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## Upgrading and development of the engineering faculty of the Pakistan Marine Academy

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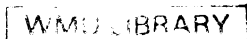
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WORLD MARITIME UNIVERSITY  
MALMO, SWEDEN

UPGRADING AND DEVELOPMENT OF THE ENGINEERING FACULTY  
OF THE PAKISTAN MARINE ACADEMY

BY:

MOHAMMAD ASIF GHAYUR

PAKISTAN

A paper submitted to the faculty of the World Maritime University  
in partial satisfaction of the requirements for the award of a

MASTER OF SCIENCE DEGREE  
in  
MARITIME EDUCATION AND TRAINING  
(MARINE ENGINEERING)

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

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## A B S T R A C T

Within the context of PMA upgrading and development policy it is necessary to consider the establishment of a Marine Engineering Faculty in the PMA. Recently the PMA has launched a four-year degree programme for their marine engineering students which entails upgrading the faculty as per requisite requirement of the Engineering University and this forms one of the attendant areas to be dealt within this project.

This study firstly analyses the influencing factors regarding upgrading programmes in PMA.

Secondly it analyses the present situation of the organisational system of maritime education in Pakistan and examines its historical and strategical significance.

The study then explores the main elements of staff development and training function and its relationship to the overall functioning of the organisational system of maritime education in Pakistan. The aim of this organisation may be described as the fulfillment of prescribed tasks through the most effective use of available resources. Since the people are the main resource in educational institutions, Chapter 4 focuses on the study of the human resources, namely the management of personnel working in the PMA. Any faculty upgrading programme without considering the human resource programme shall be incomplete in its analysis.

Chapter 5 cuts through the complexity of strategic planning and describes the process by laying out clear systematic guidelines which should be utilized within the system of maritime education in Pakistan.

Finally, last chapter reiterates and emphasizes on the conclusion and recommendations contained in the aforementioned chapters in order to implement the organisational requirements for the upgrading and development of the faculty of the PMA.

## ACKNOWLEDGEMENTS

First of all I feel indebted to All Mighty God who has always shown me a light of hope in my difficult times, and looking after me throughout this paper.

I am indebted to my country Pakistan who provided me with the opportunity to enhance my knowledge.

I am also indebted to the PMA not only for selecting me for a two-year fellowship at World Maritime University but also being an alumni of this esteemed institution I feel my initial grooming and awareness of the maritime field was nurtured here.

I am also indebted to all those whose support helped me to bring this work to completion.

My profound thanks and appreciation particularly to my Course Professor, C. E. Mathieu and Lecturers Burton Russell and Randall Fiebrandt for their valuable suggestions and guidance through my course and particularly this paper.

All the distinguished resident and visiting professors for their dedicated lectures during the course.

To the International Maritime Organisation for establishing this unique maritime university.

To the people of Sweden and particularly the City of Malmö for making our two-year stay a memory to cherish.

I also appreciate my colleagues of the class 1990 who contributed by way of communication.

Finally, I feel indebted to my wife Ghazala and my son Faris without whose support and encouragement I feel my studies at World Maritime University could not have been accomplished.



## LIST OF ABBREVIATIONS USED

01. PMA                      Pakistan Marine Academy
02. MET                     Maritime Education and Training
03. BMET                    Board of Maritime Education and Training
04. DGP & S                Director General Ports and Shipping
05. PNSC                    Pakistan National Shipping Corporation
06. KSEW                    Karachi Shipyard and Engineering Works
07. KPT                     Karachi Port Trust
08. NED                     Nadershaw Edeljee Dinshaw  
(University of Engineering and Technology)
09. IMO                     International Maritime Organisation
10. STC                     Seamen Training Center
11. DOT                     Department of Trade
12. STCW                    Standard of Trading Certification and  
Watchkeeping of Seafarers
13. WMU                    World Maritime University
14. NIO                     National Institute of Oceanography

## CHAPTER ONE

### GENERAL INTRODUCTION

#### 1.1 Objectives

The aim of this paper is to identify and define the basic terms of reference which are necessary to improve and upgrade the marine engineering faculty of the PMA.

In this context four main areas will be dealt with, namely:

1. Organizational Set-Up
2. Staff Development (including upgrading of the professional staff's qualifications upto pre-requisite requirements of the Engineering University)
3. Human Resources Management
4. Strategic Educational Development Planning

When these concepts are structured and established they will help to:

- a. Restructure the Marine Engineering faculty of the PMA.
- b. Formulate a more flexible and versatile organizational framework to cope with university level marine engineering courses of the PMA.

#### 1.2 Scope

Safety, cost, reliability, efficiency and protection of the environment are the factors which call for higher standards of training. Hence, upgrading of students, teachers, and the maritime institution are the need of the hour.

Within the context of the word "upgrading", the PMA has recently launched a four-year degree program for their marine engineering students which entails upgrading of the faculty as a requirement of the Engineering University. I will take up this problem in this paper and try to reach a solution.

In this paper the author has referred to staff as workforce, the heads of departments as managers and the students as the end product if we compare the institution to an industrial organization.

### 1.3 Limitations of the Study

This basic library research project undertaken at the World Maritime University has its limitations due to time constraints and the limited material available, although the positive cooperation and commitment of the library personnel is unchallenged. It was not possible for the author to continue this research into the deeper study of the subject he desired.

Therefore I am focusing only on the upgrading aspect of the engineering faculty of the PMA. There is still a vast area left which could be further researched. Thus, this paper is primarily limited to this context.

Finally, the author has followed the convention of using the masculine gender because male students comprise the entire population at the PMA.

### 1.4 Methodology

The fundamental tool used in completing this paper was library research. Many of the ideas utilized in this paper are the result of two years spent in the nurturing atmosphere of the World Maritime University.

The basic concepts which were transmitted by the lecturers, professors and visiting professors were used as guidelines in the process of developing the authors ideas. The authors fourteen years sea experience and eight years teaching experience is also a contributing factor in this paper.

Written material obtained in the form of hand-outs at the World Maritime University and during field trips completed the list of implements and tools which were necessary to finish this paper. All these tools and ideas would have been useless and futile without the help of the critical path adopted at different stages of this paper. Comments, suggestions and communication from classmates and colleagues has proved to be a helpful factor in the writing of this paper.

This paper is research aware but not research burdened.

## 1.5 Influencing Factors for Upgrading

### 1.5.1 Engineering University Affiliation

Ships of the future ask for specialised expert knowledge from ships personnel to operate them efficiently and economically. It is also a fact that seafarers are not permanently placed in sea-based jobs; after a certain time they look for shore-based careers.

This calls for the equivalent of a maritime education system and accreditation of degrees to all marine engineers.

The PMA sensed this need and in phases gradually upgraded its courses and syllabus to new standards.

As a first venture, the PMA affiliated itself with

Karachi University to accredit its two-year degree to a BSc (Maritime Studies) degree course. In this process PMA upgraded its faculty, laboratory, library, workshop and other facilities.

Soon after this process, it was felt that the two-year degree program was a science degree program and the Engineering University/engineering council did not accredit this degree.

Soon, the PMA started working on the second leg of the upgrading process by embarking on a four-year degree program for marine engineers by affiliating itself to NED Engineering University. This again called for upgrading in all related fields including upgrading of faculty members' qualifications.

#### 1.5.2 Maritime Education and Its Environment:

The primary purpose of any maritime educational and training scheme is to ensure that vessels are operated safely and efficiently.

However, the international nature of the maritime industry has resulted in many different interpretations of the above mentioned statement:

Among the different parties involved in the shipping industry, there are traditional government maritime authorities, educational systems, shipowners, mariners, unions, international organisations, classification societies, shipyards, manufacturers and so on.

At different stages of upgrading courses, the influence of each one of these organisations appears sooner or later. To a certain extent maritime institutions deal

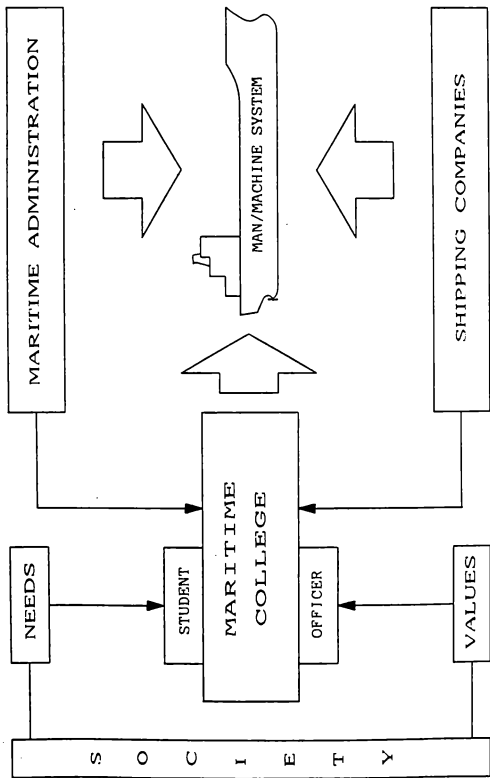


FIG. 1.1 MARITIME EDUCATION: ITS ENVIRONMENT AND RELATIONSHIPS.

with a number of influences from the maritime environment. These influences can be grouped into three main sectors, namely:

1. Society
2. Maritime Administration
3. Shipping Companies

1. Society:

It is easy to understand the influences exerted by society on maritime education and the reasons for these influences.

By means of the learning process a person obtains the knowledge, skills and attitudes accumulated for centuries by earlier generations.

It is within the framework of the society that the transfer of knowledge and experience is made possible. Civilization and culture are inherent to society, and it is the society which assumes responsibility for preserving and transmitting this knowledge.

Maritime institutions are part of the society, they were established bearing in mind the thoughts expressed above. And it is the status given by the society to these institutions which determines the initial behaviour and desire of students to become part of them.

One of the social and professional functions of maritime institutions is to transfer knowledge, skills and attitudes to the students in order to transform them into officers on board.

Another aspect considered as a part of the social functions of educational establishments is that of contributing to the needs of the students as human beings such as the need for acceptance and recognition by the society in which they live.

Since 1986 students completing the undergraduate programs from the PMA were awarded a Bachelor of Science degree which is encouraging; but still, efforts are being made to upgrade this degree programme to an engineering degree programme.

In addition, the maritime institution should comply with a socio-political function which is to educate and train students in order to improve their capabilities and as a consequence to improve the educational and cultural level in the country.

## 2. The Maritime Administration:

The Maritime Administration is ultimately responsible for the safe operation of ships and protection of the marine environment. It is obvious that this dependency exerts a lot of influence on the development and upgradation of undergraduate programs in the maritime institutions.

Furthermore, with the adoption and coming into force of the STCW-78 Convention and Pakistan being a member country of the IMO the Director General Port and Shipping (DGPS) has been actively working in compliance with this Convention to organise maritime education in Pakistan.

In addition, the requirements of maritime education and training, the standards for certification and upgrading courses, and a set of recommendations



which expand upon the regulations themselves by giving more details, are established in the IMO STCW 78 Convention.

Moreover, the influences of the maritime administration on the maritime institutions are not only limited to international requirements, they extend to national requirements and regulations as well.

The close relationship between the Director General of Port and Shipping and the PMA and maritime education systems in Pakistan has allowed the PMA to include each one of the new national and international requirements into the educational and training schemes for seafarers step by step.

### 3. The Shipping Companies:

The third sector influencing maritime education is that of the shipping companies. These companies being the customers to the services provided by the maritime colleges, it is logical to expect influences from them.

Maritime education is essentially a part of the overall investment by shipping companies. Unless shipowners make use of the knowledge and skills learned by seafarers at maritime institutions, they will be wasting resources.

In this context, it can be noticed that students are taught the regulations to prevent collisions at sea in the maritime institutions. But they also safeguard the shipowner's interests by the economic operation of ships.

Shipping companies play an important role in the improvement of maritime education and training.

Firstly, they have day-to-day experience of the operating constraints, practices and opportunities of merchant ships.

Secondly, based upon their experience, maritime institutions can obtain feedback so that modifications and upgrading of the educational systems can lead to improvements in the performance of seafarers.

Thus, the author believes that the influencing factors from a shipper's point of view are:

- a. the element of operating a commercial and profitable shipping fleet
- b. the element of operating a ship that is geared to safety and the protection of the marine environment

In the era of advanced technology and competitive structure of the shipping industry shipowners require efficient and competent crews.

### 1.5.3 Economic Considerations:

Trade, industry and commerce has a tremendous impact on a country's economic development. Sea link are of vital significance for trade between two countries. Sea transport will continue to be the prime vehicle of world commerce since it has the lowest cost per ton-mile and can move a great quantity of goods over long distances.

A strong merchant fleet is a powerful economic tool for the development of a nation. The shipping industry is

an extremely complex industry. It involves not only the different types, design and employment of ships but also the cargoes and passengers they carry from one port to another, the shipboard personnel afloat and those who manage ashore, and the laws and regulations relating to the ship. A complete management system is required to run shipping efficiently. Thus highly educated personnel are to be trained and hence the upgrading of a maritime training institute is essential. The system of maritime training depends upon the circumstances, prevailing economic conditions and the manpower requirement of each country but the system should be flexible and versatile to cope with foreseeable innovations of the future.

The coherence of economic development and advanced level of education and training is significant.

#### 1.5.4 Advanced Technology

The world is witnessing dynamic changes in maritime technology such as:

1. Improved design/material of ships.
2. Sophisticated equipment and control.
3. Advanced automation.
4. Computerisation and micro processors.
5. Improved shipboard management.
6. Satellite communication.

With such complex sophistications safety standards can also be enhanced.

Such scientific and technical developments have given rise to the complexity of ship operations. Consequently, the need for improved educational standards and

and professional skills of shipboard personnel is essential.

#### 1.5.5 Human Performance

A seafarer is a person on board a ship doing a demanding job which is occasionally both difficult and dangerous. It is also an established fact that different variables influence the performance of the seafarer on board ships. Traditionally, the degree of the impact of maritime education and training on the performance of seafarers has been a question of major concern.

The assumption stands good that if educational and training programmes are not effectively designed and upgraded from time to time consequent performance aboard cannot be improved.

Furthermore, statistics show that in above 80% of marine casualties the cause is stated to be "human error," that is, caused by the ships crew.

To lessen this human error factor in marine accidents calls for the modification and upgrading of educational and training programmes. The better skilled personnel are liable to make less mistakes.

#### 1.5.6 Manpower Reduction:

One of the problems in the operation of ships is labour costs. In an effort to reduce crew costs, shipping companies have considered reduced manning within the context of national regulations. Reduced manning, however, has increased the duties and responsibilities of the crew that are left on board.

The decline in the number of shipboard positions creates not only a problem to the training institutes but the problems of employment for prospective seafarers. In countries where labour costs are low and where there is a lack of advanced technology, the operation of conventionally manned ships still exists. This factor is all important since it involves the employment of nationals and at the same time maintains an area of safe and efficient operation of their shipping fleets. In many developed countries, however, the reduced number of entrants has caused a certain decrease in the number of training institutions.

Training people in accordance with the requirements of the fleet is also an obligation of the maritime institute.

The competitive factor in view of reduced manning has forced training institutions to upgrade their training standards. The successful operation of ships, economically and safely, requires not only lower manning costs but better trained crews as well.

The ships of the future will require reduced but highly specialised crews to handle complex operations. Hence the upgrading of training programs is essential.

### EXISTING ORGANISATIONAL SET UP

#### 2.1 INTRODUCTION

The methodical, approach to the maritime educational system in Pakistan, finds its roots, in 1962, when a presidential decree, gave the pertinent order, to establish, Pakistan Merchant Marine Academy in Chittagong (the then East Pakistan).

The history of maritime training in Pakistan goes back to the country's independence (in 1947). Since then, maritime training for the merchant fleet has been carried out in the most traditional style, i.e. on-the-job training prevalent in those days. The Maritime academy, was not present in those days. Therefore, apprentices/cadets were taken for the marine engineering and nautical branches of the merchant fleet. The engineering apprentices were recruited by the various recognised marine workshops, whereas nautical cadets commonly termed as deck cadets were recruited by shipping companies. The basic entry qualification for these recruits was matriculation science (ten years of school education). After 1962, the entry point was upgraded to intermediate science (twelve years of education). Hence the period 1947 to 1962 was without any maritime academy, in Pakistan. As such, much more upgrading and development in maritime educational system is visible only after 1962 when the first maritime academy, came into being.

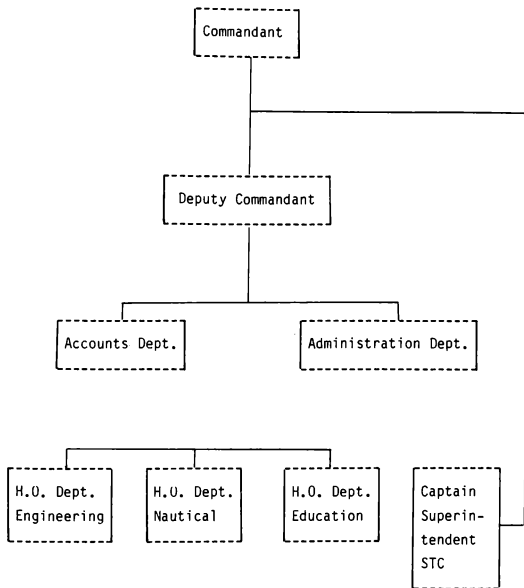


FIGURE 2.1 - ORGANISATION CHART OF PMA

## 2.2 PAKISTAN MARINE ACADEMY (STAGES OF DEVELOPMENT)

As, mentioned in the last section, the formation of Pakistan Merchantile Marine Academy took place in the year 1962. After separation of East Pakistan from the country in 1971, the country faced the initial condition of no merchant marine academy in Pakistan. Under this grave situation a timely decision was made by the Government of Pakistan to build up a new marine academy without any loss of time. Thus, a temporary campus of Pakistan Marine Academy was established in Karachi and the strenuous work of building a permanent campus was taken up immediately.

The period 1971 to 1978 was a transition period for Pakistan Marine Academy, a period of reconstruction and rebuilding a maritime institution.

The Pakistan Marine Academy's new campus was ready in 1978 and thus from this day onward the academy started on a new footing. It should be noted that credit goes to PMA for continuing the maritime education and training system in Pakistan without any lapse of time, and thus apprenticeship/cadet entries of the old system were not suspended. In fact PMA continued to recruit the candidates from both engineering and nautical branches unrestricted. Gradually, direct apprenticeship/cadet entry was minimised and ultimately, the maritime administration has made stricter rules and since then only the Marine Academy is taking the fresh entries of engineering and sea cadets as and when required.

Nevertheless, after 1978 a period of upgrading and improvement was observed in the PMA. Two years pre-sea course for marine engineers/nautical which had, no equivalence to national education system was accredited to Karachi University (1986) for a BSc (Maritime Studies) degree course. For affiliation with Karachi University PMA had to upgrade in all fields such



as upgrading of laboratories/workshop and library. Besides local students, foreign students were also trained in the PMA. Those countries who received such training facilities were Islamic Republic of Iran, Malaysia, Sri Lanka, Ethiopia and Saudi Arabia. These students were trained in accordance with the syllabi approved by IMO, the Ministry of Communication, Government of Pakistan and the University of Karachi. Apart from academic and professional training, general training was designed and conducted to develop leadership qualities, inculcate discipline, broaden their perspective and develop their overall personality. This objective was achieved through extra-curricular activities such as physical and parade training, sports, talks and debates. Lectures and visits to ships/industrial organisations is a regular feature of training.

In 1986 PMA was affiliated with the University of Karachi for award of BSc degree in Maritime Studies to cadets who have successfully completed prescribed course of studies. This enables the cadets to continue their academic career if not absorbed by the Merchant Navy.

This BSc (Maritime Studies), program had triggered a step forward in the right direction. Efforts are afoot to start four years degree course in Maritime Engineering. This degree program has to be accredited by Engineering University and as such upgrading process initiated, is further developed to meet Engineering University requirements. In 1986, Government of Japan offered to provide grant in aid for advanced Maritime Training Equipment to PMA. During this program following engineering equipment have been acquired.

- a. Engine Plant Simulator (EPS)
- b. Workshop Machines
- c. Testing and Measuring Equipment
- d. Cut-away Models of Pumps, etc.

- e. Fluid Testing Analysers.
- f. Models of Diesel Generators
- g. Micro Computers Experiment Device

With all these advanced facilities at hand, PMA, offers the following courses for students and maritime industry in Pakistan.

1. Preparatory courses for class I (A) and I (B) designed to prepare candidates for chief engineer examination.
2. Prepare courses in classes II (A) and II (B) designed to prepare candidates for 2nd engineer examination.
3. Two years pre-sea marine engineering course BSc (Maritime Studies).
4. Normal and emergency operations, refresher course in accordance with STCW-78 for engineers of all classes who have been away from sea for a long time.
5. Advanced course in fuel management.
6. Advanced course in fault diagnosis and rectification meant for senior engineers to practice fault and develop corrective methodology.
7. PMA (under STC) conducts mandatory courses for seafarers in fire fighting, sea survival and first aid.
8. In addition, courses in English language and computer orientation are also run by the Academy.

Nautical branch courses are out of scope of this paper as such they are not part of this paper.

### 2.3 MARINE COLLEGE

Since long, the need for marine college had been felt for coaching engineering/nautical officers of Pakistan Merchant Navy in the best possible manner for certificate of competency in these fields. Following reasons are put forward for establishment of marine college.

1. Marine college consists of engineering and nautical departments headed by the commandant PMA to develop Marine Engineering and Nautical Sciences fully.
2. Marine college would fulfill the targets set up, in five-year plan of the country, i.e. transfer of technology, self-sufficiency and improved education. The absence of marine college is felt badly since long as there is no postgraduation center for maritime education. Also ratification of STCW convention by Pakistan normally put Pakistan under international pressure to set up such an institute.
3. IMO's missions were invited by Government of Pakistan during January 1984, March 1986 and October 1989 to point out weaknesses of maritime education system in Pakistan. All these missions unanimously recommended the establishment of a marine college at PMA campus at earliest.
4. Absence of marine college for coaching of competency certificates resulted in our student to go abroad for their examination and thus results in wastage of foreign exchange of the country.
5. By having our own marine college the Marine Sciences and Technology could be developed on a much broader spectrum which would help in development of the country. The

marine college should be able to produce technologists covering various discipline in marine technology to meet the requirement of shipping and allied maritime industry and various other maritime organisations.

6. A maritime country with a reasonable number of ships should have the facilities to provide necessary training for officers and men in order to man their ships effectively. Pakistan is one of the manpower exporting countries. The foreign exchange earned through brain drain is the third highest income of the nation, and a considerable portion of this income is due to Pakistan Merchant Navy personnel serving on foreign flag ships.
  
7. Well equipped training establishment with post graduate training facilities has become unavoidable for a nation like Pakistan with formidable merchant fleet and allied marine industry. This institution can cope for varied maritime interests. It could also help the friendly countries of the region by way of training their manpower and also by supplying the much desired skilled manpower and thereby earning foreign exchange for the country. At present, the Marine Academy and Seamen Training Center are functioning to support the merchant fleet and its allied organisations and are located at the permanent campus area of the Pakistan Marine Academy. Marine college can also be located in the same campus.

(Source Proforma P.C. 1 - Establishment of Marine College Project)

The proposed Center of Excellence for Maritime Education (as referred in Chapter Three) can also be located in the marine college and both of these institutes can help each other in the development of higher education in maritime field. Thus, these two institutions may help the upgrading of the maritime education system in Pakistan.

## 2.4 RELATED MARITIME TRAINING CENTERS

There are several organisations and centers which are related to the maritime training in Pakistan. They are listed below:

1. Seamen Training Center
2. PNSC Marine College
3. Apprentices Training Center
4. KPT Staff College
5. Karachi University
6. National Institute of Oceanography

### 2.4.1 Seamen Training Center

Basically, set up for training of surplus of seamen in Pakistan, the center is presently associated with mandatory courses under STCW, such as fire fighting, first aid and survival. It is located in PMA campus.

### 2.4.2 PNSC Marine College

Conduct courses for PNSC workshop apprentices to prepare for their II (A) 2nd class examination. Also, conducts mandatory course of Life Saving Appliances (LSA).

### 2.4.3 Apprentices Training Centers

KPT, KSEW and PNSC workshops provide three year practical training to successful engineering cadets of PMA before going to sea. These workshops are recognised by Maritime Administration in Pakistan.

### 2.4.4 KPT Staff College

They arrange tailor made courses and seminars according to the needs of port personnel.

#### 2.4.5 Karachi University

Applied economics department conducts transport economics course. Zoology department conducts courses in marine biology leading to Masters degree and Doctorate in the related subject.

#### 2.4.6 National Institute of Oceanography

A research institute concerned with survey and research related to seabeds, sea resources, marine life and oil pollution. It also helps industrial concerns to explore marine resources for business enterprises.

### 2.5 ANALYSIS OF THE MARITIME EDUCATION SYSTEM'S STRUCTURE

In order to discover in what ways the maritime educational system in Pakistan structures its activities, it is essential to identify those parameters which can precisely formulate the characteristics of its organisation. To do such an analysis, it is necessary to revert to variables that can be clearly defined and measured.

Among the dimensions of organisational structure, it has been selected the following:

1. Specialisation:
  - a. According to earlier sections, it is obvious that the functions performed by the Marine Academy in Pakistan are those related to the highest degree of specialisation in shipping.
  - b. The following are some of the courses which are offered by engineering section of the PMA, apart from those dedicated to the pre-sea training of new engineer officers.

- i. Preparatory courses for class I (A) and I (B) designed to prepare candidates for chief engineers examination.
- ii. Preparatory course in classes II (A) and II (B) designed to prepare candidates for 2nd engineer examination.
- iii. Normal and emergency operations referresher course in accordance with STCW-78 for engineers of all classes who have been away from sea for long.
- iv. Advance course in fuel management.
- v. Advance course in fault diagnosis and rectification meant for senior engineers to practice fault finding and develop corrective methodology.
- vi. STC in close cooperation with PMA also conducts mandatory course on fire fighting, survival and first aid.
- vii. Computer orientation courses are also arranged.

## 2. Employment Practices:

- a. Federal public service commission of Government of Pakistan is only authorized to recruit permanent teaching staff for PMA.
- b. The lack of available human resources to fill the most specialised posts and the salaries that are being offered make it difficult to follow the recruitment rules easily.

### 3. Organisation:

- a. The post head of PMA i.e. Commandant of Academy is divided into a hierarchy of horizontal strata, so that the organigram takes the form of a pyramid.
- b. An important linking function in this management structure is performed by the Deputy Commandant and the Head of Departments of different sections in PMA.
- c. Meetings are carried out at different levels on a regular basis with their respective agendas and minutes of the meetings are recorded.
- d. As in any organisation, there are sources of informal communication.
- e. There is an outline of job descriptions as a written term of reference for duties and responsibilities at work.
- f. Administrative and financial power is delegated to the commandant PMA by the secretary ministry of communication. According to the federal laws of the country via the Director General Port and Shipping (DG P & S). Nevertheless, the higher planning and policy guidelines are set under guidance of DGP & S.

### 4. Configuration:

- a. The management chain of command is relatively short. Four levels are distinct from the commandant to the instructors.
- b. The linking points of function at different levels have a relatively small number of sub ordinates.



- c. The instructors level, which constitutes specialized support personnel and the main work force, represents a large percentage of the organisation.

## 2.6 EVALUATING THE EXISTING ORGANISATIONAL FRAME WORK

Although, the concept evaluation is usually used to imply a value judgement, most of the time, this connotation constricts its meaning. Instead, it is better to see evaluation as a "process of providing information to those involved in a program regarding questions that need to be answered". In evaluating the maritime educational system in Pakistan, it is necessary to focus on the basic elements which, according to the author, need improvement and upgradation in order to obtain proper development in this area.

Taking into account, the description made of the existing organisational framework and the analysis of its structure, the following considerations can be highlighted.

1. The development of Pakistan's maritime system of education in the last decade has been considerable due largely to the support offered by the Federal Government. Notwithstanding, the progress made to date must be further developed and upgraded.
2. The human resource management will play a key role in this further development and upgrading.
3. It is essential to provide a safe working environment for employees so that an employee work force that is highly competent can be maintained.
4. Salaries, incentives and concern for employee job satisfaction are some of the factors that might effect the recruitment procedures.

5. It is necessary to modify and up-date the outline of job descriptions (duties and responsibilities at work) in order to maximise both employee involvement and individual efficiency.
6. Moreover, when job descriptions are well defined, high operational efficiency can be achieved throughout the management structure and in all areas of the system.
7. Different factors such as adjustments to curriculum, implementation of new courses, new requirements set by IMO Conventions, future needs in shipping, etc. have to be taken into account when striving for versatile and competent personnel aboard.
8. Each of these factors requires the existing organisational frame work to have not only a stable work force, but also the personnel with the capability to adapt the system to future national and international needs.
9. It is within the context of staff development that the skills of human resources can be enhanced, not only at the lecturer level but at the management level too.
10. Since staff development is now in its earliest stages of development in the system, it is necessary to emphasize its importance and role within the context of maritime education in Pakistan.
11. There are other factors related to maritime education, such as: the establishment of new courses in Pakistan Marine Academy, the investments required to implement these courses, the purchase of new equipments, books, etc. which require the development of long range organisational goals.

12. Although the programs based on strategic planning involve the participation and commitment of the (DG P & S) and PMA in Pakistan but it is fundamental to define and identify the practices and procedures that need to be in place throughout the organisation in order to achieve the overall goals.
13. Furthermore, it is essential to ensure that the new programs are fully integrated into the current objectives of the organisation, so that they can achieve the results desired, and be accepted and supported by all the people within the organisation.
14. While the implementation of new programs involves the participation of all in the maritime educational system. The evaluation process falls partly upon the lecturers when the students are at the academy, and partly upon the shipping companies, after the students graduate.
15. The development and implementation of follow up programs which include the active participation of both the Maritime Administration and partly by maritime industry in Pakistan.

They should provide the maritime system of education with the necessary feedback to improve and upgrade the standard of education which is the most significant factor in the success of this unique organisation.

## 2.7 CONCLUSION

In the last five decades the shipping industry has undergone radical changes in many different areas such as automation, computerisation, micro-processing and ship board management procedures. Therefore, it has become even more essential to upgrade and improve syllabi, courses for new officers to be

highly trained to operate modern vessels safely and economically.

The maritime system of education in Pakistan has to evolve a pattern which is compatible with requirements of the national shipping industry and the international standards of training not only today but which also meet these needs in the future.

The following chapters in this paper analyse each one of the factors which may evaluate the existing organisational framework and may be able to point out some of the weak points in maritime educational system in Pakistan and necessity of upgrading faculty in the PMA.

Moreover, you cannot think of upgrading an educational system without upgrading of its teaching faculty responsible for teaching/learning process.

## CHAPTER THREE

### STAFF DEVELOPMENT

#### 3.1 Objectives

In general when we talk about staff development we usually focus our energies on three main fields.

i. Instructional Development:

Which deals primarily with courses and curricula and aims to improve student learning through the redesigning of courses, preparation of learning materials and the systematic reorganisation of instruction.

ii. Organisation Development:

Which concerns creating an effective environment for teaching and learning, to improve interpersonal relationships, improving team functioning, and creating policies that support effective teaching and learning. This all helps in team building, decision making and management development.

iii. Personal Development:

Which directs its activities as teachers, and aims to help faculty members acquire knowledge, skills and techniques related to teaching and learning, e.g. interpersonal skills and career planning.

In PMA, however, the idea of staff development is two fold. Apart from achieving the above mentioned standard desired goals, PMA also intends to initiate a four year engineering

degree program for its engineering cadets. As such, the PMA needs affiliation with an engineering university, whose one pre-requisite condition is that the staff's qualifications be accredited by the engineering university/engineering council.

At present most of the PMA's engineering department staff members are maritime chief engineers holding First Class Certificates of Competency and vast sea-going and teaching experience to their credit, but these qualifications are not accredited by the engineering university/engineering council. Hence, before embarking on any staff development program in PMA, we should be clear that this initiated program should work hand in hand with of staff effectiveness as well as accreditation of staff's qualification by the engineering university/engineering council, otherwise the desired goals may not be achieved.

### 3.2 Concept

Staff development is a process which teaches the individuals how to be ideally effective. It also enhances self confidence and competence of the individual. It also cultivates in the staff such skills whose application will improve the efficiency and effectiveness to achieve the desired results. Hence all of this will generate a readiness (in individuals) to accept and promote innovation which is most pivotal for the self improvement of any individual or any institution to keep up-to-date with new changes in the field.

Staff development in turn also invites members of the system to participate in the formulation of the internal policies and thus a sense of sharing and togetherness is generated in individuals which contribute to the overall development of the institution. As such, staff development may be carried out regularly as a means of maintenance and an overhaul process. ✓

As such, it can be said that the aim of staff development is to establish a relationship between the individual and the organisation. It helps achieve overall efficiency, contributes to the life long learning process, and provides them with job satisfaction and pride of profession.

### Lecturers Training

Advancement in science and automation has given rise to complex integrated systems which require attainment of specialised knowledge. There was a time, say five decades or so ago, when supposedly life was easier and simple and relatively less radical changes in marine technology were observed.

As such any lecturer who had a good professional knowledge and a good teaching ability to his credit, was supposed to be a good teacher in marine engineering, because there was hardly anything new to keep up-to-date with.

Soon after this stagnation phase passed, the world saw radical changes in the maritime field. Today we see many technological breakthroughs in way of new innovations in marine engineering, maritime communications, ship handling and navigation which are the outcome of computers, micro-processors, automation and control and new satellite research. There are also other factors related to ship construction and strength, stability and cargo handling which had its overall influence on maritime education and training and thus promoted the need for updating of maritime lecturers. Hence any good maritime teachers training program cannot be blissfully ignorant about the rapid changes in the maritime field.

Thus the maritime institutions, and in turn teachers, will be naturally failing in their duty if they cannot teach the

latest techniques and methods developed in the concerned field of interest to the students.

An education system which is self centered in theoretical knowledge and which is without any outlet or link with outside world/ industry is unable to keep pace with the rapidly changing technology in the practical field.

Another practical drawback of teaching in such an education system is that it induces the lecturer to follow the path of least resistance in the matter of teaching and gradually becoming a part of the decaying process. As we know all human beings (except a few) lose initiative with the passage of time, especially when performing a monotonous job. Lecturers are no exception to this natural process and as such lose interest in their teaching and thus do not improve their teaching techniques and the quality of teaching material delivered by them. This immunity to innovation produces Letharginess in individuals and they are unable to deliver the good. Thus to produce good teachers we must keep track of innovations in the maritime field. PMA should initiate a post graduate training programme for lecturers.

#### 3.4 Constraints and Limitations of Maritime Lecturers

Lecturers in marine engineering are normally recruited from a group of practical marine engineers with Chief Engineers Competency Certificates.

It is still a debatable point as to what should be the criteria for selecting marine engineering lecturers in the maritime academies. But the importance of good maritime education and training for marine engineering lecturers is no doubt the need of the hour. It is also an accepted fact that teaching capabilities are quite independent of technical proficiency in any particular field but it is also a fact that a lecturer with a background of proper maritime education and training could produce much better results.



Thus the upgrading of maritime lecturers can hardly be overemphasised. Hence this should be an important part of the activities of any institution which is willing to provide sound maritime education.

Upgrading of the lecturers will ultimately upgrade the teaching standards of the institution and as such the end result (the student) would be of a higher standard. Upgrading of lecturers should therefore be carried out on a priority basis.

### 3.5 Short Courses

We had already discussed the importance of training for the trainers and as such nobody can deny its importance in any maritime institution worth its name. Even then however it is very difficult to convince any government to set up a proposed teachers' training institute because of the high financial cost. More so, because of uncertainty and recession in the shipping industry and also due to subsidies being provided, the government is not interested in any long term planning in the maritime sector.

In such circumstances it is advisable and sensible to arrange short courses for lecturers in the PMA itself. Visiting professors and other technical experts may be called for services of lecturers on various maritime topics for a specified period of time. WMU graduates in PMA should be of help in arranging such courses for staff. They could also share some of the load during the course.

Arranging such a course in PMA itself may cut off a major expenditure on building construction costs and administrative infrastructure costs and thus the government can be induced to support such a project. It may be a practical compromise to deal with this problem. All new lecturers in PMA may be given training in teaching psychology and didactics of teaching.

Faculty also should be made aware of dynamical changes in the field. Due importance should be given to safety and environment factors facing the world.

### 3.6 Scholarships

Scholarships may be arranged for PMA staff to be sent abroad for upgrading their qualifications. MSc (Engineering) courses could be arranged in different disciplines of engineering. Some members of the staff may also be sent for Extra First Class courses in UK. These are accredited by the Engineering Council, UK. Some staff members can be sent for chartered engineering courses which are held in "Southampton Institute of Higher Education", UK (and also by Engineering Council UK). These courses are accredited by the Pakistan Engineering Council. These courses could be arranged in different disciplines of engineering as per the requirement of the faculty.

There are a number of universities and polytechnics in the UK who cater to upgradation of marine engineering qualifications. Some of these institutions are as follows:

- i. Liverpool Polytechnic (UK)
- ii. London Polytechnic (UK)
- iii. Plymouth Polytechnic (UK)
- iv. Southampton Institute of Higher Education (UK)
- v. University of Surrey (UK)
- vi. University of Wales Cardiff (UK)
- vii. Glasgow University (UK)
- viii. Strathclyde University (UK)

The Institute of Marine Engineers in the UK is also launching an open university project. Under this project honours degrees (engineering) awarded in different disciplines of engineering are recognised by the Engineering Council.

Holding a First Class Certificate of Competency, the candidate may be able to claim one advanced standing credit, leaving seven credits to be obtained. Some of the members of the staff who are also members of the Institute of Marine Engineers (UK) can easily utilize the services of this open university through the above mentioned institute.

The Pakistan Engineering Council should also arrange some sort of oral examination for accrediting the First Class Competency Qualifications of the PMA's staff. Special exemptions may be granted on the basis of professional examination, sea experience, and maritime teaching experience. Those staff members with fifteen years maritime experience (with First Class Competency Certificates) and five years maritime teaching experience, may be accredited directly to help developing faculty.

Even affiliated Engineering Universities should give some relaxations for the first ten years from the birth of a new faculty as a grace period to develop and build the required faculty in PMA. It has been observed by experience that to develop a faculty worth its name requires patience and hard work. Any haste in this direction may not produce the desired results.

The Pakistan Engineering Council and Engineering University should cooperate and coordinate in this venture of national importance. Patience, perservance and understanding could lead to the desired goals.

### 3.7 World Maritime University

PMA engineering department lecturers should be sent to WMU every year to upgrade their qualifications. WMU has facilities in maritime education of excellent dimensions.

The objectives of WMU are self explanatory as per this quotation from Mr. C.P. Srivastava (ex Secretary General IMO and present Chancellor of WMU). He says "WMU provides a critical element now missing but necessary for a coherent and comprehensive system of training and education, an international centre for advanced study for high level specialised personnel in developing countries including maritime teachers, surveyors, inspectors, technical managers and maritime administrators. The World Maritime University provides a pivotal link in the international system for training in the maritime sector. It complements, supplements, and strengthens the training activities now being carried out in the developing countries. It is a unique institution which offers an advanced level of training in a number of different maritime fields at a single institution which is presently not available elsewhere."

The World Maritime University has introduced since 1983 the maritime education and training courses for lecturers in maritime education and training institutes. The courses are divided into two fields, namely: nautical and engineering. Each course consists of the best obtainable balance of classroom work and practical training experience. There are over one hundred and fifty distinguished visiting professors attached to the university from all over the world. The field training includes as wide a practical experience as can be gained from visits to maritime training institutions and visits to centers of advanced maritime technology in a number of countries which provide the facilities for such training.

Based on the foregoing statement, it may be observed that a very suitable institution available for providing advanced education and training in the maritime field for the development of lecturers from any developing country would be the World Maritime University.

After a new lecturer is recruited and subsequently found suitable to continue in his assignment at the academy, he ought to be developed into an effective teacher and thus provided with higher education and training by the academy to raise the academy's status as an institution.

### 3.8 Seminars, Conferences and Workshops

Seminars, conferences and workshops are only useful if teachers participation is two folded, i.e. as a teacher and secondly as a learner. If the participant looks from both these perspectives then he gains appreciably. The objective of these seminars, conferences and workshops should be set clear to all teachers. Experts and intellectuals from the related field should be engaged and teachers should involve themselves in free and open discussions. Topics selected should be such that they are of practical nature, problem centered and innovative. These activities change the outlook of individuals and widen the horizon. As such it gives new dimension to the concept of staff development. PMA needs more of such activities to embark higher levels in education.

### 3.9 Incentive to Staff

Staff should be encouraged to specialise in their field of interest to upgrade their qualifications. They can take short courses like management, computer science, tanker safety, fire fighting, automation, to name a few.

Self updating staff may be given incentives by way of granting facilities such as leave and compensation for fees, books and other expenses. Loans for computer acquisition may be arranged. Incentives in way of additional allowances for extra qualification may prove to be a great moral boost for staff to upgrade themselves. Otherwise stagnation in the attitude of staff may lower the learning process in general and overall

standards in particular.

### 3.10 Affiliation with International Universities/Institutes/ Councils/Associations/Industry

It is worth mentioning again that self-centered education is like building a castle in the air without permanent roots and it normally does not work when put to practical applications.

Therefore it is very necessary to establish and maintain a regular and cordial communication with universities/institutions/professional councils/associations and related industries within the country as well as abroad. This would facilitate some academic programmes like exchanges of scholars among different institutions, advanced studies and training of lecturers from the developing countries by the institutions of the developed countries, provision for experts from other institutions coming and delivering lectures as visiting professors. Publications and bulletins of professional councils and associations may help lecturers to keep up to date on knowledge of the latest trends in technology. These publications and bulletins may provide food for thought for innovative dynamic research in the field.

It is also feasible to have technical assistance programs out of the contacts established with other renowned institutions of the world.

Here, to quote as a good example, it may be mentioned that the Arab Maritime Transport Academy (AMTA), Alexandria is enjoying close coordination with the following academic institutions:

1. The State University of New York Maritime College - USA
2. Engineering & Maritime Institute, Warnemunde - GDR
3. The World Maritime University, Malmö - Sweden

4. The Netherland Maritime Transport Institute, Amsterdam - the Netherlands
5. University of Wales, Cardiff - UK
6. Strathclyde University - UK
7. Glasgow University - UK
8. Southampton University - UK
9. London Polytechnic - UK
10. Plymouth Polytechnic - UK
11. Liverpool Polytechnic - UK
12. South Shields Marine and Technical College
13. Columbia University
14. University of Pennsylvania
15. the American University, Cairo.

(Source: "Arab Maritime Transport Academy", by: Captain El-Shwarby, AMTA, Alexandria, the printed prospectus of the Institute)

### 3.11: Research Programs

Research programs in any institution can play an effective role of upgrading lecturers of that institution. All lecturers should be generously encouraged to undertake research activities in their concerned field, thus they may be able to produce teaching material and publish text books on concerned topics. Also modernisation and modification of teaching techniques could be achieved. This may breed a number of advantages which will be useful in many areas of activity of the institution. Not only will the lecturers extend their horizon of knowledge in their respective spheres while pursuing the research work, but it is bound to give positive results in the quality of teaching, for which the students will be benefitted. Such research can contribute and help the concerned industry in solving their problems. PMA can act as consultant and adviser to the industry on various matters, thus opening up a congenial and cordial relationship between

the academy and industry which is an absolute necessity for each of them. Apart from the handsome dividends earned by the academy in way of research programs for industry it will also help the academy in many other aspects, such as:

1. It will keep the academy aware of the practical needs of the industry and this could be termed as one of the objectives of the academy.
2. It will help the academy to be one step ahead of the industry.
3. It will prove to be financial support for the academy's development programs, thus it could start some projects on their own.
4. Research of formidable nature may raise the overall image and prestige of the academy in education field.

### 3.12 Study Leave

Any good research program requires plenty of time and concentration. Time should be generously provided for teachers involved in research work as it improves teaching and the research program.

Sometimes institutions should organise study leave in other developed countries where a teacher could work with other counterparts of his field. This usually boosts up the research program.

Study leave could also help teachers in the preparation of their courses by helping teachers to update their knowledge. It is important to provide teachers with this time at an early stage in careers. Giving them more confidence will help them to be well groomed teachers of the future.



Study leave can prove to be an incentive for research. The institutions with good research background can lead to higher standards in education.

Study leave in different countries can have a very good impact on the teacher. It is a sort of "renewal" without sacrificing income or time. In such study exchange programs, the teacher remains a teacher but with different circumstances such as a different city, a different environment, new colleagues, new procedures and different students. These differences tend to overshadow the unchanged fact that one is still the same teacher but with a different approach and exposure to his credit which would ultimately keep him and students in the process of learning and teaching.

### 3.13 Short Sailing Trip

Maritime lecturers should always be encouraged to undertake short voyages on board ships of the national shipping companies after every three or four years of service. This would give them an opportunity to be conversant with the latest design and layout of shipboard machinery and the operational and maintenance aspects concerning them. Thus the student in turn will get to know the modern version of ever-changing marine machinery which they are expected to come across when they start their career at sea.

These short sailing trips may prove to be a financial aid to teachers. They may also act as a refresher course and up-date their knowledge which is always essential in any education and training program.

### 3.14 Center of Excellence for Educational Staff Development

If you look back at the history of great institutions with high traditions you may see a history of perseverance, patience and sincere efforts behind them. But one thing is

common in all of these great centers of excellence. They all started with a humble beginning.

The author is exposing some considerations concerning the establishment of a Maritime Center of Excellence to provide advanced education and training for specialised maritime personnel and the upgrading of courses for maritime officers as required by the IMO and to cope with this situation to upgrade staff development programs in PMA.

Hence to initiate such a project we could visualize:

1. Utilize the infrastructure existing at PMA.
2. To start various courses related to the maritime field.
3. To train adequate personnel to import the courses to be implemented.

#### 3.14.1 Purpose and Goals

The establishment of a Maritime Center of Excellence will provide the necessary means to develop systematically not only the maritime education in Pakistan but the maritime industry in general as well.

First of all, this center would help to develop the personnel for maritime education (i.e. faculty development) upgrading the standard of maritime education in Pakistan.

Secondly, the center would help to develop specialised maritime personnel serving the maritime industry and developing maritime national policies.

The scope and size of the activity of the new

institution will depend on the range of expectations and the responsibilities PMA wishes the new institution to carry out.

The author has considered the establishment of such an institution to be divided into four stages of development.

1. Educational Staff Development
2. Maritime Educational Development
3. Maritime Industry Development (National)
4. Maritime Industry Development (International)

The following outline describes briefly each one of the four stages.

1. Educational Staff Development:

At this stage, the main purpose of the center will be to work upon the staff development problems in the organizational system of maritime education in Pakistan:

- To produce the required training policy which is understood and supported by employees at local level.
- To work together with the personnel departments to produce manpower plans and job descriptions/specifications for the whole organization.
- To plan the overall program of the courses to implement taking into consideration all the training resources available (facilities, equipment, personnel, time, etc.).
- To implement the different courses considered in the training program.

2. Maritime Educational Development:

The second stage of the center will have as its main objective the identification and work upon the major problems in the maritime educational field by:

- Providing a training advisory and information service for faculty working in the organization.
- Undertaking projects and studies to improve the quality and efficiency of the undergraduate program.

3. Maritime Industry Development (National):

Once the internal training needs of the organisation have been considered, the next step will be to take into account the national and international requirements for personnel working in the maritime field.

At present, most of the upgrading courses required by national and international regulations are in the process of implementation in PMA. Therefore, the main objectives at this stage will be:

- To concentrate all the activities related to the upgrading inside the Maritime Center of Excellence and develop standardised courses at reduced financial cost.
- To conduct research and thus to identify further training needs for the personnel working in the maritime industry, as requested by the different companies.
- To design and implement tailor-made courses based on the training needs mentioned above.

#### 4. Maritime Industry Development (International):

The fourth stage of development of this center will be to extend its area of action to regional countries around Pakistan. At this stage of development, the center would have the required capabilities and facilities to undertake such a commitment. Basically courses developed should be primarily the same as maritime industry requirements but due consideration may be given to restructure the courses to allow the standardised practices prevalent in the maritime industry of the region.

### 3.15 Organization and Activities

It is suggested in this, the last section that the Maritime Center of Excellence should be established in four stages of development, by following the same approach. The organisation and activities of the Center should also be established in four steps.

#### 1. Educational Staff Development:

- The present infrastructure of PMA should be utilized for the Center.
- Most of the personnel working in PMA could be utilized to start the primary functioning of the center.
- It will be necessary to upgrade the present library in PMA with enough publications in the field of education and maritime field.
- The experience of those Pakistani's who graduated from WMU could be utilized to design, structure, and organise most of the courses to be taught. In this regard the

services of ex-WMU graduates working in other organisations may be sought as visiting faculty members.

- External consultants could be utilized to design those courses which cannot be designed internally.
- Summer vacations could be utilized to design the new courses.

## 2. Maritime Education Development:

- The Center could be the focus of current knowledge and research on all aspects of maritime education in Pakistan.
- Seminars and workshops could be implemented with the advise of IMO not only at the national level but at the international level as well.
- The Center could also work upon the design of booklets, manuals and handouts to be used in each of the lectures or subjects of the curriculum for deck and engineering courses.
- The liaison with external training and educational institutions in order to become the organization's link with other national and international establishments should be made in this Center.
- All these activities should be organized along the school year and with enough time to achieve the different goals.
- Personnel who graduated from WMU should be in charge of that planning.

### 3. Maritime Industry Development (National):

- The personnel required to conduct updating and upgrading courses is available at present. Some of these courses are conducted in PMA.
- The centralization of these activities will allow the organization to select the best personnel in the field available.
- Furthermore, with the establishment of courses for faculty development, the personnel should have even better qualifications.
- In addition to the courses being currently conducted, more courses could be implemented to increase the standard of maritime industry.
- It will be easier for the organization to purchase laboratory equipment because PMA already has many of the laboratories and workshops required for this project.

### 4. Maritime Industry Development (International):

- The organization should be made in a similar way as that in WMU, that is, lectures, seminars and field trips.
- The courses should be short, of six months and one year duration. Only specialised new subjects should be taught.
- The project work should be separated from the regular courses. Students who are commissioned by their governments to carry out a research project could also attend some of the lectures in which they are interested, or which they need to complete some areas of their research.

- The resident faculty should be selected from WMU graduates. Services of some regional professors could also be utilized as visiting professors. Experts in different maritime fields can be selected.
- Being regional center assistance could be sought through international agencies like IMO and UNDP.
- Regional countries could also contribute to finances by admitting their students and sharing the expenses in the Center as fees.
- Scholarships may be awarded to the poor nations of the region.
- In the case of a multinational establishment, the problems are not as easy as they might be within the national context. In order to obtain international validity and support, it will be necessary to revert to international organization such as UNDP and IMO.
- The courses which have been mentioned to develop the maritime education and in general the maritime industry in Pakistan, should also be integrated with the national system of education.
- Consideration of fulfillment of the national regulations in the newly implemented courses is necessary.
- The support and approval of other international educational institutions (such as WMU) to the courses be obtained via the international organisations such as the IMO.



HUMAN RESOURCE MANAGEMENT

4.1 Introduction

It is axiomatic that no organisation can achieve its results other than through people. It is also important that the right people are available with the appropriate skills whenever and wherever they are required and when they are in position they perform. This maxim is supported by the ILO's observation that "man is the pivot of economic and social progress," but he cannot contribute to national development if he lacks qualification or if he is badly utilized. These perceptions are rather forceful in justifying the utilization of the concept "human resource management" in the maritime industry in general and in particular satisfying the education and training requirements.

4.2 Scope of Human Resource Management

The process of human resource management is an ongoing process, not static, and involves many inter-related activities. The plan must be modified and updated as conditions require. In more specific detail, it involves the planning, development and implementation of human resource programs to include activities such as:

1. Forecasting future manpower requirements either in terms of mathematical projections of trends in the economy and developments in the industry or of judgmental estimates based on specific future plans of the organisation or enterprise.
2. Inventorying present manpower resources and analysing the degree to which these resources are optimally employed.

3. Anticipating manpower problems by projecting present resources into the future and comparing them with the forecast of requirements to determine their adequacy both quantitatively and qualitatively.
4. Planning and managing the necessary programs of recruiting, selection, promotion, training, motivation and compensation so that the needs of the enterprise can be met.
5. Human resource planning enables the organisation to cope with changes in technology, competitive forces, markets, and government regulations. Such changes often generate changes in job content, skill demands, number and types of personnel. Shortages of people may be included in some areas while surpluses may occur in others.
6. Different types of personnel employed in many modern organisations have shifted towards the high talent occupation and there is often a scarcity in this group. The lead time required to hire and develop such personnel is long and the enterprise can be vulnerable if there is a shortage. Planning is therefore necessary to avert this element. Also technological changes often upgrade and downgrade some jobs. These considerations should be included in human resource planning.

#### 4.3 Human Resource Management in Maritime Education & Training

Prior to 1970's and into the 1980's the acute shortage of qualified and experienced maritime personnel was the theme of those organisations and institutions involved with the employment, education and training of personnel for maritime functions. However, after 1981, with the decline in shipping and the proportional reduction in the number of seafarers required to operate the remaining fleet and without adequate

and appropriate adjustment of the education and training pipeline would continue to produce qualified staff at a rate which was much higher than the existing demands of merchant fleet. Simultaneously, due to the prevailing effects of the worldwide recession the customary high turn over of seafarers to shore based employment was also absent. This situation makes promotion and career development afloat and ashore very sluggish.

The effect of such situations was felt everywhere: maritime institutions were no exception. Even some of the institutions had to close. Those who survived had better human resources planning to their credit.

Now, with signs of a rise in shipping the future policies and planning regarding human resources to be done before hand so that the institutions may not be effected by rise and fall of demand of personnel.

The objective of this chapter is to provide a systematic and simplified procedure for human resource management which can be applied to the maritime educational system in Pakistan in order to overcome the challenge of obtaining and maintaining an effective work force.

Figure 4.1 indicates the framework utilized in this procedure. The model represents an outline of the close relationship between the four areas. These can be established as follows:

1. Job Analysis:

The information obtained in this area can be utilized to define the capabilities required to perform current and new jobs in the organisation. Furthermore, this data will be essential to the development of a human resource program.

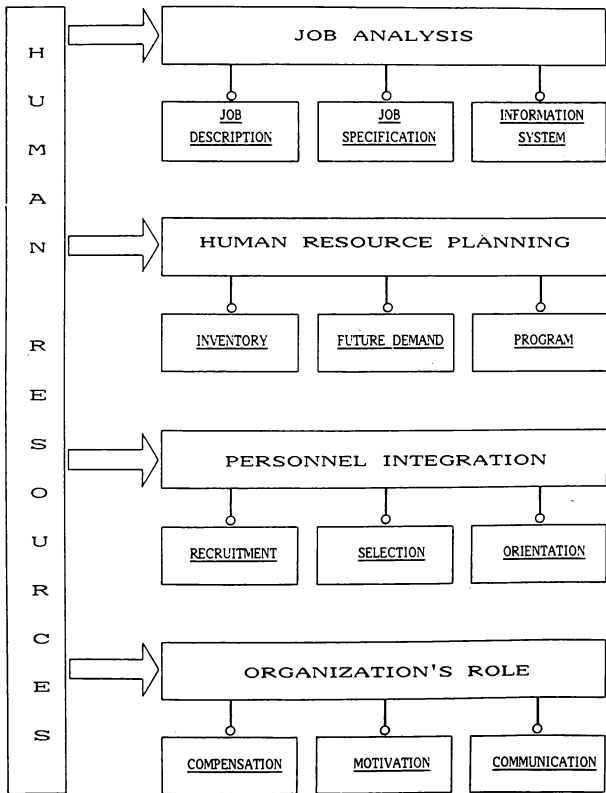


FIG. 4.1 HUMAN RESOURCE MANAGEMENT MODEL.

2. Human Resource Planning:

This step is taken to determine both the organisation's present needs (inventory) and the need for additional human resources due to expansion or growth (future demand).

3. Personnel Integration:

This stage is the practical application of the human resource programs. Therefore, it is necessary to implement this step in accordance with the results obtained when planning.

4. Role of Organisation:

It is the task of the organisation to support all three steps referred to above in order to meet its manpower needs. Moreover, it is necessary to establish the required policies to:

- a. Allow realization of each individuals full potential and self satisfaciton.
- b. Achieve a stable employee force which is in the interest of the organisation and the country.

4.4 Job Analysis

As stated before it is necessary to modify and update the outline of job descriptions of the maritime system of education in Pakistan. The reasons, can be summarised as follows:

- a. The collection of the job analysis information was carried out with a minimum of consultation with the personnel.
- b. There have been some changes in the organisation since then.

#### 4.4.1 Collection of Job Analysis Information

The collection of information required to develop job descriptions and job specifications can be obtained in two parts.

Part 1 - General understanding of organization:

- a. purpose (education, different levels)
- b. design (organisation chart)
- c. procedures (lines of communication and delegation)
- d. output (new officers, ratings, etc.)

Part 2 - Identification of jobs:

- a. job analysis (organisational chart)
- b. employee observation (human characteristics informal approach)
- c. work place observation (working conditions, informal approach)
- d. questionnaire development (job analysis schedules)
- e. information collection (interviews, concounselling, etc.)

There is no one way to gather all this data. Most of the time the analyst presents to the organisation an evaluation of the trade-offs between cost, time and results associated with each method. In this particular case the decision of adopting and implementing one method or some combination of them will rely upon the technical committee set by PMA.

#### 4.4.2 Job Description

A job description is a written statement that explains what the job holder should do (duties) and the way in

which the organisation wants him/her to do it (responsibilities). Basic forms may be used to develop clear and comprehensive job descriptions.

Furthermore this pattern may be subdivided into different levels at each stage if the organisation wants to go beyond this basic statement. Therefore, entries that overlap the contract of employment, training purpose entries, equipment, products or services involved, can be included.

#### 4.4.3 Job Specification

Job specification is the second stage in building up a human resource information system. While the job description defines the way in which the job should be done (duties and responsibilities), the job specification details the demands which are required by the individual (human factors) in order to carry out the duties involved in the job. These requirements can be classified in three groups.

1. Education:

Academic level (high school, college, university) and training (courses on-the-job training).

2. Skills:

Experience (previous jobs, assignments in the same department), physical demands (coordination of senses, strength).

3. Attitudes:

Mental demands (initiative, patience), hygiene (personal, environmental).

Forms for job specification may be used. Nevertheless,

this pattern may be used so that the organisation can determine more accurately the physical and intellectual abilities that are needed.

#### 4.4.4 Human Resource Information System

All the efforts (time and money) spent in developing questionnaires, collecting information, designing appropriate patterns of job descriptions/specifications and organizing the data in a way which is ready to use, these are factors that must be taken into consideration when building up a human resource information system. Notwithstanding, time and money are meaningless when compared to the benefits. The following statements will help to contemplate some of these advantages.

1. Job Holder

The employee will have a better understanding of his work. Consequently, he will be more involved and effective.

2. Department Manager

The manager will better understand the performance standards. As a result, evaluations can be made with possibilities of growth, advancement and employee recognition in his/her department.

3. Organisation

The organisation will achieve a higher operational effectiveness in general. Specifically in terms of:

- job design/redesign
- performance standard establishment
- safety standards practice
- human resource planning



- evaluation development
- reward systems
- post hierarchy
- staff development guidance

Topics related to human resource planning and reward systems will be discussed in the following sections of the present chapter, while the matters related to staff development was discussed in Chapter 3.

#### 4.5 Human Resource Planning

In the last decade or so, the maritime system of education in Pakistan has undergone several changes which have been explained earlier in Chapter 2. Therefore, it has been a difficult task to ensure that the system has an adequate supply of human resources at all levels year after year.

Based on the considerations expressed in Section 4.4, once information system of the organisation is implemented. The following step will be to develop a human resource planning program.

In order to establish a manpower planning system in the organisation, it is necessary to take into account the following:

1. Inventory of the current human resources at work.
2. Future potential of these individuals.
3. Future demands of the system.

##### 4.5.1 Human Resource Inventory

The inventory of human resources is carried out with

the purpose of knowing not only the number of employees within the organization but capabilities found in the organizations work force. Therefore, it is essential to evaluate each employees skills and abilities so that an accurate appraisal can be conducted.

This information will allow the analyst (planner) to contemplate the particular potential of each employee so that the individual in question can be reassigned to new posts, transferred or promoted.

On the other hand, there may be possibilities of retirements, resignations, or deputations, which have to be taken into account.

The basic steps of developing an inventory of human resources can be summarised as follows:

1. to establish the personnel census
2. to establish evaluation systems (based on job analysis questionnaires)
3. to classify the human resources (according to job requirements and according to employees abilities and skills
4. to determine the inventory

#### 4.5.2 Future Needs in Human Resources

The future demand for the staff of an organization can be considered in two parts:

1. Short-range Needs  
To identify job openings that must be filled during the coming year. These needs may be found when doing the inventory, e.g. resignations, retirements and future promotions.

## 2. Long-range Needs

To estimate the human resource situation in the following two to five years. These needs may be caused by organisational demands (strategic plans, growth, retirements) or by external demands, i.e. economical, technological.

The process of estimating future demand in the organisation can be summarised as follows:

1. Formulation of future organisational charts (based on strategic plans).
2. Determination of job descriptions/specifications for new posts.
3. Estimation of future vacancies, caused by retirements or leaves as accurately as possible.
4. Grouping and classification of future needs (short/long range).

Although, the process of estimating future human resource needs can be described in four lines, human resource forecasts need the adoption of methods which might range from informal to sophisticated. The results obtained from these methods are approximations which can be useful to the organisation when implementing human resource programs.

Taking into consideration the size of the maritime system of education in Pakistan, its management structure and its configuration, the author has adopted from the literature available a method which might be useful in the organisation. This method can be summarised as follows:

1. A coordinator should be selected to be in charge of the process. It would be preferable to select a person from within the organisation because of his/her understanding of the jobs, policies and procedures of the system.
2. The coordinator has to start surveying department managers because they know their departments best. This step may show the coordinator the short range needs of each department.
3. These results have to be compared to past trends, so that the coordinator can apply his/her knowledge, experience and criteria. For example, one full-time lecturer for ten or twelve students, one secretary for every twenty five students, one laboratory technician for every twenty or twenty five students.
4. The next step is to contemplate strategic plans of the organisation for the coming two or three years. This will have two purposes:
  - a. to take into consideration new organisational charts, e.g. new functions, new divisions.
  - b. to make a second survey at each department, for managers to estimate their manpower needs in accordance with overall long range objectives, e.g. new functions, expansion.
5. After this, it will be necessary to hold a meeting with the faculty members and administrators of PMA and the Seamen Training Center (STC). At this stage the coordinator could present the results obtained from the first and second survey and from past trends as well in order to obtain a final result.

6. This process can be repeated from point two to point five in order to obtain a more accurate forecast. Nevertheless, the time and money invested may not justify the gains in effectiveness.

#### 4.5.3 Human Resource Program

At present the maritime educational system in Pakistan situated at PMA and STC provides education and training in the following fields:

- a. Training officers for merchant fleet (Engineering/Deck).
- b. Mandatory short courses as per STCW requirements.
- c. Preparing for competency examinations such as second engineer/chief engineer (also nautical competency examinations).
- d. Training for ratings.
- e. Upgrading courses for officers for Deck/Engineering (proposed).
- f. Staff development (proposed).

Basically, the officers and ratings trained in this educational system will be employed on board ships, but they may also serve the needs of maritime industry.

These trained officers may also be groomed for future faculty in these institutions.

The reasons, argued by the author, for focusing the human resource programs mainly on educational necessities are the following:

1. The wide range of educational activities covered by the Pakistan system of maritime education.

2. The lack of available maritime personnel to perform part time activities in the system, due to the nature of their jobs.
3. The possibility of obtaining administrative personnel for maritime academies.
4. The availabilities of human resources to perform clerical or secretarial duties in maritime academies.

Furthermore, it will be necessary to consider the staff development needs. This process should include the following:

1. Training required by new comers to the organisation in order to perform their jobs properly.
2. Training required by existing personnel in order to perform their jobs properly.
3. Training required by personnel who might be promoted or transferred.
4. Training required by existing personnel so that new organisational procedures might be introduced.
5. Grouping and classifying the staff development needs.

In this way, the program of human resources can be summarised as follows:

1. Short/Long-range Needs
  - a. Potential promotions/transfers.
  - b. Personnel requirements.
  - c. Training requirements.

## 2. Schedule

- a. Possible dates of transfers/promotions.
- b. Required time for training.
- c. Possible dates of integration.

## 3. Classification

- a. Hierarchy of needs.
- b. Classification of training needs.
- c. Budget calculation.

The adoption of human resource programs may be a difficult decision to make because of the time and money required to carry them out. Nevertheless, at subsequent programs these parameters (time and money) are reduced by the experience acquired during the first program.

### 4.6 Personnel Integration

Personnel integration is a stage in the process of human resource management which represents the application of results obtained in the human resource program. As a consequence of implementing this step properly, the maritime system of education in Pakistan will have the possibility of achieving a stable supply of personnel which is highly competent.

The present section has been divided into three parts, recruitment, selection and orientation programs, according to the model presented at the beginning of this chapter. Moreover, its main objectives can be summarised as follows:

- To achieve the timely incorporation of personnel, according to the forecast of the human resource programs.

- To carry out the reassignments, transfers and promotions established in the program to fill job openings (internal supply).
- To assure the suitability of new personnel (external supply) and their proper orientation into the system.

#### 4.6.1 Recruitment

This is the process of finding and attracting capable applicants to apply for employment. This process covers the period from the initial seeking of new recruits until the submission of applications. Recruitment procedures may vary from organization to organization. In the particular case of this paper, the process can be briefly described as follows:

##### - Recruitment Sources

The shipping companies in Pakistan are one of the best potential sources of applicants to fill the job openings created at lecturers level (specialised support personnel)

##### - Specific Recruitment Sources

Among the shipping companies there is the possibility to identify the most suitable source of recruitment, taking into account the specific needs of the organization, e.g. the relationship between the subject to be taught and the type of ship on which the potential applicant is working.

##### - Information Mechanism

It is essential to develop, within the context of the organization, information mechanisms so that the potential applicant may know the job, the benefits, and how to apply for the position. This information



may consist of one or two pages, so that it may be posted at the maritime academy and at other relevant places.

- Recruitment

The applications might be collected in accordance with Federal Public Service Commission Rules in Pakistan. However, they might be constrained for several reasons, some of the most common constraints found in the maritime educational system in Pakistan.

1. Pay Policy:

Until now, the salaries offered in the system are much below the salaries offered by shipping companies. Moreover, they are the lowest among the other related organisations such as PNSC, KPT, PQA, and other private maritime organisations.

2. Human Resource Plans:

The future needs in human resources are estimated in a subjective way. Moreover, this appraisal may be affected when the budget is accepted.

#### 4.6.2 Selection

This is the process used to decide which applicants should be hired. This process covers the period from the point at which recruits submit their applications to the moment the hiring decision is made. The required steps to properly complete this operation are the following:

- Receipt of Applications  
To compare job descriptions/specifications with those capabilities described on each application form.
- Verification  
To obtain relatively objective information about the applicants that can be compared.
- Interview  
To evaluate the applicants acceptability. In this case an interview is held before a FPSC board which allows a two way exchange of information.
- Evaluation  
To compare the applicants capabilities after interview. This step must take into account the three earlier steps.
- Hiring Decision  
This marks the end of the procedure. The suitable candidate is notified and notification is made to the other applicants.

For the proper application of the process to the scope of this paper, the following can be highlighted.

- a. PMA is the only maritime education and training center which gives pre-sea training to merchant fleet officers.
- b. Therefore, the background of each officer concerning education, can be obtained from PMA if he is an ex-PMA graduate. Furthermore, the recruitment and selection processes can be focused on those officers whose educational background are the best.

- c. The only step left to verify is the sea experience obtained and to evaluate the speaking ability and personality of the applicant.

#### 4.6.3 Orientation Program

This programme helps new employees familiarize themselves with, and understand the social, technical and cultural aspects of the work place.

Furthermore, they help employees comprehend what will be important to their job success and speed up the socialization process and acceptance into the work group.

From the literature available, the author has developed an orientation program which can be utilized within the context of the maritime educational system in Pakistan. The program has been divided into two parts:

##### Part A - Personnel Department's Role

###### 1. Brief Lecture About Organizational Issues

To explain and identify policies, job relationship, and key executives (names, departments). In this session, the worker should be given an employee handbook which describes the policies and benefits of the organisation, a copy of his job description/specifications and a hand-out which comprises the information in a few pages.

###### 2. Brief Discussion About Employee Benefits

To talk about pay scales, pay days, vacations, holidays, working hours, rest breaks, incentives, promotions and training, and development benefits.

### 3. Closing Session

To answer some questions which the new employee might want to have answered.

### 4. Tour of the Institution

To visit classrooms, laboratories simulators and to meet some of the managers or employees. The tour should end with a visit to the work place and the introduction of the new worker to the department manager.

## Part B - Department Managers Role

### 1. Introduction to Co-workers

To initiate the socialization process and acceptance into the work group.

### 2. Job Duties

The new employee should be given an overview of the work performed in the department, making emphasis on his particular duties, the relationship to other jobs in the other department and the job safety requirements.

### 3. Introduction to Trainer

This will mark the end of the orientation program and the beginning of the training program.

## 4.7 The Role of the Organisation

Here it is essential to highlight the procedures involved in maintaining a stable labour force which, according to the author is a prerequisite for the development of the organisation.

In order to emphasize the role of the organisation in

completing the human resource management program, as well as to facilitate the appreciation of the process this section has been divided into three parts: Compensation Programs, Motivation Systems, and Employee Communication.

The organisation of this type follows to a certain extent, the model of Maslow's hierarchy of needs, in which it can be assumed that the individual works to fulfill a series of needs. Furthermore, since all needs cannot be expressed at once, they tend to have some priority in which they find expression. Maslow's hierarchy of needs are classified in the following categories:

a. Physiological

The basic need for food, clothing and shelter.

b. Safety

The need for security, continuity and protection against anything that threatens an organized orderly existence.

c. Social

The need to belong and be accepted in a social context.

d. Esteem

The need for recognition by others or a personal sense of growth and achievement.

e. Self-fulfillment

It is only met when people become what they consider to be the maximum they are capable of becoming in life.

For a specific time and circumstance, different people within an organization are dominated by different needs, therefore, the maritime system of education in Pakistan should focus on the basic conditions to fulfill their needs in order to maintain them. The following parts of this section contemplate some of these approaches.

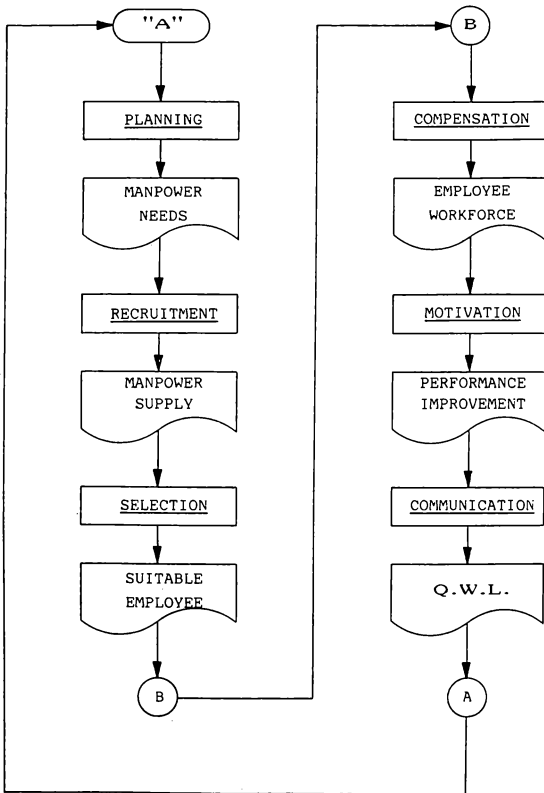


FIG. 4.2 FUNCTIONAL ORGANIZATION OF HRM PROGRAMS.

#### 4.7.1 Compensation Programs

Compensation is what employees receive in exchange for their work. When proper compensation is made, employees are more likely to be satisfied toward organisational objectives. When wages and salaries are not administered properly, the organisation may be affected in one of two manners:

- the employees performance will decline dramatically,
- the employees will search for a higher-paying job.

The main reason, to the aforesaid reactions, is that the employees basic needs (physiological and safety needs) are not met. Therefore, all the money spent in human resource programs (recruitment, selection and development) may be lost.

Within the context of the system of maritime education in Pakistan, the salaries are lower than any other shore based maritime organisation.

In order to implement a compensation program within the system, it will be necessary to follow the following steps:

- To correct the job descriptions outline, so that the information utilized in evaluating jobs is accurate and up to date.
- To evaluate the jobs, in order to obtain the ranks for each post and to set their basic salaries accordingly.
- To evaluate individual personal skills so that the employee can be differentiated from the others because of his loyalty experience or abilities.

Compensation programs should be based on objective measures rather than subjective ones, those measures should include conditions where pay can be effectively related to performance.

The following is a basic example of a mixed compensation program model:

1. Group Plan

- a. Job Salary (from job description)
- b. Tax (tabulated)
- c. Saving Funds (to be paid quarterly)
- d. Social Security (Tabulated)
- e. Insurance (Tabulated)

2. Individual Plans

- a. Seniority (5, 10, 15 or 20 years bonus)
- b. Education (BSc, MSc, PhD bonus)
- c. Training (pedagogy, human relations); a bonus for those who participated in such course.

The inclusion of individual plans in the compensation program will help to develop a flexible, relatively permanent work force that is oriented towards loyalty, learning, growth and development. Moreover, the aforesaid measure will deviate the organisation from the hierarchical system which generally pays people greater amounts of money as they move higher up the organisation, in order to retain specialised support personnel and experts in non-management roles or lower level management roles.



#### 4.7.2 Motivation Systems

Once the basic needs of the individual have been contemplated in the compensation program, the next step will be to consider the needs that might effect the performance of employees in the organisation.

Motivation is a function of understanding those needs that can influence individuals to perform in a particular way so that they contribute to the effectiveness of the organisation. Therefore, an organisation that is able to tie valued rewards to the behaviour it needs to succeed is likely to find that the motivation system is a reinforcement to its structure and development. Motivating employees is the most difficult daily task that managers may face because of the problems involved in finding out what their needs are at that specific time and place.

Furthermore, the managers might have limited flexibility in offering rewards due to the constraints arising from the organisation itself.

When trying to adopt a motivation model, the organisation should take into account the different jobs performed in the system. Moreover, it will be essential to highlight the following:

- Rewards must be based on objective measures so that results will not be negative.
- Rewards must be given periodically so that high performance continues for a long period.

There are many ways to motivate people to perform better. Nevertheless the author has chosen those

examples that, according to his experience, can be utilized within the context of maritime education in Pakistan to improve employee performance.

- Recognition:

After evaluating instructors performance by way of exam results in their subjects by university and also by students every year, it would be nice to give diplomas of recognition to the best instructor in each group (say four groups in the Academy).

Moreover, it would be possible to give small gifts such as pocket calculators, tie pins, ties, etc. to them as well as to those in the second places.

This act could be carried out in a ceremony with students, staff personnel and their families.

- Money:

In the same way, bonuses could be included in the wages, to those whose performance has been excellent. These bonuses should be given every month to the instructor until the next evaluation is made.

- Work Itself:

The best performer should be given priority in the selection of their subjects or arrangement of schedule in order to achieve better effectiveness, e.g.

a. one instructor may want to teach ship construction to different groups year after year to improve his performance,

b. on the other hand, one instructor may want to teach during morning hours from 0800 to 1000 or during the afternoon.

- Advancement:

Depending on the instructor, the motivation reward can be translated into promotions, special assignments or new responsibilities to obtain more experience.

- Personal Growth:

Some instructors may be motivated to perform above the standards just because they may obtain fellowships or the opportunity of attending seminars or courses as representative of the Academy. These courses can augment their knowledge on the subject of their interest, also bonuses could be added to their basic salary for each course attended.

- Autonomy:

The best performers may be granted more flexible working hours, which may give them the opportunity to prepare their lectures at home when they have no classes.

Alternatively, they may get financial support from the institution to develop new projects.

- Prizes:

Although, prizes may include small gifts, this point is used to refer to big presents such as: family dinners, vacation trips, etc. which may be granted to the instructors whose performance has given them the first prize during the last three years for example.

It may be stated here that these prizes or gifts could be arranged through an Alumni Association or well established Shipping Company or any other maritime enterprise. Awards may be named after the organisation who finances these awards.

It may be explained here that all of the above examples have been focused on instructors; nevertheless motivational rewards should be extended so that all employees can react in a positive way to improve the overall functioning of the system.

#### 4.7.3 Communication Policy

Organisations differ widely in how much information they communicate among their employees. Most of the time the position an organisation adopts in this area may effect its overall performance. Nevertheless, the basic goal in implementing a communication program within an organisation is to establish regular and open communication with all appropriate parties.

Some of the communication programs are essential to the organisation, while others are only complements of the communication policy in order to the organisation's reputation as a desirable place to work. The following is a brief description of the communication programs which may be introduced into the maritime educational system in Pakistan.

1. Employee Handbook:

This booklet should be given to new employees, generally when they are in the orientation program.

2. Job Description/Specification:

This is a hand-out which describes duties and responsibilities required for a specific job, it should also be given to all new employees during the orientation program.

3. Compensation/Motivation:

This is a brochure which describes the reward system of the organization. It should be included

as in the overall organisation pay philosophy, in order to enhance effectiveness of the reward system.

4. Suggestion Programs:

This may form part of an open door policy, in which the employee is encouraged to recommend work improvements which may help managers to redesign jobs and to improve the quality of work life.

5. Magazines/Bulletins:

These might be complementary to the communication policy of the organisation. Magazines might include the organisation's activities, such as new projects, personnel or students. On the other hand magazines might include educational topics such as automation and controls, maritime development, etc.

#### 4.8 Conclusion

The maritime system of education in Pakistan is faced with the challenge of improving and upgrading the versatility and capability of its system.

As it has been stated in this chapter a supportive employee work force is the foundation of any organisation, therefore it is necessary for the organisation to revert to its human resources in order to match this challenge.

In establishing Human Resource Management Programs, the organization should take into consideration every stage outlined in the present chapter.

STRATEGIC EDUCATIONAL DEVELOPMENT PLANNING

5.1 INTRODUCTION

The objective of this chapter is to propose the basic terms of reference to establish a systematic procedure in the management of development projects in PMA within the context of the organisational system of maritime education in Pakistan. The steps taken to develop this scheme are based on similar procedures found in the literature available concerning management by objectives, and strategic planning for the private sector.

Strategic educational development planning contemplates PMA to be focussed as a complete system. Furthermore, direction and allocation of resources can be determined so that weaknesses can be reduced, and at the same time, the greatest potentials of the system, present and future can be enhanced.

In addition, the use of strategic planning models to administer the ongoing upgradation projects in PMA, especially upgrading of engineering faculty in PMA will help to improve the understanding and quality of strategic thinking at more levels than the system currently in use does. Therefore this chapter may be beneficial to the personnel involved in upgradation of engineering faculty in PMA.

5.2 DEVELOPMENT OF STRATEGIES

Fundamentally there are two different ways to formulate strategic plans for the future:

- a. They are conceived as the entrepreneurial insight of one individual (intuitive planning).

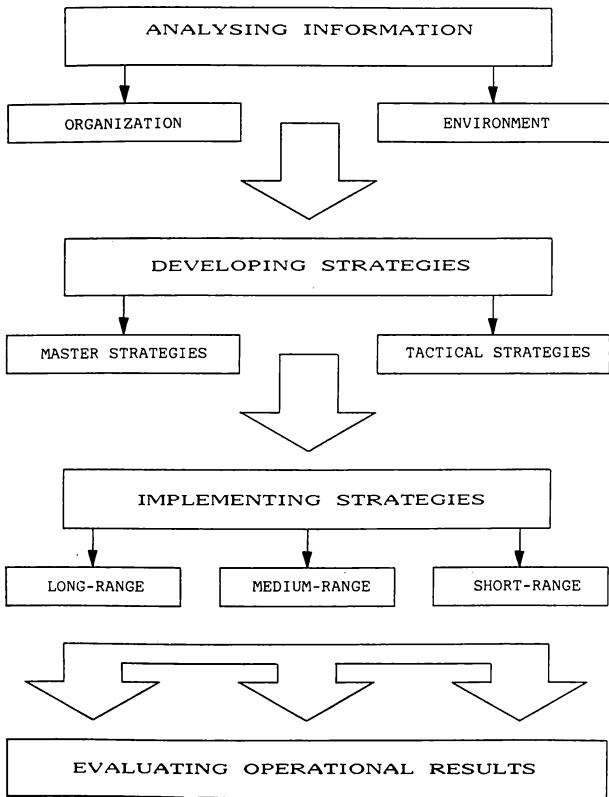


FIG. 5.1 SYSTEMATIC STRATEGIC PLANNING PROCESS.

- b. They are developed on the basis of a set of procedures (formal systematic planning).

Even though strategic planning is of commanding significance, it is worth mentioning that unless managers at all levels inject their judgements and intuition into the planning process, this cannot be effective.

Strategic planning can be defined in five different ways:

- a. It looks at the chain of cause and effect consequences of an intended decision.
- b. It also looks at the alternative courses of action that are open in the future.
- c. It is a process that begins with the setting of aims, objectives, and policies to further on define strategies, and develop detailed plans to achieve the ends sought.
- d. It is an attitude that needs dedication to plan constantly and systematically as an integral part of the organisation and its personnel.
- e. It is the systematic link between the three major types of plans, long range plans, medium range programs, and short range budgets and operating plans.

#### 5.2.1 Master Strategies:

Master strategies are defined as the aims, objectives and policies sought by the organisation.

Taking into account the strategic analysis, the formulation of master strategies is of a logical and rational process, with the following basic steps.



1. Establishing Strategic Objectives:

They are set at an appropriate level of generality based on the kind of services in which the educational institution is engaged, and deciding on the services in which the organisation or department should engage. An objective should be:

- suitable;
- understandable;
- feasible;
- motivating;
- linked to basic purposes; and
- based on people participation.

2. Setting Sub Objectives:

Sub objectives are established in order to achieve targets shorter in time range, or narrower in scope than the objectives.

Sub objectives are designed specifically in order to make operational plans for implementing strategies. Objectives and sub objectives are closely related and depending upon where one objective starts, these objectives might become the sub objective of each other.

3. Developing Policies:

Policies are developed and established in order to guide the performance of all major activities when implementing master strategies, and in accordance with the organisation philosophy. The widening gap between what is planned and what actually takes place is rather a common feature which indeed points to a failure of development policies.

There are basically two kinds of policies:

- a. The policies concerned with the organisations mission, purpose, thrust and ways of doing business.
- b. The policies concerned with the actual implementation of strategies, namely program policies are those which phase into procedures, standard operating plans and rules.

### 5.2.2 Tactical Strategies

Once the organisation has developed overall objectives, sub objectives and policies, there is the need to develop tactical strategies. Without an organised planning program, it is more difficult for department managers to make decisions in a direction determined by top management.

In order to develop an integrated planning frame work so that master strategies can pay off positively, the following points should be taken into account.

- a. Characteristics of the plan objectives, sub objectives.
- b. Conflicts between objectives, sub objectives.
- c. Lack of qualified personnel to design and carry out plans.
- d. Lack of communication between planning department, day to day decision makers and those effected by those decision.
- e. Lack of organisational will to implement the plan.

Tactical strategies are all those moves made within the frame work provided by strategies. The following are some of the basic terms of reference to develop tactical strategies.

1. Planning the Organisational Structure:

The development of organisational plans helps people to pull together in performing activities in accordance with strategy, philosophy and policies. Key personnel such as decision makers and project teams are appointed to fill the position provided for in the organisational plan.

2. Planning the Strategy:

The development of ideas, schedules, and plans to achieve objective, sub objectives successfully is made in this context.

3. Establishing Procedures:

These procedures are meant to determine, and prescribe how all important and recurrent activities should be performed.

4. Setting Standards:

Performance standards in addition to schedules are established to measure the different stages of implementation of long term objectives so that they can be accomplished successfully.

5. Operational Programs:

These programs are developed and govern the different activities which are implied by the master strategies, as well as the use of resources (capital, facilities and personnel in order to carry them out in accordance with established policies, strategies, procedures and standards.

6. Control Information:

Tactical strategies comprise supplying facts and figures too, so that people in the organisation can follow the strategy, policies, procedures and programs. In addition, providing control information can help to measure personnel's performance against established plans, programs and standards.

7. Evaluation Procedures:

Evaluation procedures are useful in determining whether or not the master strategy has produced the desired results. At every stage of the operational programs there should be a continual process of monitoring and feed back from one stage to another. Should the results not be satisfactory, amendments to the original plan can be made, or else options be considered.

### 5.2.3 Planning Manuals

Planning manuals provide the basic guidelines for the proper implementation of strategies. They comprise the sequence of steps described for both master and tactical strategies.

Planning manuals are written when there is reasonable agreement and understanding among top management and key personnel (i.e. project team, department managers).

Planning manuals vary in size and content from one organisation to another. Nevertheless the author has adopted from the literature available, the following format which could be used within the context of maritime education in Pakistan.

- a. Introduction:  
Introductory statement about the yearly chalked out program and prospectus of the present year.
  
- b. Background Information:
  - i. organisation's mission statements
  - ii. organisations's philosophy about strategic planning
  - iii. organisational charts
  - iv. function and role of the different departments in the organisation
  - v. major issues of concern to PMA
  - vi. evaluation of the maritime environment
  - vii. changes from last year
  - viii. planning assumption
  
- c. Master Strategies:
  - i. summary of total plan
  - ii. principal objectives
  - iii. sub objectives
  - iv. policies
  
- d. Tactical Strategies:
  - i. organisational structure
  - ii. description of procedures
  - iii. description of standards
  - iv. operational programs
  - v. control system
  - vi. evaluation procedures.

Due to the fact that strategic planning calls for essential data about such matters as objectives, strategies and tactical programs as described

previously, that information should be handled in a very special way, as appropriate and as desired by top management.

### 5.3 STRATEGIES IMPLEMENTATION

The next stage in the process of strategic planning is the translation of strategic plans into current decisions. This process can only be started when the following actions have been completed.

1. Planning manuals are readily available for all persons involved in the strategic planning, namely top management, the project team, and key personnel such as heads of department and decision makers.
2. Long range planning objectives, medium range functional programs and short range tactical plans, as comprised in the planning manuals, as well as the key tasks and sequences of steps to be performed to implement plans are totally clear to and understood by all persons referred to above.
3. Those responsible for specific tasks are identified, and formally briefed on what they are supposed to do, and that these personnel have a thorough understanding of the job.
4. There is assurance that facilities, capital and human resources will be available when needed to facilitate implementation of plans.
5. There is confidence in the entire information system of the organisation so that top management and heads of department have access to facts and figures, when desired in order to evaluate the fulfillment of programs.

6. There is sufficient confidence in the control techniques to ensure that the standards set for each specific task can be compared with the actual performance, and consequently corrective actions can be taken when this performance differs from plans.

#### 5.4 EVALUATION OF STRATEGIES

Throughout the series of activities comprised by the strategic planning process, there must be a continual process of when the strategic analysis is elaborated when the strategies (long, medium and short range) are implemented, there must be an examination of the feasibility of these different plans and programs and consequently, a means of evaluating them.

When a strategy is adopted and implemented, there should be continual feed back on the effectiveness of the programs so that decisions can be taken to amend the strategy, be they partial or radical. When evaluating performance of implemented plans, the adopted control systems come to play a vital role. The control system seeks to ensure that performance conforms to plans and programs. The process involves three basic steps:

- a. Setting standards.
- b. Evaluation of performance in light of standards.
- c. Correcting deviation from standard.

The establishment of standards for performance should always be considered when formulating tactical strategies not only the different stages of development of the programs against the schedules, but the allocation of resources (capital and personnel) should be considered as well.

The evaluation of performance against standards relies heavily upon the kind of reporting and information system utilized by

the organisation. The information may be collected through computer or reports, or through both of them, to be later on, compared with standard reports.

Before taking corrective action, top management should establish the parameters or warning signals in which such adjustments should be made.

When it is necessary to correct deviations from standards, managers can correct them by reorganising team groups, by re-training present workers, by setting new standards, by better motivating employees, or even by revision of strategies, plans and programs.

Reaching this last stage implies that the entire process of strategic planning should be contemplated all over again.

#### CONCLUSION

Educational establishments can be studied from different perspectives, taking in consideration their political, economic or social functions. The focus adopted in the present chapter is that of contemplating educational institutions as a whole, as complex unit in which different groups of elements interact.

The management of human resources was considered in chapter four, where as the staff development function was contemplated in chapter three. In both of the chapters, the importance of the human element was analysed and emphasized. Moreover, different schemes were presented in order to obtain a stable, and a highly qualified and motivated personnel.

It is only within the context of strategic planning that the above mentioned schemes can be developed and implemented.



Nevertheless, the organisational system of maritime education in Pakistan will not benefit from its personnel unless they are linked to the overall functioning of the organisation by means of effective strategic planning programs. Therefore, the processes described in this chapter should be included in day to day routines of the PMA so that more personnel are involved in the different stages of the educational strategic planning, and any upgrading program in PMA (such as present faculty upgrading program) should be a part of the strategic planning in PMA.

To summarise, the following can be specified.

1. The aims, goals and objectives of the entire organisation must be in satisfactory harmony with the relevant needs of both the majority of its staff members and of shipping companies served by it.
2. The specific tasks considered in the planning in such a way that the personnel assigned to perform them are highly motivated and committed to achieve them.
3. The methods and procedures adopted to achieve the agreed upon objectives should be developed in such a way that staff members are highly motivated and committed to use them to their maximum potential.
4. Before the strategic plans and programs are translated into specific current decisions, planning manuals containing descriptions of strategies, procedures, information systems, operational programs, performance standards, control systems, and evaluation procedures should be readily available.
5. Finally, the personnel working within the organisational system of PMA should feel that the compensation programs and the reward systems used by the organisation yield them equitable pay off for their efforts and contributions.

## CHAPTER SIX

### CONCLUSIONS AND RECOMMENDATIONS

Staff development and upgrading of the faculty is a systematic process in the management of training and development of personnel to be used within the context of maritime education in the PMA as proposed.

The proposal is intended to make better use of the economic resources of the organisation by means of:

- a. improved identification of training needs in the case of staff development,
- b. improved design of training programs.

These two statements involve a series of steps which can only be implemented by considering firstly whether training needs are acknowledged by means of manpower planning and job analysis (human resource management), secondly by well-designed training programs to help individuals keep performing better, and consequently help the organisation by standardising working practices and procedures (strategic planning).

A review of the previous chapters brings the author to the conclusion that the following suggestions and measures should be considered in the upgrading and development of the engineering faculty of the PMA.

1. Scholarships should be arranged for PMA staff to be sent abroad for upgrading their academic qualifications.
2. Short courses for staff should be arranged at the PMA. Experts should be engaged as visiting professors.

3. PMA Engineering Department Lecturers should be sent to WMU every year to upgrade their qualifications.
4. PMA staff should be encouraged to participate in national/ international seminars, conferences, and workshops.
5. Communication and affiliation with renowned international universities/institutes/associations, should be sought.
6. Formation of a marine college at the PMA should be accelerated to upgrade post graduate education. Also pre-sea and post-sea training should be centralised at the PMA only.
7. The Board of Maritime Education and Training (BME & T) should be formulated so that the process of review of the MET can be started. Also all certificates of competency examinations must be organised and held at the PMA with the close participation of a Chief Examiner (Engineers) from DGP & S (similar to the decision of the United Kingdom, Reference M. 1242) as proposed by Mr. S. A. Zaidi (WMU graduate) in his thesis project, 1985.
8. All lecturers should be generously encouraged to undertake research activities in their concerned field of interest. This should effectively upgrade lecturers in the PMA.
9. Study leave should be generously granted for taking up research programs or developing courses/syllabuses.
10. At least two members of the teaching staff of the PMA should be exchanged each year with two members of the floating staff of a national carrier on a continuous basis to refresh/update their knowledge on the latest ships.
11. A Centre of Excellence for Educational Staff Development should be established which forms the organisation's focus of current knowledge and research on all aspects of maritime education and to further develop this Centre so that the whole maritime industry can benefit by it.

12. Lecturers at the PMA should be allowed to design or modify the programs they have to teach so that the learning process is enhanced.
13. Human Resource Management procedures should be applied to the maritime educational system of the PMA to deal with two basic problems:
  - a. Obtaining a manpower supply.
  - b. Maintaining and upgrading the employee work force.
14. Management procedures should be applied by defining job descriptions and the characteristics of the job carried out in the organisation. They should include job specifications and the characteristics of the people required to perform these tasks.
15. A manpower planning system should be established in order to identify the short range and long range needs of human resources.
16. An objective selection procedure should be established so that the most suitable applicants are hired.
17. Orientation programs should be adopted in order to help new employees familiarise themselves with the workplace (PMA).
18. Compensation programs should be modified by including individual plans so that employees are oriented towards loyalty, learning, growth and development.
19. Reward systems should be adopted within the context of the organisation in order to motivate people to perform better.
20. Ranking of the teaching staff should be formulated according to the ranking system of Karachi University which is as follows:

- a. Lecturer: Grade 17
- b. Assistant Professor: Grade 18
- c. Associate Professor: Grade 19
- d. Full Professor: Grade 20

This may prove to be an incentive for career planning. Otherwise the remuneration and facilities offered to the teaching staff of the PMA should be become parallel with the shore staff of other maritime organisations like KPT, PNSC or PQA.

- 21. A communication policy should be established so that regular and open interaction among the staff of the different departments is achieved.
- 22. Strategic planning should be established in the management of the PMA.
- 23. Strategic analyses should be carried out to develop master strategies, e.g. long-range objectives, medium-range functional programs and short-range budget reports.
- 24. Tactical strategies should be established, such as organisational structure, schedules, procedures, standards and evaluation procedures.
- 25. Planning Manuals should be published so that there is reasonable agreement and understanding among top management and key personnel.
- 26. Assurance must be provided that facilities, capital and human resources will be available when needed to facilitate implementation of strategic plans.
- 27. Implemented plans should be evaluated against schedules periodically, so that corrective actions can be taken.

28. Formulation of the required policies should be done in such a way so that upgrading and development programs are supported by top management and the teaching staff because implementation of any system requires dedication and willingness among all members of the staff.

Finally, by focusing only on the upgrading and development of the engineering faculty of the PMA, we would observe an overall improvement in educational standards. Eventually all graduates passing out of the PMA would benefit from this upgrading program.

It is worth mentioning at this stage that I initiated this thesis project under the heading "Upgrading and Development of Faculty, Laboratory and Library in the PMA". Very soon I realised that the limitation of time, space and available material would not permit me to do justice to the original title. Therefore, after consultation and discussion with my professors I consented to focus my thesis project on "Upgrading and Development of the Engineering Faculty at the PMA."

I sincerely feel that the original title of my thesis project is still wide open, and in years to come one of my colleagues from the PMA could take up from where I have now left off, to develop further research in the area of required upgrading projects at the PMA. Only then will I consider the original thesis project, initiated by myself, accomplished.

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