of introducing social values and the motivation aspects of a maritime career. Incorporated in this system is the Regimental System which follows rules and regulations of the norms of a Cadet Midshipman and an Honor System. Leadership roles and group dynamics are the roots of its mode of instruction strengthened by physical training, guidance counseling, disciplinary experiences and drills. All these are supplementary in the development of the Cadet as a whole being with direction and identity in both life and career.

**Figure 2**

![Dual Educational Approach Diagram]

Dual Educational Approach
3.1.1 Division of the Education Program

The curriculum forming the education program is divided into two stages namely the preparatory stage and the professional stage (See figure 3). A class system is followed wherein the most junior (Freshman or Plebe) is designated as fourth class and the most senior as first class. The fundamentals of academics and preparation for sea duty are part of the preparatory stage (First and Second year). The English language is already mandated at this stage. The ability to learn and absorb mathematics, physics and chemistry is a basic requirement. The cadet is also introduced to Nautical Science (Nautical Cadets), Seamanship, and STCW and SOLAS related subjects. Naval Science is also part of the educational input to the Cadets. While the Academic side is being pursued, indoctrination in the mariner's ways is still being continued.

Upon completion of sea duty and with the preparatory stage over, the cadet enters the professional stage and acquires the second class (third year) and first class (fourth year) levels. Further knowledge and skills in nautical and engineering sciences, mathematics, humanities and other sciences are given. The Department of Marine Transportation gives additional knowledge in navigation, marine cargo operations, marine electronics and meteorology. It provides cadets with backgrounds in management theories, economics, maritime law and labor relations. The Department of Marine Engineering adds on to the Engineering cadets with shipboard engineering, naval architecture and engineering science such as mechanics, thermodynamics, hydraulics and strength of materials. In both departments, support subjects in physics, mathematics, social sciences, literature and comparative culture are given by the Division of Humanities under the Department of Arts and Sciences. Added credits are given for physical education and continuing indoctrination by the Department of Cadet Midshipmen. All this is given in preparation for the cadet to be the competent Merchant Marine Officer that is expected of him.
FIGURE 3 Education and Training Process of Cadets

BACCALAUREATE DEGREE and CERTIFICATE OF COMPETENCY

FOURTH YEAR
Leadership roles, regimental duties  
Physical Ed., Daily routine Management  
Course Majors, Maritime Business courses, Simulator courses, Licence validating exam

THIRD YEAR
Regimental duties  
Continuation of Naval Science and Physical Ed.  
Reinforced Course Majors, Advanced specific subjects Management and Human relations

SECOND YEAR

COMPULSORY SEA SERVICE

FIRST YEAR
Regimental sys. Physical Ed., Naval Science  
Leadership and Discipline  
Liberal Subjects, MATHS IV/IV, NAV and SCIENCE, Nav. Major  
Engr. Major

cadet
3.1.2 The Academic Standards

The PMMA cadets are selected throughout the Philippines through a rigid selection process. From an average of 3,000 applicants, 9% (200 to 250 candidates) will eventually come out qualified after the various stages of screening are met (e.g. neuropsychiatric, medical, entrance test and orientation period). Subsequently, these candidates take their oath and are incorporated in the regimental system as fourth class (freshmen/plebes). Candidates who enter must have the academic record of the National College Entrance Examination (NCEE) which covers General Statistical Average GSA= 70, Mathematic Ability MA= 60, Reading Comprehension RC= 60 or if a College student, an honorable dismissal and all passed remarks from the previous school.

The Academy follows a curriculum program that is a block and front ended system. One year of sea duty is included. No candidate may enter mid-stream in any of the four years of the program except during the first year. College credits gained outside the curriculum program of the Academy are not honored and carry no equivalent credits. All Candidates who wish to avail themselves of the Academic program of the PMMA must start as fourth class cadets. This is followed in line with the block system and, to maximize the structured education program, offered to all the cadets.

The Academic Council

The PMMA Academic Council consists of the PMMA president and all the Assistant, Associate and full Professors of the Academy. The council prescribes the curricula, admission requirements, graduation and conferment of degrees and disciplinary matters subject to the approval of the Board of Trustees.
The Academic Year and Grading System.

The Academic Year consists of 2 semesters and a summer class. The periodic examinations for each semester shall be known as mid-term and final examination. The Academic rating for each cadet is divided into two segments to give the final output.
Academic rating........................................75%
  - Subject proficiency.....40%
  - Class Performance......60%
Aptitude for the Service.................25%
  - Leadership...............15%
  - Discipline..................10%

The collegiate unit consists of a one hour lecture each week for a total of twenty weeks in one semester. Three hours of practical workshop or laboratory is equal to one hour of lectures. Performance of the cadets is marked after each grading period. The standard passing grade is given by the percentage grading system wherein the passing benchmark is 75%.

The Academic Program

The PMMA Academic Program defines itself as a four year residency course which awards successful cadets a Bachelor of Science Degree in Marine Transportation or Marine Engineering. By virtue of the Republic Act in Congress, granting of Third Officer or Fourth Engineer Licences is authorized without any National Board examinations to graduating cadets who pass the validating examinations. This examination is conducted by a committee appointed by the PMMA President. The graduating cadet is automatically commissioned in the Philippine Navy (PN) reserve force as Ensign (2Lt.). Since the program runs on a residency system, cadets are required to live in the Academy compound during their freshmen, junior and senior years. Sophomores spend the duration on board their respective vessels for sea duty.
The BSc M.T. Degree (1st to 4th year)

The Course is structured in a manner that the fulfillment of requirements of Regulation II/4 of the STCW plus other subjects required for the Bachelors degree conferment are met by the end of the second year and cadets are qualified for higher subject on the Junior and Senior years.

FIRST YEAR SUBJECTS  
Navigation I and II  
Mathematics I and II  
Seamanship I and II  
Ship Safety I and II  
Ship Construction  
Meteorology I  
English I  
Physics I  

Summer:  
Fire prevention  
Ship Medicine  
Physical Education  

SECOND YEAR SUBJECTS (SHIPBOARD TRAINING)  
12 Months planned, supervised shipboard training with correspondence courses  
Navigation  
Seamanship  
Cargo Work  
Electronic Navigation  
Navigation Rules and Laws  
Naval Architecture  
Marine Engineering for Deck Officers  

THIRD YEAR SUBJECTS  
Navigation III and IV  
Meteorology II  
Ship Stability I and II  
Cargo Work II  
English II and III
Mathematics III and IV  
Physics II  
Radar I  
Physical Education II  

FOURTH YEAR SUBJECTS  
Navigation V  
Shipping Business  
Radar II  
Marine Insurance  
Filipino I and II  
Social Science I and II  
Rizal Course  
Ship Handling  
Maritime Law  
Ship Chemistry  
Ship Medicine II  
Physical Education III and IV  

The Academy maintains its stand in exercising rigid academic and training standards which is considered to be an effective process in producing competent seafarers. By doing this, graduates from the tertiary level of the Academy are 100% employed and are always in demand. The Academy should spread this demand to all possible seafarers through its education and training in the Extension Service Program.  

3.2 THE EXTENSION SERVICE PROGRAM OF THE PMMA  

In response to the demands of both the Maritime Industry and the Filipino seafarer, the PMMA created the Extension Program with a mandate as stated in the PMMA Handbook (series 1992) to:
Train and upgrade merchant marine officers in shipboard or shore based positions, as shipping or shore facilities executives and technicians.

Educate other undergraduate and post-graduate students of the PMMA in shipping and shorebased managerial and supportive administrative positions in the maritime industry.

The Extension Program, therefore, offers required and supplemental education in the form of courses to the seafarer. Many of the courses offered at present, however, are basic STCW Regulations II/4 and III/c (minimum required knowledge for certification of officer in charge of the watch). The present supplemental education to the graduates was due to the slow implementation by the Maritime Authority MARINA of revisions to curriculums of the private maritime institutions. Revisions to the PMMA curriculum started in 1980 with the assistance of the IMO. The new system was implemented in 1983 with a trial period until 1989 when the system was revised again.

In a decade, the PMMA twice revised its curriculum and established the Extension Program. Meanwhile, other maritime institutions maintained the old curriculum, hence, too many graduates remained deficient in the required basic subjects and courses (e.g. fire fighting, first aid, radar observes course, automation etc.).

The Extension Program with its mandate, must first ensure that all required courses are available to the seafarer before offering options for higher education post-graduate education. Temporarily, it must relegate itself to a training centre offering supplemental short courses.

3.2.1. The Post-graduate Maritime Education Program of the PMMA

Post-graduate maritime education courses offered by the PMMA are presently classified as post-experience courses. This is due to
the effect mentioned in the previous sub-chapter. The desire of the Extension Program to offer higher degrees is obstructed by the standards set out by the DECS Bureau of Higher Education (DECS-BHE). Graduate studies require a sufficient amount of post-experience and knowledge from the student. The average seafarer with a degree is normally licensed and has many different post-experience certificates. These licences and certificates, gained after graduation, do not carry any significant weight in educational value in the structure of graduate studies set out by the DECS-BHE.

The Extension Program should provide the structure for acceptance of some of the post-experiences gained by the seafarer as accepted pre-requisites for its Masters program. By opening more doors of opportunity, the Extension Program can be maximized by seafarers who on top of fulfilling requirements, may be better equipped educationally to opt for a shift of career either from land to sea or vice versa.

3.2.2. Post-graduate Maritime Education in the Philippine setting

By the mere mention of post graduate education, one would think of a pursuit of higher educational attainment resulting in a Masters or Doctorate Degree. In the Philippine educational setting, the major tertiary Arts and Science disciplines have established norms that give a continuity of studies from post-secondary up to university levels. Subject courses such as accounting, mathematics, business, languages etc. have even the minor supporting subjects (eg. statistics, history, technical writing etc.) given credits in terms of academic and educational value. A high regard for these courses is equated in terms of the length they take to complete, the amount of mathematics and other sciences they require, the professional licences that are awarded, and ultimately the job rewards they bring. The Philippines has a tradition of educational value that dates back even before the colonial powers. It has become a tradition to send children to school and support them until graduation and even start them off in work.
The highest point of success and pride for any Filipino parent is a child who has graduated and eventually earns a title in the profession (e.g., doctor, attorney, engineer etc.) Hence the obsession for titles. It is therefore normal for the education system to give due regard to this kind of attitude and develop it further in terms of academic advancement.

For the maritime field, the system of post-graduate education limits itself to short courses and the seminar type of studies. This would not be considered were it not for international requirements. It was only recently that Associates in Nautical Science and Marine Engineering were upgraded to a Bachelors Degree. The development of Maritime Education in the Philippines at all levels is painfully slow and reacts only when the need arises. A good example is the case of STCW mandated courses. Up to now there are still seafarers who graduate with degrees or diplomas who do not possess any certificate of proficiency neither have they taken up any of those mandated courses. These STCW courses have come into force a long time ago and should have been part of the curriculum leading to any maritime related diploma or degree. Since the Philippines is a signatory to the convention, and one of the world’s largest suppliers of manpower, this problem should have been addressed a long time ago.

The Extension Program should take the initial step in providing a suitable option for the seafarer through continuous education. This will mean taking a step out of the system of short courses and other post-experience studies which is usually limited due to time constraints. The thrust is to have previous post-experience studies accredited for higher studies and to gradually transfer short courses that are taken up after graduation and integrate them into the curriculum of undergraduate studies. It should also take into account the licences and special courses that may qualify as pre-requisites for post-graduate studies.
Once the structure has been set, the Extension Program may further its mandate to cover a wider area in maritime education and training. On top of the existing mandate it may therefore add the following objectives:

To assist in the seafarers educational development by accreditation of post-experience studies and licences into equivalent academic units.

To provide an alternative avenue for seafarers who seek higher educational achievements through preparatory courses for an eventual Masters program.

To give the widest opportunity for personal development of the seafarer by means of maritime education and training.
CHAPTER 4
PROPOSED SYSTEMATIC GUIDE PATTERN OF THE EXTENSION SERVICE PROGRAM

By virtue of its mandate on the continuing quality education of the Filipino seafarer and its commitment to produce well trained Merchant Marine Officers, The PMMA established what is known to the local maritime and shipping industry as the Extension Program.

The Extension Services Program was created out of a need to keep up with the latest developments in International and Domestic Maritime Industries. Rapid changes took place and are still taking place and because of this, the present Baccalaureate degree would prove to be quite insufficient in terms of meeting most requirements set out by the regulations of the Standards of Training, Certification and Watchkeeping, STCW. To supplement existing knowledge, the Extension Program is to be used as a vehicle by the Academy to infuse the latest developments in the industry.

Although the Extension Program has been officially incorporated in the structure of the organizational chart of the Academy, it has still no clear cut pattern or system that is in place. What this chapter presents is a proposal to follow a system that will maximize all its resources, give more access to seafarers, be streamlined and efficient, be flexible to change and develop this huge potential resource.

4.1 Subject offerings

Since the Extension Program deals with courses that are mostly modular in approach and more specialized in content, the most feasible strategy would be to adapt initially the IMO Model Courses and their compendiums. At present the only active arm of this infant program in the Academy is the Norwegian Training Centre (NTC). This centre is a joint project of the PMMA and the Norwegian Maritime Foundation Philippines. This training centre provides a good source for the use of
the Model Courses and offers short non-degree training in implementing them. The only drawback is that it only caters for licensed shipboard personnel and mostly personnel that sail under the Norwegian Second Register. The Extension Program should not view this as a disadvantage but rather as a supplement to its range of post-experience course offerings.

The Academy was, in fact, giving customized courses even before the inception of the Extension Program in order to answer the request of graduates who came back for refresher and upgrading studies. This was never certificated nor recorded but offered as an extra for the sake of its alumni.

The Extension Program should tap this resource and make it official to elevate these courses to their appropriate level in educational attainment in relation to the post-experience studies of the seafarer. Some courses are more specific and specialized than what is given in the IMO Model course. Subjects such as:

- Chartwork and Bridge Management
- Pre-licence Exam Review
- Deck cadet pre-sea program*
- Inter government agency program*
*Programs for non-PMMA Cadets

Other courses not mentioned are run similar to IMO Model Courses (e.g. collision regulations COLREG, marine pollution Marpol, fire fighting etc.). To make it more accessible and feasible to the greater number of seafarers, the Extension Program should structure its course offerings in a way that undergraduate seafarers (ratings) may be given an opportunity to avail themselves of some of the courses. A proposed subject classification may be grouped as:

Group 1 Urgent, Immediate and Required subjects.

This subject grouping must be taken by all seafarers both active and inactive, ratings and officers. This group contains all the courses and subjects that all seafarers are required to have, international
conventions (e.g. Safety of Life at Sea SOLAS, Standards of Training Certification and Watchkeeping STCW etc).

**Group 2 Advanced, upgrading and refresher subjects.**

This group requires a substantial degree of academic experience and practical licensed skills onboard ship. Subjects in this group should be characterized and categorized as enhancing, widening and updating existing knowledge.

**Group 3 Administrative, personnel development and managerial subjects.**

The degree of learning and approach to learning in this group should be adjusted in agreement with non-seafaring office personnel, maritime officials and general land-based maritime support groups. Subjects in this group are designed to give a better understanding of functions of the industry from a point of view of both sea and land based personnel.

**Group 4 Training, familiarization and non-maritime based subjects.**

This group deals with the local inter-agencies that need assistance in training and upgrading their personnel. This forms part of the Academy’s cooperation policy with the inter-government agencies (e.g. Maritime Industry Authority MARINA cadets, Philippine Navy, Coast Guard etc.).

The Extension Program must come as closely as possible to an established internationally accepted mode of instruction. The closest possible way is to adhere to the standards set by the STCW Conventions and the IMO Model courses. This though does not have to be exactly in compliance given the different educational backgrounds of the seafarer. The minimum therefore must be the minimum set forth by the STCW Convention for uniformity. The Extension Program must set
its minimum requirements in such a way that they exceed STCW requirements and yet are able to accommodate seafarers with the barest minimum. The sad fact is that no effective system of enforcement of requirements is being done. The proof is the sheer number of maritime schools and number of graduates it produces every year. These graduates are degree holders and yet do not even possess a certificate attesting proficiency in certain fields (e.g. Radar Observer Certificate). The Extension Program alone cannot solve this huge problem. What it can do is merely to ease the number of undertrained seafarers through proper post-experience education and training. As always, given the financial and equipment disadvantages, not all courses may be offered initially. A baseline therefore must be set with a framework of course offerings in relation to the immediate needs of the seafarer, the availability of competent lecturers and instructors and up-to-date materials and equipment. With this in place, a higher structure should be set for the more advanced and specialized courses available. The key to the whole structure is to find out what is deficient in the seafarer, adapt a pragmatic approach through education and training and continue to monitor the Maritime Industry. With all these elements, flexibility must always be present as the profile of courses will continually evolve and so will the needs of the student. The Extension Program will defeat its own purpose if no policy for revision is included.

4.2 PROPOSED COURSE DISTRIBUTION FRAMEWORK, A GUIDING BASELINE.

The PMMA Extension Service Program
As the Extension Program caters for the different categories of seafarers and their different levels of academic background, an entry level approach would be most suitable for both the ratings and licensed personnel. This would classify each seafarer accordingly and would permit others to enrol or to take pre-requisite subjects. This would also show if a seafarer is qualified for a higher course and need not take any pre-requisites to prevent redundancies unless it is for the purpose of refreshing. Levels would follow as:
Level A

-Within this level are the technical short-term courses which for purposes of upgrading and fulfilment of requirements include both licensed and ratings personnel. The level also contains training programs designed to meet inter-government agency agreements. The level offers courses which constitute required safety trainings. For this safety aspect, the term Occupational Safety Package (OSP) will be used. This package includes the basic STCW-IMO-SOLAS Convention requirements needed by all personnel onboard. Courses contained in this package would include fire-fighting, survival craft, survival at sea, first aid. It is at this level that the integration of subjects to be taken by tertiary level cadets from the Academy will take place. Due to the rapid changes in technology of the industry, this level will be subject to the most updating and change. For this level subject classification will be Groups 1, 2 and 4.

Level A Courses
(Fire Fighting, Survival Craft, Survival at Sea, Lifeboat Handling, Basic First Aid)—Mandatory courses; Occupational Safety Package OSP.
Radar Observer Course*
Oil, Gas and Chemical Tanker Familiarization*
Marpol I and II
Colreg and Buoyage system

Level B

-Within this level, a Baccalaureate degree is required from the seafarer prior to enrolling in the course and in the subject offered. Given the higher nature of education needed, personnel with both land-based and sea-based background in the industry may enter to again fulfil mandated requirements and this time to gain academic credits in preparation for an eventual post-graduate Masters degree. Non-maritime courses are introduced in this level (e.g. basic accounting, computers etc.). The non-maritime courses are offered to
give land-based personnel an opportunity to avail themselves of some courses they may need. The level conforms with groups 2, 3 and 4.

**Level B Courses**

- Oil, gas and Chemical Tanker course Advanced*
- Radar Simulator Course*
- ARPA systems*
- GMDSS
- Chartwork and Bridge Management*
- Computers in Maritime Works Familiarization
- Pre-Licensure Examination Review

**Level C**

This level aims to prepare the student for a broader outlook in the industry. Most preparatory Post-graduate studies begin with this level. Mostly managerial, administrative and educational personnel will utilize courses and subjects offered in this level for long-term growth and development. Subject classification will be Groups 2, 3, and 4.

**Level C Courses**

- Shipboard Management Course*
- Maritime Administration (MARINA) Familiarization
- Ship Personnel Relations*
- Maritime Teachers Training*
  
  * Proposed DECS credited post-graduate subjects

**4.2.1 Level courses and subjects**

Courses and subjects presented here do not necessarily remain permanently in one level. Rather, there should be an ever present link between subjects of other levels. Relationship between courses should be clearly defined in such a manner as the basic foundation courses and subjects should naturally be offered in the lower levels, making the student work gradually upwards. For each level, certain courses by virtue of the subject content may carry credits recognized by the Department of Education, Culture and Sports (DECS). Although the PMMA
has its own charter by Congress, recognition from the DECS would add more strength and would help the Extension Service in fulfilling its mandate. Subject credits recognized by the DECS should contain a certain degree of Math and Science knowledge as a requirement. Courses that fall under requirements of the international and national regulations may stand in as post-experience studies and other courses as pre-requisites for eventual post-graduate Masters programs. In both ways a certificate of completion is awarded. Credited courses must carry the amount of post-graduate credits indicated and approved by both the Academic Council of PMMA and the DECS.

4.2.2 Course distribution by levels

Some of the courses offered by the Extension Program would be arranged by levels according to this proposal. By the nature of the courses, their core content, urgency and constant revision, they will be classified as such. Since this arrangement would only provide a guiding baseline, it will not mean that it remains permanent in its level. It should be noted that as the level of subjects goes higher, lesser technical courses are offered. It should also be noted that some lower level IMO short courses are absent. This proposal is constructed on a more realistic approach to the problem of deficiency in maritime studies. To offer all required courses at the initial stage would be next to impossible as the Extension Program is still in its infancy and does not have its own Faculty, staff or budget. The Extension program should not view this as a disadvantage and should strive to evolve and grow. The biggest number of Filipino seafarers plying the seas belongs to Levels A and B. By tapping this huge resource in terms of education and training, the Extension Program will fulfill its objectives and give itself the much needed boost to pursue its programs.
4.2.3 Time factor

Since the majority of courses to be offered are short term modular IMO structured courses, the barest minimum time for any course to be qualified under the Extension Program is one complete working day (0800-1700). Courses offered which fall under this time frame will be refresher, familiarization or introductory courses. Other courses follow a one week duration or more. Examples for a more specific description, a breakdown of proposed course timeframe with consideration of the minimum time based on the STCW Convention and the Model Courses follow:

<table>
<thead>
<tr>
<th>COURSE</th>
<th>DURATION</th>
<th>LEVEL</th>
<th>CREDITED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radar Observer (refresher)</td>
<td>2 days</td>
<td>A</td>
<td>No</td>
</tr>
<tr>
<td>Buoyage systems</td>
<td>4 days</td>
<td>A</td>
<td>No</td>
</tr>
<tr>
<td>Computer familiarization</td>
<td>2 days</td>
<td>B</td>
<td>No</td>
</tr>
<tr>
<td>Radar Simulator</td>
<td>1 week</td>
<td>E</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Courses

The time frame of each course should show the complete duration of all classroom instruction and actual hands-on. Consideration must be given to seafarers intending to take up additional courses for reasons other than fulfilling administration requirements. To consider such students, the Extension Program must create custom made programs to cater to the individual or to the Shipping Company with the note that it will still follow its guidelines on awarding certificates of completion and whether the custom made course fulfils any credits. The frequency of demand for courses will establish the regularity with which those courses will be offered. The Extension Program's mandate is to upgrade the Seafarer through extended and supplemental education and training on top of that existing. However the reality of budget, manpower and support staff constraints along with logistical deficiencies dictate that not all the courses may be offered simultaneously and regularly at the onset of
the academic calendar which is the same as the PMMA Academic calendar.

4.3 COURSE AWARDS

Awards for completion of a course, a series of course packages and seminars will be in the form of Certificates of Completion or Attendance. All awards will be issued to students who have successfully completed the course by attendance and evaluation tests. Incomplete, failed or excluded students do not qualify for any certificate. Repeat students will receive awards only after completing any deficiencies. Written contents inside the Certificate should show all the pertinent information regarding the course and all its intent. For courses that qualify for educational credits, the value of equivalent credit for the course and its approval from the DECS is included in the Certificate.

4.3.1 System of evaluation

The outcome of the students performance is rated based on the objectives presented throughout the duration of the course. Aside from the attendance, evaluation of the objectives learned may be achieved by way of short quizzes, oral evaluation and a final test. This form of approach gives a more solid base for evaluation. The assessment of each student therefore must be an objective examination. This system proves to be the most effective measure to monitor the students progress. A grading system for the Extension Program will follow the same system used by the Academic Council on the Cadets.
<table>
<thead>
<tr>
<th>Percentage grade</th>
<th>Numerical equivalent</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>97-100</td>
<td>1.00</td>
<td>Excellent</td>
</tr>
<tr>
<td>94-96</td>
<td>1.25</td>
<td>Excellent</td>
</tr>
<tr>
<td>91-93</td>
<td>1.50</td>
<td>Very superior</td>
</tr>
<tr>
<td>88-90</td>
<td>1.75</td>
<td>Superior</td>
</tr>
<tr>
<td>85-87</td>
<td>2.00</td>
<td>Very Good</td>
</tr>
<tr>
<td>80-84</td>
<td>2.50</td>
<td>Good</td>
</tr>
<tr>
<td>75-79</td>
<td>3.00</td>
<td>Fair</td>
</tr>
<tr>
<td>70 and below</td>
<td>5.00</td>
<td>Incomplete - no value</td>
</tr>
<tr>
<td>dropped</td>
<td>--------</td>
<td>dropped - no value</td>
</tr>
</tbody>
</table>

4.4 ENTRY REQUIREMENTS

Prior to enrolling a student for any course, sufficient academic background standards must be met to determine if the student is qualified to take such a course. If certain requirements are not met, then possibly familiarization courses may be set up. A reasonable degree of flexibility maybe exercised to modify the students deficiencies but not to the extent as to change the structure of the course to be taken. Examples of pre-requisites for entry to any level would be:

For Level A entry

**Sea-based**
- Licensed personnel or
- Ratings or
- Apprenticeship and
- no minimum sea time

**Land-based**
- Inter-Agency agreement

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For Level B entry

**Sea-based**
Licensed and possess level A OSP*
At least 1 year of sea duty

**Land-based**
Baccalaureate degree holder
Maritime affiliated sponsor

For Level C entry

**Sea-based**
Licensed
possess Level A OSP*
Minimum 1 Level B course
Minimum 2 years sea duty
*Mandatory safety courses (e.g. fire-fighting, survival craft, survival at sea, first aid).

**Land-based**
Baccalaureate degree
middle management level
Inter-agency agreement or Maritime affiliated sponsor

The division between land-based and sea-based personnel is for the reason that there still exists, even up to Level C, subjects that are distinctly sea-based in nature. In response to the growing need for land-based personnel dealing with maritime affairs, subjects in the field of management and administration are offered for both land and sea personnel groups.

The least requirements for entry fall in Level A. This is to give the widest opportunity to the largest bulk of the seafarer population and to the cadets of the PMMA. Maritime affiliated sponsorship means that students who usually enrol are under secondment from their Shipping Company who will eventually finance their studies. Direct student entry is considered as long as the students provide substantial records to matters pertaining to sea-time, academic qualifications, contact address etc. The Extension Program adheres to the belief of establishing firm and continuous contact with the student by way of the shipping company employer. This is done to constantly monitor the progress of any student who has completed any course for upgrading or for eventual post-graduate masters programs.
4.5 STRUCTURE OF THE DEPARTMENT OF EXTENSION SERVICE

In the organizational chart of the PMMA, the Extension Program is the latest department to be created and be at the same level as the seven other departments that take charge of the daily routine that runs the Academy. Since the Extension Program deals mostly with people outside of the Academy structure, this uniqueness requires an inner structure that is lean and streamlined to maximize the limited resources of the Academy. The structure integrates the Norwegian Training Centre (NTC) and the Filipino Association For Maritime Employment (FAME) both of which fall under the same category as the Extension Program for providing upgrading services.

![Organizational Chart](image-url)
The Department will be directly linked to the Office of the President of PMMA thereby establishing indirect contact with the Administration, budget and library. Having direct and indirect connections is of importance given the fact that the Department of Extension Service will tap resources from the other Departments for use of the students who are not cadets of the Academy. This would place tremendous strain on the operational budgets of others. For staff requirements, personnel needed to run the Department will be hired directly and will function independently of the regular employment schedule. The sole function of the staff is to be employed for the Extension Program only. Basic staff requirements will break down into the following positions initially. This will not signify a permanent structure and as the department evolves, staff requirements will eventually change.

**Department Head/Program Director**

This is the primary person that deals directly with the President of PMMA, the Administration and the Maritime Community. He will function as the representative of the Department during Academic Council meetings and Administrative council meetings and will be in overall charge of the activities of program developments.

**Program Coordinator**

This staff member will act as assistant to the head and have the same functions in the absence of the head. He will take charge in implementing programs, assigning workloads to lecturers and in making detailed arrangements for inter-departmental cooperation matters.

**Department Secretary**

This staff member will be in charge of enrolling, assigning and receiving students, maintaining an updated record of evaluations and certificates, and taking in and releasing approved communication materials pertinent to the department.
Evaluation Council

This will consist of the Department Head, Program Coordinator, Lecturer concerned, and the Department Secretary. The Council convenes primarily on matters regarding evaluations of students, issuance of certificates and program planning. Other matters of importance may be brought to light through this council.

The permanent staff would number a total of three regular ranking officers and five subordinates. The remaining staff (e.g. teaching personnel, support maintenance etc.) will come from the other departments. The small staff numbers will make it more streamlined and efficient.

4.5.1 Mechanics of operations

The Extension Program will function according to stages to constantly monitor progress by way of an Institution-Shipping Company- Seafarer relationship. To execute an effective system, stages of the work must be set-up in a way that is simple yet very defined in its approach. The stages may be as follows:

Pre-planning stage

The Evaluation Council convenes to plan a series of courses to be offered. Concerned teaching staff and other relevant departments are informed of the program in accordance with an agreed cooperation policy. Once a final plan is drawn out and agreed on, the Department Secretary informs the Shipping Companies of its scheduled offerings to the Company that specifically requested it. A detailed structure and outcome is also given and a deadline is set for applications/enrollment. The Program Coordinator formulates the course plan structure, number of teaching staff involved, expected student turn-out, tentative dates of evaluation and other matters with the help of the Department Head. The finalized course plan procedure is then presented to the President of PMMA and the Academic Council.
for information.

Execution stage

Towards the end of the course program, course instructors and lecturers submit their evaluation reports to the Program Coordinator who will make the final assessment. Progress reports and awards are given to students who satisfactorily pass the general average set by the course. A copy of the report is then forwarded to the sponsoring company or to the seafarer.

4.6 OPEN-ENDED SYSTEM APPROACH

The short courses have been given recognition for their contribution to supplement requirements for the seafarer to make up for the past deficiencies in undergraduate studies. In the continuing development of the Extension Program, aside from post-experience required studies, entry and credit for post-baccalaureate degrees should also be considered and developed. The Extension Program, therefore, must use a flexible open-ended approach in its development of the Post-Graduate Masters Program. While the seafarer gains credit in required short courses, an accumulation of these courses plus the licence would hold equivalent academic qualifications for entry to higher studies such as Diploma (for the Philippine education system, an Associate Degree). In each case the highest Academic Degree would be a Masters. Seafarers with a licence of Master Mariner or in the case of Engineering, Chief Engineer are given options to use post-experience certificates to gain entry to an Associate Degree program or Masters program. For junior licences, an Associate degree would be the first step. For those who would go directly from the Baccalaureate degree to further studies, related maritime work plus at least two years on the job would be required. A lot of avenues of opportunities are opened to all seafarers and all acquired sea experience and post-experience are recognized. This is easier to understand through the hierarchy of qualifications presented in the entry requirements.
For Entry to Associate Degree Level (Merchant Marine)

Bachelor of Science
Licence as Second Mate or Third Assistant Engineer or higher
Two years of Sea Service (Gross average)
Completed Safety package Courses
Four credited short courses

For Entry to Masters Degree Level (Merchant Marine)
Associate Degree
License of Chief Mate or Master or Second Assistant Engr. or higher
Four years of Sea Service (Gross Average)
Completed Safety package Courses
Four credited short courses

By setting an entry level, seafarers are given options in the field of further education to pursue an eventual Masters Degree or an Associate Degree. In any event, due educational recognition is given also to the present licence in possession. A dual credit is achieved in a way that the seafarer further upgrades his knowledge and is subsequently recognized for it through educational credit at the same time the licence is given recognition as a Post-Graduate Masters requirement. Seafarers who wish to further their academic achievements may opt to use a system of "School-Ship-School" (SSS). The Extension Program categorizes seafarers/students who need to continue their marine profession but desire added and credited educational units. The approach recognizes that the majority of the Filipino seafarers on land are generally on paid vacation and that any time allotted for short schooling must be taken out from this time frame. While ashore, the seafarer becomes a "student" for a limited time gaining the required STCW-mandated courses or other DECS-credited short courses (post-graduate and post-experience programs pre-requisites). While at sea, the student reverts back into "Seafarer" continuing his career and preparing for the next possible school attendance. The seafarer through this approach is given
the option of an Associate Degree equivalent to the watchkeeping certificate and all other post-graduate post-experience short courses plus a ten-month Associate Degree schooling. For seafarers who wish to pursue the highest masters degree, in addition to the Associate Degree, more added sea time and short DECS-credited courses plus 12 months Masters Degree education are required. Other options are drawn up in the chart structure. The SSS approach, however, is broad in scope. Questions will eventually arise in the area of the time interval of courses and schooling. To limit the approach and the area of the open-ended system, a time justification may be adopted to the course validity under the STCW rulings on duration of validity for courses.

In such case, the duration in between courses should not exceed five (5) years for active seafarers and three (3) years for inactive seafarers. This period of grace is sufficient enough to prepare for the next schooling and yet still retain enough from the previous one without the benefit of a refresher course. It gives ample time to accumulate any necessary sea time for both the licence requirement and the Masters program. The reality, however, does lie in the student/seafarer's own initiative that will give and sustain the driving force for the Program. No matter how good the proposal is on paper, it will never achieve its aim if no response is given by the seafarer.

A proposed entry chart structure is shown in figure 5. Given the fact that all licensed Merchant Marine Officers are degree holders, the degree and the sea duty prior to the first licence will be the base point for starting the Associate and Masters awards.
FIGURE 5
Masters Program approach
Licence and direct options
4.7 ACCREDITATION OF EXTENSION COURSES WITH THE DECS

Courses offered by the Extension Program and subjects contained within, generally require a sufficient amount of academic background with the exception of the OSP courses. This would classify a number of short courses as more that just post-experience studies. This would also mean that students who enroll are mostly degree holders who aside from taking mandatory required short courses are also taking advanced courses in their choice of profession. In the case of the Philippine system, short courses sponsored by training centres and maritime institutions are given credit only on the basis of it being required by both the International Conventions (STCW, MARPOL, GMDSS etc.) and the national agencies (PCG, POEA, MARINA etc.). What is missing is the DECS recognition and credit for the educational value of the courses given to the seafarer. It must be borne in mind that the majority of these short courses carry a substantial weight in terms of knowledge, information and technical know-how. The reality is that seafarers who take these short courses are required to have substantial experience and education to qualify for enrollment. In a circular published by the DECS on "Policies and Standards for Maritime Education", a positive stance on where the Extension Program should place short courses in terms of accreditation is given. DECS order 111 s. 1987 art.5 number 3 (curriculum) states that:

"Up-grading courses to meet the changing international requirements for shipboard competency especially for the requirements of SOLAS, the school may adopt additional subjects in the curriculum including actual training courses to meet the requirements of the 1978 STCW Convention with approval of the Department of Education, culture and sports. In the event that the school cannot put up the costly facilities and equipment for the practicum aspects of such upgrading courses, the school may enter into a Memorandum of agreement with another school or training centre duly accredited by DECS to provide such training."

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As part of its continuing effort to be updated in its curriculum, the PMMA through its Academic Council has constantly monitored changes in the maritime industry. This was part of the reason for the establishment of the Extension Program. New additions to the existing curriculum are first tested here and analyzed if the need for integration is possible or if it is an entirely new concept and is required for post-baccalaureate studies only. Since the PMMA functions under its own charter, and by all the surveys conducted exceeds the DECS requirements for Policy on Tertiary level Maritime Institutions, the Extension Program must tap this advantage and proceed to have its course accreditation proposal approved by the DECS on the basis of:

1) Compliance with Internationally agreed Conventions and their amendments.
2) Recognition by other National agencies related to maritime affairs.
3) Subject proficiency having a higher degree of maths and science.

The Extension Program may just ride under the PMMA charter and proceed to have its own accreditation system without the benefit of the DECS. However, the proposal has a long term view in terms of future education and recognition. If a seafarer should decide to pursue education elsewhere, the ability to transfer gained credits and for these to be equally recognized must be an important factor for the Extension Programs need to obtain DECS approval of its courses and subjects. The Extension Program has now to prepare a solid structure for the DECS accredited courses offered. This is to pave the way for a sound and accepted pre-requisite for the eventual development of the Associate and Masters Degree Program.

In spite of all these, the first step has to begin with accreditation. The qualification that a certain course be classified to be credited may be very broad. For the Extension Programs purposes, the courses accreditation proposal to the DECS will be used. The
Extension Program must then single out courses that through more thorough guidelines fall under credited courses, have them approved by the Academic Council and submit them to the DECS for consideration and deliberation.

4.8 INTEGRATION OF SHORT COURSES IN THE CURRICULUM

The course structure for both the Marine Transportation and Marine Engineering degrees are designed in a way that the first and second year of studies stress more the technical aspects of the profession such as Reg. II/4 and III/4 of the STCW Convention and its amendments. This is structured so as to make the subjects in the junior and senior year more readily acceptable. Since being the premier maritime institution of the land, PMMA has sought to continue to maintain this position by means of further developments. It is also for this reason that technical experts from IMO, along with the corps of professors worked for the revision of the old curriculum. Influences from quality standards of the DECS, the ILO "Document of Guidance" and requirements of the STCW created a viable curriculum for today's maritime industry needs. The curriculum developed over time has set its goal to exceed the minimum requirements and evolve an educational and training patterns that are sensitive to the needs of the industry both at the national and international levels. Because of this, cadets are 80% of their waking time fulfilling academic and training requirements. This rigid form of standards requires a full residency program for the duration of the studies and training.

The curriculum covers some of the courses mandated by STCW Convention (e.g. Basic Fire fighting, Survival craft etc) and goes indepth in other necessary courses (e.g.Collision regulations COLREG, MARPOL, RADAR etc). It includes, as well a series of liberal and science courses needed prior to a degree. An example of a list of subjects offered by the Academy for the first year BSMT curriculum School year 1991-92 is shown below:
FIRST YEAR

First Semester

Navigation I
Mathematics I
 Seamanship I
Ship Construction
Ship Safety I
Meteorology I

Second Semester

Navigation II
Mathematics II
Seamanship II
Cargo Works I
Ship Safety II
English I
Physics I

Summer class

Fire Prevention
Ships Medicine
Physical Ed.

By going thoroughly through the detailed syllabus, a question of
redundancy would most certainly come up. In fact, the mere creation
of the Extension Program would seem to be a duplication of the task.
This point of view and its redundancy is seen from the Academy's
educational level (tertiary). The Extension Programs aim is to provide
upgrading and preparatory post-graduate subjects for all seafarers
and not only graduates of the Academy. Since a majority of the
Filipino seafarers have graduated from private institutions which were
slow in the revision of their curricula to meet the new requirements
set forth by national and international regulations, the main thrust of the extension program is to make them first fulfill all upgrading requirement, thence prepare them academically for post-graduate studies. According to a joint project of MARINA-JICA on Maritime Safety (March 1992), it gives results of a survey visit to some 13 Maritime schools, 3 training centres and 6 Shipping companies. The results and conclusions arrived at were:

Generally, most schools lack the necessary modern equipment and training facilities. Likewise, the teaching staff lack training in modern technology which is basically rooted in the absence of a continuing education program for instructors.

Most private schools encounter difficulty in sending their students for shipboard training. However, some schools have established tie-ups with shipping companies with regard to on-board training.

It was further observed that there are too many maritime schools with insufficient number of equipment that meet the minimum required standards set out by the STCW and the Enriched Guidelines, Procedures and Standards (EGPS)- DECS. The following main points/issues were gathered from officials of shipping companies:
- High rate of turn over (i.e., well experienced crew transfer to overseas vessels).
- Lack of government assistance/support to domestic shipping unions with regard to workmen's compensation and welfare.
- Almost all vessels engaged in domestic service are considerably old, thus, the need for more skilled crew and shore hands.

It is for these results that the Extension Program was created. Poorly trained seafarers are a danger to others. The wage factor during the late 70's on through the 80's contributed to this cause. The demand for cheap labor was high and the present crop of
seafarers was not enough to meet this demand. A keen edge over competition in vessel manning kept maritime schools churning out graduates and the cause to create more schools grew unchecked until just recently. Results now show that what was supposed to be part of the studies in the lower level is being given as short courses after graduation and what is supposed to be post-graduate studies becomes very difficult to achieve because of the lack of some basic skills. The best alternative to addressing this problem is to give the opportunity to the seafarer to make up for the deficiencies in the undergraduate studies.

Specialized courses, familiarizations, refresher courses and IMO model courses are all made for the seafarer. The extension program uses these in fulfilling its aims and objectives. It must go beyond that to establish more opportunities for the Filipino seafarer in terms of further educational development.

The extension program must also determine if courses and subjects by virtue of their content are qualified to be included in the undergraduate curriculum of the PMMA.
CHAPTER 5 CONCLUSION

The maritime education and training is beset with so many problems ranging from outdated curriculums to poorly educated and poorly trained seafarers. Solutions presented by different industry-related agencies, though well meaning, are no more than a short-term relief answer. The number of seafarers is increasing yearly and the present adapted system of re-education and re-training of seafarers in terms of required courses is given in such a manner that grave doubt has been cast on the quality and competence of the education and the institution involved. This concern has been voiced a number of times, mostly from the private sector of the maritime industry which receives the end product of such an education.

It was only recently that the government, through the various agencies, moved to address the problem of maritime education and training. Prior to the government’s initiative, the PMMA has been contributing its share by research and development in the maritime field of education. The establishment of the Extension Service Program was built on the pretext of the seafarer having completed all the maritime education that met the requirements set forth by international regulations, a move that was considered by many in the industry as a much needed one. The reality, however, is that the backlog of seafarers from different maritime institutions (excluding the PMMA) needing to upgrade existing certificates after the government led revision of the maritime curriculum is now so large that the Extension Program began to offer post-experience upgrading courses just to help offset these large numbers.

Because of the large number of seafarers in need of upgrading, numerous training centres, some of which have caused concern with the quality of the education they offer, have come into the picture to add more problems than solutions. The government for its part was too slow in implementing guidelines and regulations governing the revision causing the unchecked growth of these centres offering training schemes without a clear cut standard guideline and minimum
requirement approved by the government through the Department of Transportation, the Maritime Authority and lately, the Department of Education.

For whatever faults and delays the government agencies have, it must constantly assess, monitor, recommend and assist in ensuring that quality maritime education is made available to all seafarers seeking the needed upgrading. For those who desire a higher post-graduate education, the Extension Program will provide an avenue for such an education.

The task of upgrading and re-training is a formidable task especially in a country such as the Philippines where resources in material and money are not so readily available. Realizing this weakness, the government should be more sensitive and aware to the developments of the maritime industry as a whole. It should strive to be more aggressive to protect its best resource, sea personnel, by giving the maritime institutions as much motivation as the other sectors (e.g. shipowners, brokers, manning agencies etc.). Assistance through tax reliefs, research and development, funding, and swifter response is by far the most reasonable and realistic move by the government in assuring that the value of its best resource is always protected.

The government, to all extents and purposes, is the final decision making body, and it must initiate the way for further development of its industry. If for any other reason it cannot meet its goals totally, then the least it can do is provide the means for the maritime industry to do so.

Much has been said that the original framework of the system of the educational process has become irrelevant and obsolete. The author believes that it is not so much the framework but the content of the maritime curriculum that needs the modification. The age of automation and high technology affairs has reached every order of the working environment and the maritime industry is no exception. The need for the right kind of education and training for the present day requirements is one of the motivations for the establishment of the
Extension Service Program of the PMMA. The idea is to look forward and to provide a place in education and training for these new developments and to give it its proper equivalent in the educational achievements structure.

In the end, it is the seafarer who will eventually reflect the system of education imparted to him. With the advent of the new generation of sophisticated ships, the challenge will be, is the seafarer prepared educationally and trained properly to handle the job, or will he lose out because market place demands a different qualification from what he has?
CHAPTER 6 RECOMMENDATIONS

In view of the rapid development of maritime education and training compounded by the large backlog of pre-1987 seafarers, the author strongly recommends that the following necessary steps should be taken to ensure that the extension service program be effective in its undertakings:

1. Develop a closer relationship between the PMMA Department of Research and Development in terms of monitoring the backlog of pre-1987 seafarers, seeking statistical feedback from the students and establishing links with other research and development departments of other maritime institutions and agencies.

2. Expand the original mandate of providing post-graduate studies to a more accessible program such as the offering of post-experience studies, upgradings, refreshers and review courses all within guidelines of an expanded mandate and international regulations compliance.

3. Seek recognition as a World Maritime University branch by raising standards of education and training to an accepted international level in the post-experience and post-graduate fields of study.

4. Strive for national accreditation with the DECS-Bureau of higher education and its accreditation association by ensuring quality education through qualified faculty members, a comprehensive Masters program curriculum, up-to-date facilities and proper equipment.

5. Reduce the isolationist perception of the other maritime institutions of PMMA by making PMMA more accessible to other non-graduates through its education and training programs.
There are still a lot of means to be found in terms of ways to make the extension program efficient, however, the basic structure to build upon and develop lies in the recognition, accreditation, curriculum content, mandate and educational approach of the program. An effective and efficient program should have these points as a priority before other functions.

5.1 Time factor

One critical element of any plan would be the proper management of time. For a plan in a program as ambitious as the extension program, the time factor is a very important element. This factor will be found mostly in its implementation and cut-off schedules. Phases of implementation are shown as the recommended frame of the program.

FIRST PHASE (8 year) upgrading-retraining
This 8-year period will cover mainly seafarers prior to the implementation of the STCW convention by the national government in 1987. Because of the slow initial revisions, seafarers from 1987 to 1995 will be included. Post-experience and required international mandated courses for the upgrading of certificates of competency will be the main thrust of the extension program.

SECOND PHASE (6 year) post-experience upgrading
With an assumption that a significant number have gone through the period of upgrading, the second stage from 1989 is for the entry of the specialized courses and the advanced courses of the International Maritime Organization. This stage is also the entry point for the accreditation of some model courses for the extension programs post-graduate Masters program pre-requisites.
THIRD PHASE (10 year) Masters program and evaluation

The introduction of the full Masters program with a complete maritime related curriculum in 1994 for all seafarers who have completed upgradings and retraining in accordance with the previous phases and qualified with pre-requisites or with equivalent certificates of proficiency. A continuous evaluation and survey for the students in the program to assess the viability of the curriculum and the industry response to the graduate of the program.

In line with the implementation also lies the time frame for acquisition of the necessary books, papers, documents and other important items of information to upgrade the Academy library to a university level. Along with this is the preparation for accreditation by the National Accreditation Board. As all these are to be considered important in the whole extension service program, simultaneous execution of these factors must be done in the first and second phase.

The strain on the limited resources of the extension service program and the Academy will be pushed to the limit at the beginning. If however, the decision is made to scale down and cut corners then the student could well be added to the list of deficient seafarers. This chapter outlines the points in the extension service that are considered important foundation structures and sets out realistic achievement steps to be attained.
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