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**A STUDY ON
SUSTAINING DEVELOPMENT IN THE PRIVATE
MARITIME TRAINING CENTERS**

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EMPA – 5 (16th BATCH)**

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A STUDY ON
SUSTAINING DEVELOPMENT IN THE PRIVATE
MARITIME TRAINING CENTERS

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ABSTRACT

The Maritime Education and Training plays a significant role in maritime safety and in the protection of the maritime environment and it influences seafarers' quality for the future. The main objective of this study was to examine present status, recent trends and challenges of the sustainable development of private Maritime Training Centers in Myanmar. In order to obtain these objectives, this study used descriptive method based on both primary and secondary data and using a mixed of qualitative and quantitative approaches. The survey was conducted on the total 300 respondents including maritime administrators, management, instructors and staffs of the private MTCs, seafarers and the key informants' interview with the management level of Marine Administration who were selected using the purposive sampling method. It was found that the main challenge of the private Maritime Training Centers is the lack of funding for the expanding their facilities. Another challenges are the low rate of return of their investment and lack of quality management system in some MTCs. Due to the sufficient instructors for training courses, the sufficient human resources may be the opportunity for the sustainable development of the private MTCs. Due to the technical support of IMO, the technology may be opportunity for MTCs however it may be challenges if they could not update their syllabus, training courses in line with new IMO model courses.

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LIST OF ABBREVIATIONS

ABS	American Bureau of Shipping
ARPA	Automatic Radar Plotting Aid
BIMCO	Baltic and International Maritime Council
COC	Certificate of Competency
COP	Certificate of Proficiency
DMA	Department of Marine Administration
ECDIS	Electronic Chart Display and Information System
EMSA	European Maritime Safety Agency
ICS	International Chamber of Shipping
IMO	International Maritime Organization
ISO	International Organization for Standardization
ITCP	Integrated Technical Cooperation Programme
MMMC	Myanmar Mercantile Marine College
MMU	Myanmar Maritime University
MOTC	Ministry of Transport and Communication
QMS	Quality Management System
QSS	Quality Standard System
SIRC	Seafarers International Research Centre
STCW	International Convention on Standards of Training, Certification and Watch keeping for Seafarers, 1978 as amended
WMU	World Maritime University

CHAPTER 1

INTRODUCTION

1.1 Rationale of the study

The world's ocean play significant role in various sector of human development. According to the Review of Maritime Transport 2018, the world cargo transport heavily rely on maritime transport, more than 80 per cent of global trade volume were carried by ships and handled by seaports worldwide, the role of maritime transport is the most important for trade and development. The forecasts of UNCTAD describe that the world seaborne trade may increase by 4 per cent in 2018, the volumes of trade may reach 10.7 billion tons. It may also expand in the medium term, trade volumes may grow with annual growth rate of 3.8 per cent between 2018 and 2023 (UNCTAD, 2017).

The human resource factor is the significant factor in maritime sector which directly relate to the safety and security at sea. A well- trained and competent workforce is essential for a successful maritime transportation industry. To be a safe, secure and cleaner maritime transport, the maritime industry depends heavily on seafarers. Due to the evolution of new technology in shipping industry, the design and structure of new vessels have become more complex and sophisticated than ever before. These new technical changes may offer great opportunities to the shipping industry; however the role of competent seafarers is still important to operate these vessels.

Nowadays, the maritime industry has become concerned about the Maritime Education and Training (MET) to solve a number of present and possible challenges of the shipping industry. MET could be provided the growth, expansion and positive change of the shipping industry (Basaka, 2017). The shipping industry need the highly competent human resources at sea, therefore MET institutions should make sure that their infrastructure, teaching facilities and equipment, curriculum design, learning methodologies, qualification of instructors have to meet with the requirement of the industry and to supply the world fleet with the skillful and competent seafarers (Baylon and Santos, 2011).

MET is driven by various factors such as global economy, industry restructuring and government policy initiatives, demand and supply of seafarer market and technology development. These factors may be challenges as well as

opportunities for the sustaining development of MET that effect directly or indirectly to the seafarers. In Myanmar, total numbers of 23 private Maritime Training Centers were accredited by Department of Marine Administration (DMA) in 2013. It is very short time period for private MTCs established by Myanmar so that there may have many challenges to these MTCs. To make a good policy for the development of private MTCs, the administration has to know exactly the real situation of the private MTCs.

Although the forecast for the future supply-demand of manpower in maritime industry is optimized by the several reports, the unemployment rate of Myanmar seafarers slightly increase year by year. There are many reasons that affect the shortage of demand of Myanmar seafarers such as lack of national fleet, downturn of world trade, decline of world fleet, etc. In this study, to find out the optimal way to solve the unemployment problem, this study focuses only on the role of private Maritime Training Centers. It is very important for the Myanmar seafarers that their competency and proficiency have to meet with the requirement of up to date technology of the modernized ships. MTCs of Myanmar play vital role for the maritime transport sector to supply qualified seafarers. On the other hand, to gain the job opportunities for seafarers, the Maritime Administration and MTCs should be provided quality education for capacity development. The capacity development of seafarer directly effect on their career path. As much as they learn in the right way and acquire necessary knowledge, they will be efficient in their ability and the more opportunity will open for their future. Despite the global economic downturn, the shipping companies still intend to hire highly competent officers and ratings.

Maritime industry conducts job opportunities which can provide financial rewards and social benefits for seafarers and their families. Myanmar, as a traditional maritime labour supply country, seafaring career has been attracting to the young people to alleviate their poverty life.

Indeed, the role of MET institutions is significant for the development of the shipping industry. However, strengthened cooperation between the different key player such as the governmental organization, Maritime Training Centers, and shipping companies is very important to gain the capacity development of the seafarers and ultimately for the improvement of the industry (Baylon and Santos, 2011).

1.2 Objectives of the study

This thesis aims at proposing the ways to increase employability of Myanmar seafarers through the sustaining development of MTCs in Myanmar. The specific objectives of this study are to identify the current situation of Private Maritime Training Centers of Myanmar and to analyze the challenges and opportunities of the private Maritime Training Centers.

1.3 Method of Study

The study is descriptive method base on both primary and secondary data and using qualitative and quantitative approaches to meet with the objectives successfully. The primary data are collected from in-depth interview with management level of DMA, BOD of the MET institutes/centers and survey questionnaires to the trainers (instructors) and the trainees (seafarers). The secondary data are collected from the Department of Marine Administration(DMA), Baltic and International Maritime Council (BIMCO), International Chamber of Shipping (ICS), and other maritime related organizations such as IMO, literature, scholars dissertations of WMU, other countries reports (e.g. Philippine, Croatia) , press and publications.

1.4 Scope and Limitations of the Study

This study covers the key players of the Myanmar maritime industry namely: seafarers, maritime administrations and Maritime Training Centers. Especially, this study focuses on the private Maritime Training Centers in Yangon, Myanmar, to evaluate their criteria of syllabus, course frame works, teaching system, outcomes, quality standard system, infrastructure, teaching aids and factors affecting on the implementation of Maritime Education and Training System. Among the total 300 respondents, there are 100 respondents of the instructors, management and staff of MTCs and 200 respondents of seafarers. The study period is from May 2019 to July 2019. This study also focus on a comparative assessment of policy implementation of MET in Philippine and Croatia, with a view to giving a better understanding of the nature of maritime training and education in Asia and Europe. Furthermore, seafarers under consideration in this study are those within only the all ranks in the Deck on sea going vessels. The targeting of seafarers within the officer rank is based on the rationale rather than crew due to the higher experience and training and would

therefore offer rich perspectives. This study does not cover the MTCs of Engine and Electrical department and seafarers of engine and electrical department.

1.5 Organization of the Study

This study consists of five chapters. The chapter one introduces the study by highlighting the problem, rationale of study, objectives, scope and limitations, method of study and organization of the study. The chapter two investigates the literature review of maritime education and training and other country experiences. The chapter three discusses the background history of Myanmar MET system, Myanmar seafarers market, the existing laws, directives, rules and regulations of the government organization, maritime education and exam system of Department of Marine Administration. The chapter four is the core of the study. In this chapter, the survey data are collected and analyzed on the private Maritime Training Centers and to discuss the results. The chapter five consists of the findings of the study as well as the recommendations.

CHAPTER 2

LITERATURE REVIEW

This chapter observes the literature in the context of implementing maritime education and training. The discussions examine the definition of MET, the purpose, framework, curriculum design and quality management system of MET, the role of stake holders such as MET Institutions, Maritime administration for seafarer education and training, and the factors effecting the implementation of MET. This chapter also discusses the impacts of the STCW convention as amended and other conventions on MET. Furthermore, this chapter examines the development of maritime education and training of the top two maritime labour supply countries to find out the way how they overcome the problems of MET.

2.1 Maritime Training and Education

The main purpose of Maritime education and training is to supply well-trained and competent seafarer for the shipping industry. MET provide not only post-graduate studies but also short courses training for the competency of seafarers to meet the international standard, local requirement, shipping industry requirements and continuous education for industrial updating (Demirel, 2009). The Maritime education and training (MET) have an effect on the quality of the education of seafarers and their future progress.

Last decades ago, Maritime education and training has merely focused on preparing students to become seafarers and the courses that provided by MET aimed at assisting them to obtain a certificate of competency. Lewarn suggested that MET could be divided into two distinct approaches, academic approach and competency based training approach. During 1960's/1970's, academic approach became discernable with two distinct avenues emerging. One academic approach was to integrate certificates of competency studies into sub-degree courses and offer broader and deeper studies at degree and post graduate level for the outstanding students, which were adopted in countries such as UK and Australia. Another approach was

adopted in some countries such as Japan and USA, they provided Bachelor Degree courses including certificate of competency training for broader studies rather than that required for certificate of competency alone. Competency based training approach was adopted in some countries such as Singapore and Malaysia that provided the traditional training courses of studies aimed merely at gaining a certificate of competency (Lewarn, 2010).

In every organization, the human resource base is very essential in pushing forward organizational goals. Therefore the development of employee has become very important for organizations who wish to improve on efficiency. A well trained and educated employee is capable of working more effectively than a less trained and educated one. Therefore Maritime education and Training and the capacity development are important elements in any strategic human resource management plan, and these elements could address the values of the human resources in order to solve the industrial challenges and enhance competitiveness (Froholdt, 2010).

Employee development is very sensitive area and it is very crucial in the maritime sector. The human element plays a very crucial role, most of the maritime casualties have been taken place due to the neglect and incompetence of the personnel on board ships. For the above reason, the competent workforce is very important for the safety at sea, maritime environment protection, and the protection of the whole economy of the shipping industry. Seafarer training and education has been evolving to ensure the safety of the maritime transport at any particular time, and to train the seafarers to be more efficient personnel to deal with prevailing complexities in the maritime industry (Froholdt, 2012).

According to Emad and Oxford, MET generally consists of two parts, the education of knowledge of theoretical subjects and practical training of skills in a number of short duration courses, and a certain period of seagoing services onboard ships. Thus, seafarers are supposed to undergo some classroom based qualification as well as practical experiences on board vessels (Emad and Oxford, 2008). Corovic identified that the three main seafarer educational systems are the traditional, gradient, and university systems. The traditional system takes much longer and theory and learning in this system are combined through practice (Corovic, 2013).

2.2 Role of STCW

To promote safety of life and property at sea and protection of the marine environment, the IMO established the International Convention on Standards of Training, Certification and Watchkeeping (STCW) in 1978. The STCW sets the qualification standards for seafaring officers on all seagoing merchant ships.

Before 1978, standards for training of seafarers, certification standards, watchkeeping standards and other standards for seafarers were established by the individual government who had the merchant fleets and the each standard was usually without reference to practice in other countries. Although the merchant fleets operated in the same waters and ports, the standards differed significantly from one country to another. Ships were often manned by the multinational seafarers, and most of them were not national of the country in which ships are registered, therefore these seafarers were trained by the different standards and their competency certificates were issued by different standards, and therefore implementation of education and training standards can hardly be controlled by the individual government.

To maintain a safety, secure and keep our oceans clean, the professionalism of seafarers and their standards of competence that they perform onboard play vital role. The International Convention on Standards of Training, Certification and Watchkeeping for Seafarers 1978, as amended in 1995 and again in 2010 (STCW), sets the minimum standards of training and certification and controls watchkeeping arrangements. These standards not only effect to seafarers, but also ship-owners, maritime institutes or training centers and the administrations.

. STCW standards were mainly based on technical and management skills for the competency of seafarers as well as practical studies at sea training. It is important to point out that the STCW Convention prescribes only minimum standards, which means that every party or individual country may establish the standards higher than the minimum standards of STCW Convention (Rukavina, 2011). According to Luttenberger and Rukavina, there were two amendments in this convention. First major revision of the Convention was done in 1995. The basic characteristic of the revisions is that the procedure for amendments is made simpler to the text itself. Moreover in the revised Convention, Parties have duties to provide detailed information to IMO concerning that the education and training courses, certification procedures and other factors are followed to ensure full compliance with the Convention, and all parties allowed controlling implementation of STCW convention

by IMO. And then IMO created a white list that is a list of the countries which are fully comply with STCW requirements.

Second major amendment, Manila amendments of the STCW Convention and Code took place in 2010. The review were agreed a set of basic goals by the IMO's Maritime Safety Committee. There are a number of important changes to each chapter of the STCW Convention and Code, the amendments concern to prevent fraudulent certificates of competency and improve the evaluation process for the administration. The amendments also establish new requirements related to training in modern technology such as electronic charts and information system and use of simulators. Especially requirements on working hours and rest and new requirements for security training are stipulated in this amendment. They also introduce a modern training methodology including distance learning and web based learning (Luttenberger and Rukavina, 2011).

2.3 Factors for Implementation of MET System

In order to develop the private MET system, this study analyze the situation of the private MTCs by measuring with the factors such as, Government policy factor, Economic factor, Labour market factor, Resources factor, Technical Development factor and Financial factor.

2.3.1 Government policy factor

The Maritime Administration is a government department that is responsible for implementing the laws and policies of the government. Due to the technical advantage, the maritime sector is changing rapidly and also Educational paradigms are rapidly changing. Therefore the Maritime Administration has to make the best policies to adapt these changes for the survival and growth of the Maritime education and training. In order to achieve efficiency, economy and effectiveness management, some maritime administrations start to change their traditional maritime administration to the new term New Public Management (NPM).

The STCW 1978 convention as amended, describe the requirement for training and educating seafarers and therefore, maritime training institutions, ship owners, seafarers and administration have to follow these regulations. Each party have responsibility to ensure that their maritime training institutions follow to the STCW standards to improve the competency of seafarers. In the STCW 2010,

practical skills and competence were focused rather than knowledge skills only. The international community, sub regions, and governments of maritime nations have responsible to upgrade the level of quality in maritime training and education.

According to STCW convention, safety of life, property at sea, the protection of marine environment and the competency of seafarers are important factors so that each party (member state) or administration shall undertake to promulgate all laws, decrees, orders and regulations as necessary to meet the requirement of the STCW standards.

2.3.2 Economic Factor

The maritime sector includes a wide range of economic activities and it plays one of the important roles of the national development. Alexander G. Alexandrov suggested that seaborne trade is strongly depending on the increase or decrease of the world economy that influence the volume of exports and imports of the individual country. Moreover, structural changes in the world seaborne trade and regional development have a great impact of the maritime sector especially in ship building production as well. (Alexandrov, 1999) The changes of the world economy may effect on not only the economic factor but also on the social and political factor.

2.3.3 Labour market Factor

In the past, the shipping companies from traditional maritime countries had to recruit the seafarers from the nation that their ships were registered. Crewing practices were largely determined based on the national legal framework surrounding the employment of seafarers, if they hired foreign workers, the crewing agencies faced with the added costs and impracticalities (Alderton, 2004).

The development of the world labour market has brought about the increased employability for seafarers who are globally organized by a dynamic system of international crewing companies (Lane, 2000). The world labour market for seafarers is easy to enter and operate under perfect market conditions a situation in which both labour and employers assumed to compete freely for jobs and workers. In the maritime labour market, all shipping companies, crewing agencies are able to employ seafarers from anywhere of the world with few obstacles, and operate in a free-market environment seeking out highest return on their investment. And also labour is relatively free to seek employment globally. (Leong, 2012)

According to Manpower Report 2015, current estimated supply and demand situation of manpower is a shortage of 16500 officers and a surplus of 119000 ratings. BIMCO report suggested that the world supply of qualified officers and ratings has increased over the past five years, and a number of seafarers will be continuing to increase for the supply side to the international merchant fleet (BIMCO, 2015).

Although the manpower report optimized the global maritime labour market, Yu pointed out the global financial crisis that has resulted in a recession of the world economy. Due to the crisis, there were sharp reduction of freight and hire, declining the quantity of cargoes and difficulties in funding are the main problems arising out of the crisis. The crisis also hits the seafaring labor market, and furthermore the MET system. Yu also pointed out some possible reasons for the changes of the labor market such as comeback of eastern European seafarers to ship due to the financial situation, many ex-seafarers from Asia such as Korea and India rejoined the ships, canceled or delayed new ship-building plans due to the world financial crisis and many aged ship have to laid up due to IMO regulations.

Therefore, the market can now be seen as “ship-owner-oriented market” instead of “seafarer-oriented”. More and more seafarers, particularly the ratings, have to compete with others for a job onboard (Yu, 2009).

2.3.4 Resources Factor

The resources factor can be divided into two factors namely infrastructure factor and human resources factor.

1. Infrastructure Factor

Infrastructure such as buildings, classrooms, laboratories, and teaching aids and equipment are extreme important elements of learning environments in schools, universities, or training institutes. The high-quality infrastructure facilities could give the improvement of student outcomes and reduces dropout rates, among other benefits (Teixeira, Amoroso and Gresham, 2017).

ABS (American Bureau of Shipping) suggested that in order to support the teaching –learning processes the organization shall identify the specific infrastructure, facilities, environmental and equipment as needed. The organization shall determine programs for planning, providing and maintaining the necessary infrastructure in order to provide people’s safety, security and hygiene.

The infrastructure of organization, training institute/Centre should be included, but is not limited to, any or all such as building and working spaces, classrooms and laborites, simulators and workshops, libraries and bookstores, green areas, cafeterias and online components and information system and health facilities , physical security, transport and communication among others (ABS, 2013).

The infrastructure of MET is very expensive due to high capital costs that required for the necessary infrastructure including teaching materials, training simulators, laboratories, training vessels, etc.

2. Human Resources Factor

According to Butler, in order to achieve the school's mission, the main objective of the human resource management function in any educational organization is to attract, develop, retain, and motivate personnel. The human resource management functions are through effective education and training- based on scientific and academic rigor; the development of a clear linkage between practical skills and management techniques; and an unerring focus on quality.

Froholdt suggested that organizations are focusing on increasing the effectiveness and efficiency through performance development of their personnel based on three main elements: training and development, career development, and organization development (Froholdt, 2012).

2.3.5 Technical Development factor

To assist developing countries, IMO's Integrated Technical Cooperation Programme (ITCP) provides a capacity-building framework for the development of the skills and proficiencies to comply with IMO conventions. The ITCP make assist the technical aids to the developing countries such as skills-based training, sharing of technical knowledge; technical advisory services, workshops, short upgrading courses based typically on IMO Model Courses for improvement of the MET.

Due to the use of information and communication technologies (ICT), using modern technology in the teaching is very important to improve the quality of education. Advantages of technology in education can be expressed that (a) easily access to learning material (b) continuous learning (c) sharing of knowledge (d) learning aids (e)distance learning (f) proper record keeping. Educational system has been transformed by using the advance technology to obtain the institutional goals (Budhwar, 2017).

Technological changes may cause an impact on seafarer's career development. When the new technology changes start, some jobs might be eliminated who do not adapt with these new technologies, and also this will effect on most of the jobs, such as the technical work and some will completely change the nature of jobs. In order to adapt these technical changes, the MET institutes need to update their training programme and have to introduce developmental programs that align with such changes. Developing employee capacity promotes the human resources of any organization (Baruch, 2006).

New technologies and understandings for general and specialized maritime education: for example, distance learning education, virtual reality classroom, simulation; more international and national administrative, legislative and financial institutions involved in the development of MET. The international regulatory will form the base of the model, while the technology developments will show the future trends to be followed.

The soft skills are developed in affective education that refers to teaching and learning that deals students' interests, attitudes, and motivations. The concept of affective education was given in 1948 conference of the American Psychological Association to develop educational taxonomies or classification schemes of teaching and learning (Bloom, Engelhart, Furst, Hill and Krathwohl, 1956). Affective learning deals how learners feel while they are learning and how they acquire learning experiences. Affective education is the process of the value internalization that provide guidance to set positive attitudes, opinions, and behavior which is suitable for profession and society (Miller, 2005). It is essential for the seafarers on board have to promote their decision-making ability and leadership quality, interaction in multicultural crew, team-work and communication to be a good workplace and practice in ship culture. The culture is values, and the universal values need to be an integral part of ship culture, which ensures safety culture on board (Giorgio and Grey, 2014).

2.3.6 Financial Factor

To achieve a better quality of the MET institutions further financing is required. Investments can be attracted through a tight linkage of the METIs, shipping companies and the manning agencies. The financing structure for this sector is vulnerable. Longer term investments are needed as the current training facilities are

often outdated and not following pace with the technological changes in the sector. Cooperation between METIs offer great opportunities for economies of scale, sharing and pooling of resources.

For the students, the direct cost and indirect cost are the factors that influence on the higher education participation. Direct costs involve expenses which are directly related to the studies such as obligatory or voluntary. Indirect costs results from the fact that one cannot have an income during the study period. That cost can have a negative effect on higher education participation.

2.4 Quality Management System

Quality Management System is one of the key factors of Maritime Education and Training. Around 80 to 90 per cent of maritime accidents are ascribed to human error. For this reason, it is critical that all of the seafarers onboard be well-trained and skillful, could be follow orders, understand the advantages of teamwork when they face with the problems and how to manage risks, and they work happily on board (Baylon and Santos, 2011). Quality education can be defined that empowers states and communities to boost their progress status from the developing circle to the developed one. The goal of a good quality maritime education is not merely learning but also raising the awareness and educating in order to create a global maritime community that converge on the value of intellect, ethics and culture as well as on solidarity. (Ashmawy, 2011)

To promote the quality of national Maritime Training Centers, the organization have to harmonize national educational practices with international achievements. This process is not merely mechanical adaptation but also requires careful assessment and tactical development with the accepted international minimum standards, for safe and efficient operation of ships (Ziarati and Demirel, 2012).

2.5 Experience of other countries

According to Babylon and Santos (2011), using the Philippines as a case study, outline two major challenges of MET. The first challenge according to them has to do with the forces of global seafarer demand and supply, industry need the outcomes of MET institutions at a faster rate to man the demand in the shipping sector. This deficit supply gap tends to effect on the quality of seafarers. The second challenge in MET is the insufficient facilities for the implementation of training

requirements of the STCW Convention and Code due to resource constraints. According to them, many MET institutions are not able to incorporate the new changes due to resource constraints, and this still continues to hamper on the competence of students. However they propose that government training programs and effective onboard training programmes can solve these challenges in the long run and improve the competency of seafarers (Baylon and Santos, 2011).

The Philippines has a significant competitive advantage in world maritime labour market compared to other nations: it possesses a pool of internationally well-known, skilled and experienced seafarers. This pool of competent seafarers gives the country the opportunity as the top maritime labour supply country. The MET sector involved as an important sector for the growth of the shipping industry in the Philippines and capacity building of the seafarers.

According to international report, the Philippines occupy the premier position of certificated onboard seafarers, where Filipino seafarers account for 25% of all seafarers onboard all international merchant in 2015. By using their comparative advantage in the maritime labour market, the Philippine is the top maritime labour supply country which can supply total number of seafarers 406,531 in 2015. BIMCO report shown that Philippine placed top five largest seafarer supply countries, second for officers supply and first country for ratings supply. Other top five largest seafarer supply country were China, Indonesia, Russian Federation and Ukraine in 2015.

In fact, Philippines has the largest number of Maritime Training Institutes in the Asia, about one-and-a-half times the combined number for China, India, Republic of Korea, Singapore, Malaysia, Thailand, Sri Lanka, Myanmar, Hong Kong, Vietnam and Bangladesh. There are the government agencies namely the Philippine Regulation Commission (PRC) for marine deck and engine officers, Technical Education Skills Development Authority (TESDA) for ratings, and Commission on Higher Education (CHED) for Bachelor of Science in Marine Transportation (BSMT) and Bachelor of Science Marine Engineer (BSMarE) courses and National Transmission Commission (NTC) for radio operators.

The maritime sector is an important sector of the development of Philippine economy. The seafaring industry could create employment for millions of Filipino seafarers. In 2015, it can supply total number of seafarers 406,531 and total remittances of Filipino seafaers are about US\$ 5.575 billion, 9.8% of country GDP (Virola, 2010).

The process of maritime education in Croatia is divided into two stages. The first stage includes vocational education within secondary education nautical schools, the second stage is MET institutions of higher education (maritime faculties). Along the Croatian coast there are 6 secondary education nautical schools (in 2010 there were 327 graduated students) and 4 maritime faculties: in Rijeka, Zadar, Split and Dubrovnik with 281 graduated students in 2010. All MET programs and curricula are in accordance with STCW requirements, approved by the Administration and the functionality of the system is under constant control. Basically, secondary nautical schools have the task of preparing students for watchkeeping duties on ocean-going ships and for top-level positions on board ships in limited trades, while maritime faculties educate students for top-level positions on ships in international trade and for jobs ashore at the operational and management level (Vlado, Zec, Rudan, 2011).

2.6 Reviews on Previous Study

Aung Thu (2018) stated that the challenges and job opportunity of graduates from MMU in the maritime transport industry. He mentioned that job opportunity of graduates is important not only for students but also imperative for the university. MMU can create more job opportunity for their graduates by enhancing its capacity of international relation with NGO and companies from maritime and other industries. He also pointed out the role of MMU that it established QMS to assure its quality to meet with the international requirements for maritime university.

He also recommended the need of teaching staffs with onboard experience, lab equipment and training facilities to follow the IMO requirements.

Myint Soe (2019) stated that the employability of Myanmar seafarers under the current labour market condition. He pointed out that maritime labour market, individual skills and attributes that influence the employability of seafarers are two factors that influence the employability of seafarers. Moreover, he stated the third factor, personal circumstances. In the study, he suggested that there is need to have sufficient and updated MET infrastructure and instructors with a credible assessment and certification process, proof of quality production, seafarer's skills and ability, and overall good governance in the country for Myanmar to become a major seafarer supply country.

In order to develop an effective MET system, MET institutions in Myanmar have to provide the quality standard system, effective management system, the

updated curriculum, training berth and soft skill development. On the other hand, the Maritime Administration should provide the strategies for the leading, organization, implementing and controlling of the MET institutions. Furthermore, Maritime Administration should provide a good assessment and certification system in order to produce seafarers of an adequate standard.

CHAPTER 3

MARITIME EDUCATION AND TRAINING IN MYANMAR

The Ministry of Transport and Communication is the Government body responsible for the maritime sector. There are five maritime organizations under MOTC consisting of the Department of Marine Administration (DMA), the Myanmar Port Authority (MPA), Inland Water Transport, Myanmar Mercantile Marine College and the Myanmar Maritime University.

Among these, the Department of Marine Administration is the specialized executive body of the Government responsible for the implementation and enforcement of the regulatory functions embodied in the national maritime legislation. The objectives are to ensure the safety of life at sea, the safety of navigation, and the protection of the marine environment. The Department of Marine Administration (DMA), Myanmar Mercantile Marine College and the Myanmar Maritime University and private Maritime Training Centers are the main MET key players in the country.

3.1 History of the Myanmar Maritime Education and Training

In the last decade, there had only public MET institutes in Myanmar, namely Myanmar Mercantile Marine College and Myanmar Maritime University. The Institute of Marine Technology (IMT) was established on 1st October, 1971 to ensure that seafarers employed on ships are properly qualified or trained for the positions to which they are engaged. At that time, training is only undertaken by public sector in Myanmar and the IMT is the only single governmental maritime institution which provides courses for all Deck and Engineering branches of the Maritime profession. The courses range from Deck & Engine ratio to that of Master and Chief Engineer levels. IMT was upgrade to Myanmar Mercantile Marine College (MMMMC) on 25th March, 2009. The main objective of the College is to train and nature good and able seafarer endowed with international marine expertise in the uplift of the mercantile marine sector of the Republic of the Union of Myanmar.

The Myanmar Maritime University was temporarily opened in the compound of Institute of Marine Technology on February 14, 2002. The Myanmar Maritime University was inaugurated with the modern design On March 29, 2004. The main function of Myanmar Maritime University inaugurated by Ministry of Transport

(Now Known as Ministry of Transport and Communication) is to develop human resources by producing qualified graduates.

In 2010, in order to obtain the development of Myanmar economy, the democratic government established economic reform in various sectors. To improve private sector participation in the economy, the government promulgated new laws and adjusted some existing rules and regulations. The Ministry of Transport (Now known as Ministry of Transport and Communication) also inaugurated new laws, directives and circulars to promote the capacity development in the maritime sectors.

The Department of Marine Administration declared the maritime policy. The purposes of the Maritime policy are: (a) to conform national ships to safety standards, safe practices and standard of competence required of its marine personnel (b) To promote development of human resources, manpower planning and optimal utilization of such manpower in the maritime sector (c) to improve the safety record of Myanmar registered vessels (d) to improve specific obligation to save lives in distress at sea and to protect the marine environment.

DMA has its own functions for successful implementation of the Maritime Policies, one of the main functions, conducting the Maritime Education and training is related to the policy of human resources. In accordance with Regulation I/6 and the provision of section A-I/6 of the STCW Code, the DMA had existing Marine Instruction I/2008 that is Instruction for Institutes and training centers desiring approval of maritime Training Courses. The pilot project for private Maritime Training Center was provided in accordance with that instruction. The Maritime policy is mainly depends on the political and economic policies of the State and administrative and legal matters. To promote the private sector participation in MET, MOTC provided notification 108/2012 that is Rules for Issues of Certificate of Competency and Certificate of Proficiency of Seafarers.

The first private Maritime Training Center, Pacific Glory International was established in 2010 that conducted courses and training programmes related to the STCW Convention. Due to the successful implementation of this pilot project, DMA conducted the Directive for the private sector who desire to provide Maritime training Center. DMA has formulated the Directive 4/2013 Approval and Operation Procedures for MET Training Centre. According to that directive, 23 private Maritime Training Centers were accredited by Department of Marine Administration in 2013.

3.2 Existing Maritime Training Centers

In terms of seafarers' education and training, there are 23 accredited maritime training centers in the country. Among the all Maritime Training Centers, there are five MTCs that conduct COC training courses for officers as well as COP courses for officers and rating, the others MTCs conduct only COP courses, that are modeled around IMO model courses and relevant feedback from the shipping industry. A number of post-sea mandatory and familiarization courses are being conducted to comply with STCW 2010. The 23 training centers conduct 50 mandatory STCW-related courses and programs.

Table (3.1) List of the Private Maritime Training Centers

No.	Name of Maritime Training Center	Established	Conducted COC Courses	Conducted COP Courses
1.	Aung Thuraphyu	2012	-	5
2.	Brilliance Maritime Training Center (BMTC)	2014	5	25
3.	Band of Brothers (BOB)	2016	-	5
4.	BSM Maritime Training Center	2014	-	1
5.	Cygnus	2013	-	2
6.	Htet Oo	2013	-	8
7.	Harmou	2010	-	8
8.	Image	2013	-	1
9.	JSM	2012	-	3
10.	Kabar Services Co.Ltd	2011	-	7
11.	Marico	2013	-	1
12.	MSC	2013	-	2
13.	Myanmar Excellent Star (MES)	2014	5	24
14.	Myanmar Seafarer Employment Services Federation (MSESF)	2010	-	2
15.	Myanmar Seamen Federation (MSF)	2010	-	8
16.	M.T.M	2014	-	3
17.	Pacific Glory International(PGI)	2010	9	11
18.	Prosperity Maritime Training Center (PMTTC)	2019	-	7
19.	Vertex (MNA)	2014	-	5
20.	Unique	2011	-	3
21.	Uniteam Training Limited	2013	2	17
22.	Win Ye Kyaw	2013	2	3
23.	Zay Ya Theikdi	2013	-	3

Sources by DMA, 2019

3.3 The role of Marine Administration

The Department of Marine Administration (DMA) manages maritime education and training. Seafarers' education and training standards are in accordance with the STCW standards as ratified by Myanmar. According to Laws, Circulars, Directives, Notifications and Instructions, DMA is bound to administer, supervise and monitor the training centers and approve the courses satisfying regulatory requirement in line with Regulation I/8 of STCW 78 as amended which refer to the application of quality standard systems to all activities concerning training and assessment. Moreover, DMA circulate the directive 22/2014 to promulgate policy for implementation of STCW 78, as amended.

All the courses, syllabuses and assessment methods that conducted by Maritime Training Centers are presented to the DMA with due process amendments approved by Director General of the Department. All written and oral examinations are conducted by the DMA. The Nautical and Engineering Divisions examiners apply moderate marking of the examination papers. DMA also notify the national standard of minimum requirements, exam rule, system for training, examination and certification including course outline and syllabus for written and oral assessment. To achieve an efficient training, DMA monitor and verify the compliance of all public and private Maritime Training Institutes and Training Centers.

3.4 The System of Examination

An examination is a prerequisite for issuing the certificate of competency. The Department of Marine Administration (DMA) has a full responsibility for conducting examinations and issuing certificates in accordance with the Myanmar Merchant Shipping Act. A step-by-step system of maritime training and examination is conducted, commencing with pre-sea training followed by post-sea training after requisite sea-service at the prescribed appropriate levels and prior to the examination for each grade of certificate. Written examinations for each grade are mandatory, followed by the oral examination, which is of a practical nature and very comprehensive one to test the overall knowledge of the candidate and his ability to apply it. The system of examination change from knowledge based to competence based system with the full range of study (MyoThant, 1999).

Training centers provide education and training to aspiring seafarers for careers in the maritime industry. Higher maritime education usually consists of four-

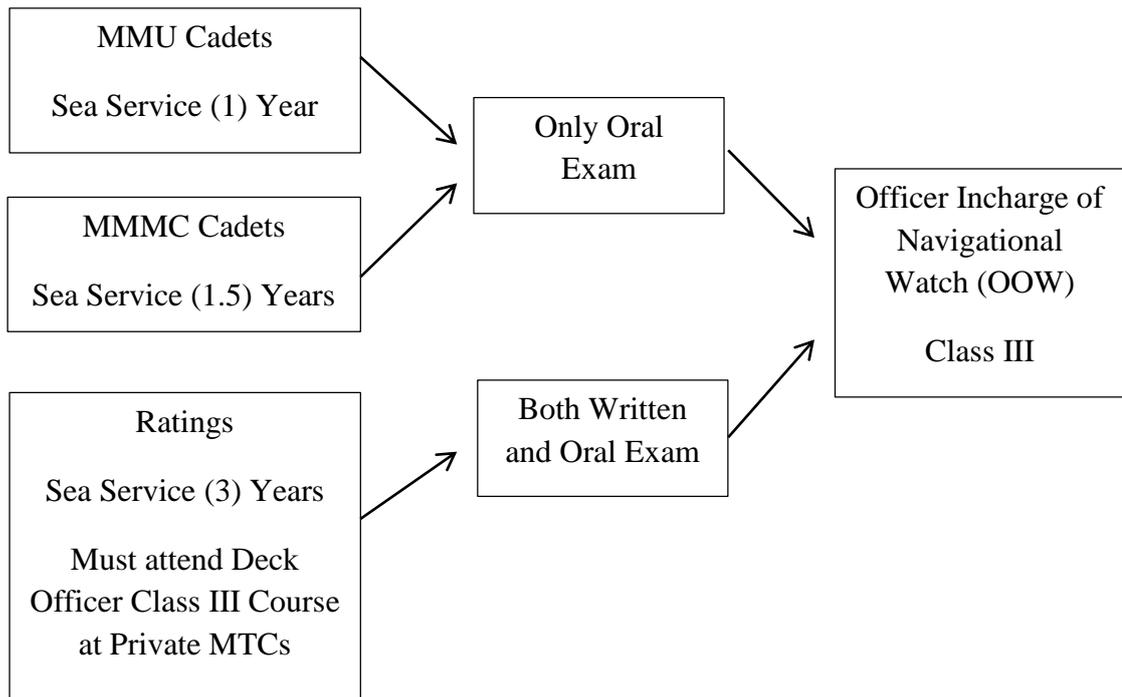
to five-year college degree programs for either marine transportation or engineering. In Myanmar, Myanmar Maritime University conduct five year degree programs, the students go through a five-year structure (4 - 1) which stipulates four years of academic study prior to onboard job training in the final year.

Otherwise, Myanmar Mercantile Maritime College conduct pre-sea program, Diploma in Nautical Studies (2 Years) subjected to passing additional programs meeting the STCW requirement for STCW content. The undergraduate study was specific because it was divided into 2 + 1.5 year. Namely, all content programs subjected to the STCW Convention for obtaining qualification were deployed within the first two years of study. The students need to obtain onboard job training for 18 months in order to complete their studies to be highest qualifications.

Maritime training is composed of shorter courses that improve the competencies of seafarers. Topics such as the general operations on board, safety and crowd management, dangerous cargoes and drug abuse prevention are included in the courses. In Myanmar, Private Maritime Training Center could provide only Competency based training, that are the traditional training courses of studies aimed merely at gaining a certificate of competency. Among the private MTCs, only five MTCs offer all three levels of the support, operational and management levels. Other MTCs offer only foundation courses and some MTCs offer specific COP courses.

Seafarers (Ratings) who want to be the officers must have approved seagoing services three years and have to attend preparatory course(40 weeks) for officer in Charge of Navigational Watch(OOW) at the approved private MTCs. After they passed through pretest by private MTCs, all trainees have to apply the both written and oral exam conducted by DMA. While the cadets of MMU and MMMC need to apply only oral exam.

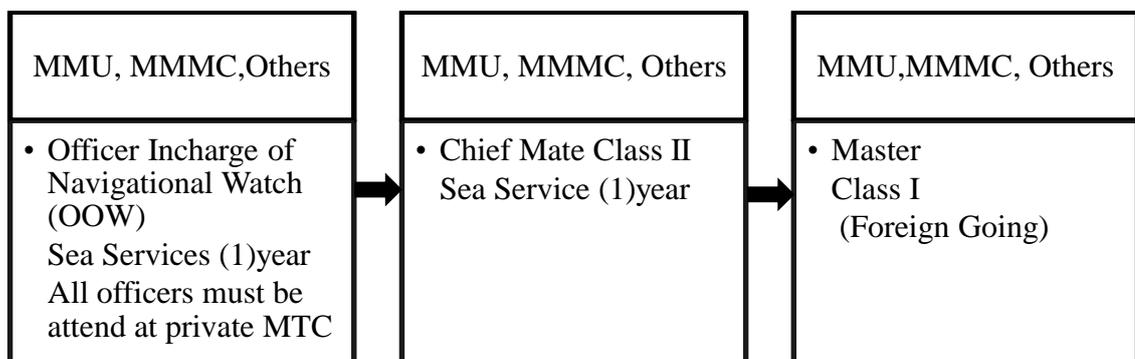
Fig (3.1) The chart of Exam System for OOW



Source: DMA (Nautical Division), 2019

On the other hand, all officers (OOW) who want to be a chief mate and all chief mates who want to be a master must have approved seagoing services at least one year respectively. All officers, graduated from MMU, Diploma holders of MMMC and trainees of private MTCs have to attend the preparatory course that provided by the approved private MTCs. The approved MTCs provided preparatory courses for class II (Chief mate) and Class I (master) respectively. After attending the preparatory courses at the MTCs, all candidates have to apply the written and oral exam that conducted by DMA.

Fig (3.2) The Chart of Exam System for Master and Chief Mate



Source: DMA (Nautical Division), 2019

3.5 Quality Standards System

STCW 95 has introduced the need for a quality standards system (QSS) for the administration, which was not there in STCW 78. It is good for the administration as well as the training centers to have a quality standard the ISO 9002 but according to STCW 95, it is not a mandatory requirement. STCW 2010, Regulation I/6 requires the Administration to supervise and monitor the training assessment of seafarers, as required under the convention that conducted by approved training centers.

According to Regulation I/8 of STCW, the administration requires continuously monitoring and evaluating through a quality standards system to ensure achievement of defined objectives. The Department of Marine Administration (DMA) sets to provide uniform standards of training in the country. DMA implement a monitoring and control mechanisms to ensure that MET standards are complied with STCW 78 as amended. This mechanism is based on a checklist approach that dispenses with the mandatory requirement for the ISO certification of the Quality System. The organization especially focus on quality standards system, organization and management, curriculum design, teaching methods and media of delivery , examination and assessment system, faculty (instructors, assessors, and support staff), admission and retention (students), facilities, training equipment, simulator, and shipboard training. In Myanmar, almost all of the Maritime Training Centers have ISO certificates that approved by various organizations such as ABS, VB, Lloyds, NK, etc.

European Maritime Safety Agency (EMSA) was established to maintain safety at sea throughout the Union and further afield. Therefore, the European-Maritime Safety Association (EMSA) intended to monitor and evaluate quality of the MET in member and candidate. The large number of the non- EU countries' seafarers employed on board EU ships, therefore EMSA focus on the MET systems of third party countries and has inspected many MET institutions in these countries. EMSA made a detailed study on the MET systems in 2010 and submitted a report to EU countries and ship-owners about the findings of this study. Although there had some deficiencies in audit reports, EMSA accepted that Myanmar Maritime Training Centers could comply with their standards.

3.6 Myanmar Maritime manpower situation

Myanmar is traditional maritime labour supply country. Myanmar had a quite sufficient marine infrastructure and seafarers have a good reputation. They are employed in the region as well as on global trading vessels around the world. Myanmar seafarers are understanding, hardworking, obedient, sober, loyal and professional skilled in their trade. With regard to the quality of Myanmar seafarers, they are trained in compliance with the provision of STCW 2010. According to Seafarers International Research Centre (SIRC) Global Seafarers Database, Myanmar was situated at the tenth place of top ten largest seafarers supply countries in 2003.

Table (3.2) Ten Largest Seafarers Supply Countries

Rank	Country	% of Sample
1	Philippines	28.1
2	Russia	6.8
3	Ukraine	6.3
4	China	6.2
5	India	5.0
6	Indonesia	4.0
7	Poland	3.5
8	Greece	2.8
9	Turkey	2.5
10	Myanmar	2.3
	All top 10	67.5%

Source; SIRC Report, 2003

However, Myanmar could not maintain its comparative advantage in the maritime labour market. The number of Myanmar seafarers is still leveled off while other countries' maritime labour supplies are increased steadily year by year. An employment rate of Myanmar seafarers in the international maritime labour market is dramatically decreased from 2014 to 2018. According to the BIMCO report, Myanmar is out of the top ten largest seafarers supply countries. Although the number of the supply of Myanmar seafarers rose slightly, the percentage of the involvement of the world seafarers supply market declined dramatically from 2.3% in 2003 to just under 0.42% in 2015. By contrast, the percentage of the other maritime labour supply

countries such as China, Philippine, Indonesia, Russia and Ukraine went up by varying degree.

Table (3.3) Supply and Demand of Myanmar Seafarers

Year	Total Number of Seafarer	Onboard Seafarer	% of employment
2014	54247	31807	58.63
2015	58104	31272	53.82
2016	61277	31810	51.91
2017	64199	32958	51.33
2018	56112	32026	57.07

Source; DMA (Seafarer Division), 2019

3.7 Number of Seafarer by Rank (Deck)

By the end of April 2019, there were 1518 masters, 7260 qualified deck officers and 25831 ratings forming part of navigational watch. The total number of seafarers (Deck) holding valid certificates for international voyage was 34609. The ratio of the deck officers and ratings is 1: 2.95.

3.8 Seafarer's Education and Training

To enhance the quality of seafarers, Maritime Training Centers have been conducted several courses that approved by DMA. The number of the COC courses and short courses (COP courses) were as follow;

Table (3.4) Number of Enrollment

No.	Year	COC Courses	COP Courses	Total
1.	2014	5	26	31
2.	2015	5	38	43
3.	2016	5	38	43
4.	2017	8	40	48
5.	2018	9	41	50

Source; DMA (Nautical Division), 2019

As shown in the above table, the Maritime Training Centers provided the COC and COP courses that had the drawn up the respective curricula and syllabuses based upon various model courses and IMO Conventions STCW 78 as amended and beyond

the STCW as the requirement of industry. At present, the private Maritime Training Centers conduct courses covering Nautical and Marine Engineering as well as academic subjects relevant to the maritime occupations from basic seaman to Master and First Class Marine Engineer in different trades. The certificates of competency awarded to all nautical officers, marine engineers and other ranks whose have been trained by private Maritime Training Centers have been recognized by DMA. The MTCs provide both pre-sea and post-sea refresher and upgrading courses for deck and engine personnel of the merchant navy.

Table (3.5) Number of Trainees

	2015	2015	2016	2017	2018
No. of Training Centers	30	23	22	22	23
No. of Courses	36	40	45	46	50
No. of Trainees	41515	46565	69391	35345	36488

Source: DMA (Nautical Division), 2019

3.9 The White List

The White Lists is a list of countries assessed by the International Maritime Organization as properly implementing the STCW-95 convention as amended. Myanmar is on the IMO STCW white list and has signed the STCW Manila amendments.

CHAPTER 4

SURVEY ANALYSIS

4.1 Survey Profile

This chapter presents and analyzes data collected in an effort to explore the situation of private MET in Myanmar and the opportunities and challenges facing the MET implementation process. This survey was conducted only in Yangon because all private MTCs situate at the Yangon and almost all of the seafarers live in Yangon or stay at Yangon due to the nature of job. The target group of the study was all private maritime training centers, instructors and seafarers of deck department. The targeting of seafarers within the officer rank is based on the rationale that such officers may have gathered higher experience and training than those in the lower ranks, and would therefore offer rich perspectives. Primary data was collected through questionnaires which were dispatched to those private Maritime Training Centers, instructors, trainees and seafarers.

According to the data of DMA, total number of the Private Maritime Training Centers was 23 and total population of seafarers (deck) was 34,609 by the end of April 2019. The total number of instructors was 280 those who can be divided into two groups, permanent lecturers and visiting lecturers. The MTCs situate at the various area of Yangon City where as Tharketa Township, Dawbon Township, Thanlyin Township, Ahlone Township, South Oakkalapa Township, Botahtaung Township.

4.2 Survey Design

In order to meet with the objectives of the study, total numbers of 300 respondents were selected, among these 200 participants were selected from seafarers of various level and 100 participants were selected from instructors of the private maritime training centers. The margin of error was taken 5 percent with 95 percent confidence level. The systematic random sampling was used for selecting sample respondents for instructor from the private maritime training centers and simple random sampling method was used for selecting respondents, seafarers and trainees. Both qualitative and quantitative methods were applied for this survey. In obtaining primary data, the qualitative research method was mainly used to investigate the objectives of the study.

In compliance with the objectives of the study, the two sets of well-structures questionnaires were provided. The questionnaires were based on the OECD standard questionnaire and other literature reviews about MET System development. The English version of questionnaire was translated into Myanmar version. In the questionnaire for instructors, there were four sections, the section A was concerned about demographic factors of respondents which include gender, age, sea service, teaching service and qualification. The section B concerned about the government policy, procedure of administration, quality policy of MTC and implementation of these policy. The section C was concerned with the investment and infrastructure requirement of MTC. The section D consisted of human resources and technical advantages in maritime sector.

Another questionnaire for seafarers consisted of four sections, the section A was concerned about the demographic factors of respondents which include age, sea service, education and monthly income. The section B consisted of questionnaires that concerned with their satisfaction and evaluation of private maritime training centers. The section C concerned with their expectation about job opportunity and section D was concerned about the sustainable development of Maritime training Centers.

To obtain the detail primary data, key informant interviews were provided with the key person of administration, private maritime training centers and seafarers of management level. In this interviews, the questions were concerned about the rules and regulations, procedures and directives of administration, the challenges of private MTC, how to adapt advance technology, the quality policy and comparison with foreign Maritime training centers, training requirement and simulator and teaching aids requirement. To collect primary data, this survey was conducted for two months from the first week of May to the end of July, 2019. A total of 199 respondents (seafarers/trainees) and 100 respondents (instructors) were available during the survey period. Interviews and the collected data were transcribed and analyzed by using SPSS quantitative data analysis software and descriptive method was used for analyzing results.

4.3 Survey Results

The survey results of the study are based on the structured questionnaire and proceed with the analysis of the questions.

4.3.1 Analysis on the Management, Instructors and Staffs

To obtain the objectives of the study, the survey analysis is presented in four sections, (a) Demographic Factors of Respondents (b) Policy and Policy implementation (c) Capital Formation and Infrastructure and (d) Human resources and Technical Advantages.

(a) Demographic Factors of Respondents (Instructors)

The target group of respondents on this survey is based on the instructors who are working in the 23 Maritime Training Centers in Yangon City.

Table 4.1 Profile of Respondents

No.	Variable	Characteristics	No. of Respondents
1	Gender	Male	96
		Female	4
		Total	100
2	Targeted Group	Management Level	29
		Instructors	69
		Teaching Staff	2
		Total	100
1	Age (in years)	Less than or equal 30	6
		Between 31-40	16
		Between 41-50	26
		Between 51-60	17
		Above 60	35
		Total	100
2	Qualification	Diploma	14
		Bachelor Degree	32
		Master Degree and above	16
		COC Holder	38
		Total	100
3	Working Experiences/Sea services	Less than or equal 10 years	32
		between 11-20 years	31
		between 21-30 years	23
		31 years and above	14
		Total	100
4	Teaching Experiences	Less than or equal 10 years	82
		between 11-20 years	10
		between 21-30 years	6
		31 years and above	2
		Total	100

Source: Survey data, 2019

As shown in table (4.1), due to the nature of work, almost all of the respondents (instructors) are male (96%) and female (4%). Total number of targeted respondents (instructors) is 100. The respondents contribute that management level, instructors and teaching staffs. The majority of respondents (69% or 69) are the instructors of MTCs follow by the management level and teaching staff (29% or 29 and 2% or 2 respectively).

The most striking feature is that the majority of the age of the respondents is over 60 years old, (35% or 35 No.) follow by the 26 respondents each between 41-50 years. While the age between 31-40 years and 51-60 years are 16% or 16 and 17% or 17 respectively. The lowest rate of the age group is less than or equal 30 years group, 6% or 6 only. It can be concluded that the most instructors are retired mariners or maritime background and therefore the aged instructors are majority group and they have many experiences in their related field. Teaching experiences of respondents dramatic shows that the highest rate is the group of less than or equal 10 years, 82% or 82 follow by the group between 11-20 years 10% or 10. The group, between 21-30 years is 6% or 6 and the lowest group, over 31 years is only 2% or 2. The age of private Maritime Training Centers are round about 8 to 9 years, so teaching experiences of the most instructors are quietly low under 10 years.

Education level of the instructors is acceptable for the training centers, according to the result, the majority of the respondents have Certificate of Competency to serve as a Master, Chief Mate or Second Mate onboard. The data obtained from the questionnaire reveals that most of the instructors are the graduate and COC holders. Total 16% or 16 respondents are post graduate of education, master degree and above. All non-maritime teachers are post graduate level where they teach the academic subjects for foundation courses.

(b) Policy and Policy implementation

To find out the impact of MET policy and policy implementation on the private maritime training centers, the study went further to ask the respondents with the 13 no. of Yes/No questions and responses are as follow.

Table 4.2 Impact of policy and policy implementation on private MTCs

Statements	No. of Respondents in Agree	No. of Respondents in Disagree	No. of Respondents in Don't know	Total Respondents
The policy, rules and regulations and directives of MOTC, are supported for private MTC	58	8	34	100
Any difficulties for implementing by these policies	30	26	44	100
Need to adjust these policies and rules and regulations	16	39	45	100
Quality Policy stated by Administration	66	4	30	100
own Quality Policy of Private MTCs	88	2	10	100
Qualification of Instructors and Assessors	84	-	16	100
Monitoring by Administration	98	2	-	100
Is there any difficulties Implementation of daily works of MTCs under rules and regulations	73	4	23	100
Co-operation with foreign MET Institutes	12	64	24	100
Co-operation with local MTCs	41	41	18	100
Overcome some barriers by co-operation	56	6	38	100
Willing to launch e-learning /distance learning system	47	10	41	98
Need to adjust regulation for e-learning	50	5	43	98

Source: Survey data, 2019

Almost all of the respondents 100 were giving answer for the survey questions. As shown in Table 4.2, the results of the factors on the policy impact on Private MTCs were as follow. The 58% of respondent agree that the policy, rules and regulations of administration are supported for the development of private MTCs while the 8% of respondents disagree the statement and 34% of respondents answered they don't know about the statement. For the question, are there any difficulties to implement this policy, rules and regulations for the development? The 30% of respondents assume that there are some difficulties, but 26% responded there are no difficulties and 44% of respondents don't know or they have no opinion. Only 16% of respondents agree to adjust existing policy, rules and regulations while 39% of respondents remain the same and 45% of others have no idea. It can be concluded that government policy, rules and regulations and procedures were not barrier for the development of private Maritime Training Centers, but it had some minor issues to adjust for the easy implementation.

The most important statement for the MTCs, quality policy, total 66% and 88% of respondents know the administration quality policy and own quality policy respectively. However, a few percent of respondents 4% and 2% don't know and 30% and 10% of respondents have no opinion. The statistics suggested that the majority of respondents group know both the administrative and training center's quality policy. For the qualification of instructors and assessors, 84% of respondents agree that qualification and 16% of respondents had no opinion. Although all instructors and assessors have to know about this qualification, this result may be acceptable due to the majority of respondents know about this statement.

Total 98% of respondents agree the statement, monitoring by administration while 2% disagree about this statement. It can be concluded that all training centers are monitored by the administration for the quality control. The rules, regulations and procedures may cause some barriers for implementation of daily work of MTC therefore it should be adjusted for easy implementation, because 73% of respondents agree existing procedures have some difficulties and 23% respondents don't know about this. Only 4% of respondents answered there had no difficulties.

Total 64% of respondents answered they don't have cooperation with foreign MET Institutes and 24% of respondents don't know about this statement. Only 12% of respondents answered their training center has co-operation. It is obvious that most of the training center cannot effort to cooperate with foreign MET Institutes, but a few

training center had cooperation. For the questionnaire about cooperation with local training centers, 41% of respondents answered they have cooperation while other 41% of respondents answered they stand on their own. 18% of respondents don't know about the questionnaire. Total 56% of respondents believed that it can overcome some barriers such as technology, investment, infrastructure by cooperating with other local training centers. However 38% of respondents didn't know about this and 6% of respondents disagreed about this statement. It can be concluded that some training centers that have lack of fund and infrastructure could be operated their works by sharing infrastructure such as smoke house, simulator or water pool with other training center. So they can reduce the amount of investment for infrastructure, while the owner of such infrastructure could have other income by hiring its equipment and infrastructure.

The 47% of respondents had willing to launch e-learning or distance learning system, 41% of respondents had no opinion about this statement. Only 10% of respondents disagreed for launching this system. For the implementation of this system, 50% of respondents answered that its need to adjust some regulations and 5% were disagreed about this statement. The 43% of respondents didn't show their opinion.

(c) Capital Formation of Private MTCs and Infrastructure

In order to find out the main challenges of development of private MTCs, the eight questions that included were dispatched to analyze basic needs for founding MTCs.

Table 4.3 Investment and Infrastructure of private MTCs

Statement	No of respondents in agree	No respondents in disagree	No. of respondents in Don't know	Total respondents
Sufficient fund, to expand Existing facilities	17	28	49	94
Subsidies from Government or institutes or enterprise	0	65	31	96
Large amount of funds for teaching aids and equipment	77	1	20	98
Easy to get land, easy to construct building	1	80	17	98
Sufficient Infrastructure for operating MTCs	54	35	9	98
Location of MTCs	92	2	6	100
Profit from investment	17	18	61	96

Source: Survey data, 2019

According to interviews and survey results, the owners of private MTCs founded their training centers with the investment of their own budget or partnership investment. There is no foreign direct investment or joint venture with foreigner. The facilities of all training centers have to meet with the international standard; therefore it is very expensive for expanding their facilities. A few training centers had sufficient funds for expanding their facilities while other cannot effort to expand because of insufficient funds. For the question about subsidies from government or institutes or organizations, all training centers didn't have any subsidies from government or others. It can compare with other country such as Philippine experiences. The private training centers of Philippine have received subsidies from their government or

shipping organizations. So that seafarers could attend the training course with the support of shipping lines or grants or loan of government.

Due to the technical advantages, training centers have to adapt their teaching technique with the aids of modern equipment. However, the fund requirement for installation of this equipment is very high that cause the challenge for MTCs. The high price of land is one of the major challenges of the MTCs, moreover the construction cost for building, class room and others are very expensive. Some MTCs operate on their own private land however some MTCs operate by hiring government compound or private rented house for long term. Although the operating cost of training centers are quietly expensive, the other infrastructures such as electricity, water supply, ICT, communication are quietly sufficient for all training centers. Almost all of the training centers are situated at the location where seafarers can easily get there.

Some respondents were absent to answer the question about rate of return, only 17% of respondents answered that they had received suitable rate of return for their investment. The 18% of respondents answered that they didn't have while other 61% of respondents didn't show their opinion. It is hard to ask about the financial of their private business.

(d) Human resources and Technical Advantages

Human resources and adaptable to advanced technology are vital role for sustainable development of private MTCs. In order to obtain this issue, the study carried out the survey of hiring qualified instructors and technical advantages of MTCs.

Table 4.4 Human Resources of MTCs

Statement	Total No. of respondents in agree	Total No. of respondents in disagree	Total No. of respondents in Don't know	Total respondents
Easy to hire competence Instructors	55	19	22	96
All instructors are hired with the approved quality standard	92	0	6	98
Most of the instructors have attended Training the trainer courses	94	0	4	98
They also have been attended the refresher courses in local and abroad	65	10	23	98
Staff of MTCs know very well that directives, procedures of Administrative and policy of MTCs	76	4	18	98

Source: Survey data, 2019

As shown in table 4.4, total 55% of respondents agreed it is easy to hire the competence instructors while 22% of respondents don't know this issue. 19% of respondents didn't agree this statement because it is very difficult to hire competence instructors for some specific course such as gas tanker operation and advanced gas tanker operations. According to this survey, MTCs could hire easily instructors however difficult for specific courses. The statistics show that the competency of almost all instructors meet with the requirement of quality standard of administration and training centers. Although the majority of instructors are aged instructors, there is no generation gap for the qualified instructors. All instructors have not only the

required certificates for competency for the related subjects but also the certificates of Train the trainer course that is upgraded for their teaching skill.

Table 4.5 Ability of adaption to Technical Advantages

Statement	Strongly Disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree (%)
Syllabus and Curriculums are in line with STCW	0	0	8	23	69
It is difficult to change the course in time to adapt with up to date technology	2	4	35	20	39
Sufficient teaching aids for practical training	0	12	19	17	52
Teaching aids of MTCs are in line with up to date technology and ship operation			29	25	46
It is difficult to teach modern information technology and communication technology	3	2	31	25	39

Source: Survey data, 2019

The survey results suggested that almost all of MTCs could provide the syllabus and curriculums in line with STCW, because all courses are conducted base on the model courses of IMO published. Moreover, DMA strictly checked all the syllabus and curriculums in order to meet their approved standard. However, the MTCs cannot effort to obtain up to date IMO model courses so that there are many difficulties to adapt with the technical advantages. Only five MTCs in the study have technological installations for practical training including computer based training, laboratories and workshops, as well as full mission bridge simulators, Radar and Electronic Chart Display and information System (ECDIS). Tanker simulators have also been installed in four MTCs. These MTCs trained the trainees with the teaching aids such as full mission Bridge simulators, Radar ARPA, EDICS and other simulators while other

MTCs cooperate and share simulation equipment for different exercises and training needs. Most of the respondents agreed that it is difficult to teach modern information technology and communication technology because these technologies are updated day by day.

Table 4.6 Use of simulators and teaching soft skills

Statement	Total No. of respondents in agree	Total No. of respondents in disagree	Total No. of respondents in Don't know	Total respondents
Training by simulators is effective training	79	9	12	100
All simulators are in line with the electronic devices, machineries using onboard	71	15	14	100
Sufficient time for trainees using simulators	53	24	23	100
Refresher courses for simulator instructors	25	24	51	100
Should MTCs teach English and computer literature	80	6	14	100
Should MTCs teach soft skill such as discipline, team work	56	8	36	100
Should MTCs teach the trainees the manner and attitude	55	25	20	100
Should MTCs teach in detail of rights and responsibilities of seafarers stated by conventions	61	16	23	100

Source: Survey data, 2019

As shown in table 4.6, the majority of respondents agreed with the statement that training by simulators is effective training for seafarers. In Myanmar, there had no training ship for cadets due to the lack of funding and lack of resources, so simulator training is properly use for cadet training. Total 71% of respondents agreed that all simulators that used in MTCs were adaptable for using electronic devices and

machineries onboard. However, the most simulators using in MTCs are type generic and there were very few type specific simulator due to the higher price than that of type generic. It may be one of the major challenges of Private MTCs. Round about half of the respondents approved that there were sufficient time for simulator training while 24% of respondents didn't agree this statement. Other respondents don't know about the statement. The result was not positive for trainees. The question, should MTCs teach English and computer literature, total 80% of respondents agreed and only 6% didn't agree. 14% of didn't show their opinion. The customer feedback from shipping lines interpreted that Myanmar seafarers were very poor in the language proficiency both speaking and writing skill. Ship owners or management remarked that Myanmar seafarers especially officers need to upgrade their English language skill.

According to survey results, MTCs should provide the courses for soft skill such team work, discipline, ethic and attitude for seafarers. Total 56% of respondents agreed this statement and only 8% of respondents think it shouldn't need. The other respondents don't know what should be. The survey results suggested that everyone should respect each other's individuality, value, culture and purpose of work, true appraisals and reporting - discipline on board - recognizing and adjusting to cultural differences. Moreover, it should be clearly stated that the shipboard operation is one of team work and its effectiveness depends on the effectiveness of each individual team member. Seafarers have to know what their rights are and what the obligations are onboard according to the IMO and other conventions.

4.3.2 Analysis on the Respondents (Seafarers)

The questions on the perception and satisfaction of seafarers were asked to assess the conditions of private MTCs. In order to study, survey analysis is presented in five sections; (a) Demographic factors of seafarers (b) Reason for choice of seafarer carrier (c) Evaluation on private maritime training centers (d) Expectation of job opportunity and carrier development and (e) Cost of training.

(a) Demographic Data of Respondents (Seafarers)

The target group of respondents on this survey is based on the 200 seafarers who have been attended the training courses in the private MTCs. Total 198 seafarers answered the questions for this survey.

Table 4.7 Profile of Respondents

No.	Variable	Characteristics	No. of Respondents	Percent
1	Age	Under 20 years	-	0
		Between 21-30 years	94	47.5
		Between 31-40 years	78	39.5
		Between 41-50 years	22	11.1
		Over 50 years	4	2
		Total	198	100
2	Education	High school	43	21.7
		Diploma	48	24.2
		Bachelor Degree	107	54
		Master Degree and above	-	-
		Total	198	100
3	Occupation	Management Level	64	32.3
		Operational Level	100	50.5
		Supporting Level	34	17.2
		Total	198	100
4	Working Experiences	Under 5 years	80	40.4
		Between 5-10 years	87	43.9
		Between 11-20 years	21	10.6
		Above 20 years	10	5.1
		Total	198	100
5	Monthly Income (US\$)	Under 500	8	3.9
		Between 500-1000	44	22.3
		Between 1001-2000	28	14.2
		Above 2000	118	59.6
		Total	198	100
6	Frequency of attending MTCs	1-3 times	69	34.8
		4-6 times	39	19.7
		7-10 times	51	25.8
		Over 10 times	39	19.7
		Total	198	100

Source: Survey data, 2019

Total 198 seafarers responded to the questionnaire during the survey. Due to the nature of work, all respondents were male so that this study didn't need to ask gender question. The majority age level group (between 21-30 years) was 47.5% followed by the age level group (between 31-40 years) 39% of respondents. Total 11.1% were age level group (between 41-50 years) and there were a few respondents (2% or 4 no.) of age level above 50 years. It can be concluded that most of the aged

seafarers retired from their work or changed the work earlier than that of other workers who worked on ashore.

Education level is one of the most important factors of the seafarers for their carrier life. To be a higher position onboard, all seafarers must be well educated due to the higher technology of existing ships operation and future advanced technology of coming ships operation. In this survey, total 54% of respondents are graduated level and 24.2% of respondents are Diploma level of Nautical Studies. Other 21.7% of respondents are high school level education. According to this result, the education level of the most seafarers meet with the minimum requirement of international standards.

The number of targeted respondents is 200. Total 198 respondents answered the questionnaire. As shown in table (4.7), the majority of respondents 50.5% are operational level that is second mate and third mate, followed by management level, master and chief mate representing 32.2%. Other 17.2% of respondents are supporting level, crews. The survey was more targeted to the officials' level in order to get their valuable experiences and rich perspectives. According to these results, 43.9% of the respondents have working experiences between 5-10 years and the second largest group of respondents (under 5 years) represent 40.4%. The respondents with experiences between 11-20 years represent 10.6% and 10 respondents (5.1%) are above 20 years of experiences.

The majority of 118 respondents (59.6%) can earn over US\$ 2000 per month, followed by the group that can earn US\$ 500-1000 represent 22.3%. There are 28 respondents or 14.2% in monthly income US\$ 1001-2000 and only 8 respondents (3.9%) in monthly income under US\$ 500. It can conclude that the majority of seafarers group in this study could earn more salary than the local average salary rate. Therefore, seafarer job is attractive to young people because of financial rewards and social benefits for them and their families.

In this survey, 34.8% of respondents had attended MTCs frequency of 1-3 times followed by 25.8% of respondents who had attended 7-10 times. The frequency of 4-6 times and over 10 times had the same respondents represented with 19.7%.

(b) Reason for Choice of Seafarer Carrier and MTCs

Every seafarer has the reason for the choice of their carrier, to understand this reason of choice and why they attend the MTCs, the survey carried out with 200 seafarers.

Table 4.8 Reason for Choice of Carrier and MTCs

No	Variable	Characteristics	No. of Respondents	Percent
1	How do you choice to attend MTCs?	MTC of near my house	15	7.6
		Famous for teaching technique	161	81.3
		Low cost MTCs	4	2.0
		Training Center that attending my friends	18	9.1
		Total	198	100
2	Factors attracting for seafarer carrier	Money/ Salary	107	54
		Hobby	47	23.7
		Want to travel around the world	25	12.6
		According to Parent, Relatives and friends	19	9.6
		Total	198	100
3	Do you believe that your living standards will improve by doing seafarer job?	Yes	117	59.1
		No	14	7.1
		I don't know.	67	33.8
		Total	198	100
4	Do you think that the role of MTC is important for the seafarer carrier development?	Yes.	188	94.9
		No.	2	1.0
		I don't know.	8	4.0
		Total	198	100

Source: Survey data, 2019

As shown in table (4.8), the most seafarers choose the MTCs according to their quality standards, teaching style and teaching technique. Total 81.3% of

respondents make a wise choice while 9.1% of respondents choose the training center that attending their friend. Some respondents (7.6%) choose MTC where near to their home and only 2% of respondents choose the low cost MTCs. According to this result, the quality standard, teaching style and disciplines of the MTCs are important for attracting the seafarers to attend their training centers.

The majority of 54% of respondents choose this carrier due to the salary and 23.7 % of respondents based on their hobby. Other 12.6% of respondents choose this carrier for travelling around the world while another 9.6% of respondents make a choice according to the parent, relatives and friends. By contrast, most of the seafarers choose this carrier based on the attractive salary of international pay scale. The majority of respondents believe that their living standards will improve by doing seafarer job. Total 7.1% of respondents don't believe and 33.8% of respondents don't answer exactly about this statement.

Almost all of the seafarers believe that the role of MTCs is very important for their carrier development. Only 1% of respondent disagree this statement and 4% of respondents could not answer exactly about this statement. Seafarers can obtain the competency, proficiency by attending the training courses and can promote by studying certificate of competency courses at private MTCs.

(c) Evaluation on the Private Maritime Training Centers

To find out the point of view of seafarers on the MTCs, total (13) questions were provided in order to evaluate the performance of private MTCs. These questions consist of influence factors such as curriculum design, infrastructure, teaching aids, technique, and instructor's quality and so on.

Table 4.9 Evaluation on the Performance of Private MTCs

Statement	Strongly Disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Disagree (%)
Curriculum in line with STCW	2.5	7.1	22.7	36.9	30.8
Sufficient Infrastructure	5.1	9.1	39.9	24.2	21.7
Adequate Teaching Aids	8.1	10.1	36.3	28.8	16.7
Teaching Technique are easy to understand for trainees	3.0	8.6	12.6	50.0	25.8
Quality of Instructors	1.0	2.5	11.1	49.5	35.9
Adequate Practical Training	4.0	13.6	29.8	34.3	18.2
Training courses are support to Duty onboard	2.0	2.0	31.8	37.4	26.8
Practical training with teaching aids relates to use devices onboard.	4.0	9.1	36.3	30.8	19.7
MTCs can change their teaching technique due to the advanced Technology	2.0	9.1	39.4	33.3	16.2
Adequate instructors and teaching aids for specific courses	3.0	13.1	33.3	36.4	14.1
Make an assessment	4.0	10.1	22.7	34.3	28.8
MTCs provide QMS	2.0	6.1	30.8	42.4	18.7
Monitoring by administration	5.1	13.1	22.7	29.8	29.3

Source: Survey data, 2019

Among the targeted respondents, the total number of 198 respondents was giving the answer for this survey questions. To find out positive result, the survey data

of agree and strongly agree are combined as an agreement result and to find out negative result, strongly disagree and disagree data were combined.

As shown in Table (4.9), the majority of the respondents agree with the statement of MTCs provided syllabus and curriculum design in line with STCW and directives of local administration. The other questions about MTCs could conduct the systematic teaching technique and the quality of its instructors were rated the highest value. The statistics data suggested that the private MTCs could currently provide with the expectation of the seafarers in these questions. By this result, the teaching skills of the instructors are fulfilling the requirement of the industry and there are adequate qualified instructors for all private MTCs.

Although the results of other statement represent positive condition, the positive percentage of respondent were above the average and the percentage that represent neutral were quietly high. It can be concluded that the infrastructures of all MTCs are not sufficient to meet with the international standard.

(d) Expectation of Job Opportunity and Carrier Development of Seafarers

The respondents in this survey were asked to know about their expectation of job opportunity after attending the training courses at the MTCs. In this study area, the questions not only the expectation of job opportunity but also the carrier developments of seafarers were provided for obtaining the respondents feedback.

Table 4.10 Expectation of Job Opportunity and Carrier Development of Seafarers

No.	Variable	Characteristics	No. of Respondents	Percent
1	Is there more job opportunity by attending training courses at MTCs?	Yes	80	40.8
		No	16	8.2
		Don't know.	100	51
		Total	196	100
2	Is there more convenient to apply job at the crew manning company after holding required certificate by attending MTCs?	Yes	86	43.4
		No	25	12.6
		Don't know.	87	43.9
		Total	198	100
3	Did you get promotion by attending MTC?	Yes	143	72.2
		No	55	27.8
		Don't know.	-	-
		Total	198	100
4	What is important factor to be a competence seafarer?	Teaching of MTCs	12	6.1
		Effort of trainees	17	8.5
		Above all	169	85.4
		Total	198	100
5	Should MTC provide soft skill course other than competency courses?	Yes	148	74.7
		No	9	4.6
		Don't know	41	20.7
		Total	198	100
6	What factor is most important for seafarer?	Training	13	6.6
		Effort of myself	22	11.1
		Moral	29	14.6
		Discipline	20	10.1
		Above all	114	57.6
		Total	198	100

Source: Survey data, 2019

The table (4.10) illustrates the percentage of respondents on their expectation of job opportunity and factors effecting the carrier development of seafarers. Total 40.8% of respondents agree with the statement, they can get more job opportunity after attending the training courses at MTCs where as 8.2% of respondents disagree with this statement. Surprisingly, total 51% of respondents do not represent the exact answer, they don't know or they have no opinion about this statement or they don't want to answer this question. The next question, applying job at the crew manning company after holding required certificate by attending MTCs, total 43.3 % of respondents agree with this statement while 12.6% of respondents disagree and the other 43.9% of respondents do not show their opinion. However, total 72.2% of respondents agree that they obtain promotion after attending MTCs. It can draw conclusion that job opportunity does not rely on not only the MET but also other factors.

To understand the perception on the carrier development of seafarers, three influence factors are carried out with the 198 respondents. According to survey, total 85.4% of respondents believe that both factors, teaching of MTCs and effort of trainees are very important to be the competence seafarer. The respondents also agree with the statement the detail course for soft skill such as ethic, discipline should be provided by all MTCs. The total 57.6% of respondents believe that the factors such as training, effort, moral, discipline are important to be profession at their work. Other respondents choose only one factor of these 6.6%, 11.1%, 14.6% and 10.1% respectively. From this analysis, the most seafarers know very well that what important factors for their carrier development are.

(e) Cost of Training

To examine the satisfaction of trainees/seafarers on the cost of MTCs, the three questions including who pay the training cost, the cost are suitable or not and any burden for seafarers were provided in this study.

Table 4.11 Cost of Training

No.	Variable	Characteristics	No. of Respondents	Percent
1	Who is sponsor for the cost of training?	Myself	138	69.7
		Parent, Relatives	40	20.2
		Shipping company/Crew manning company	17	8.6
		Scholarship	3	1.5
		Total	198	100
2	How do you think the training cost are suitable or not for trainees?	Yes	135	68.2
		No	2	1.0
		Don't know.	61	30.8
		Total	198	100
3	Is there any burden for the training cost?	Yes	32	16.2
		No	110	55.5
		Don't know.	56	28.3
		Total	198	100

Source: Survey data, 2019

The table gives information about the satisfaction of seafarers/trainees on the training cost of MTCs. One of the most striking features of the table is that total 69.7% of respondents paid the training cost by their self where as 20.2% of respondents were sponsored by their parents or relatives. Regarding the survey result, some respondents received stipend and scholar from shipping company and others at about 8.6% and 1.5% respectively. Most of the respondents agree that the training cost are suitable for trainees at 68.2% while only two respondents (1% of respondents) think the cost are not fair for trainees. However, total 30.8% of respondents do not represent their opinion about this statement. Total 55.5% of respondents represent there is no burden for the training cost while other 16.2% of respondents have opponent view. While total 28.3% of respondents don't want to represent their opinion or they don't want to answer about this question.

Overall, there is very little or few amount of scholars or stipends for the seafarers, the majority seafarers paid the training cost by their self. However, these

training costs are burden to minority of seafarers because most of the seafarers get high income. Training cost is not barrier for almost all of the seafarers.

Moreover, to find out the seafarers opinion about the sustainable development of private MTCs, the majority of respondents agree with the statement about co-operation with foreign METIs in order to share their experiences, technologies, practical training and teaching syllabus. Almost all of the respondents agree with the statement about MTCs should provide e-learning or distance learning system. If MTCs conduct this system, all seafarers easy to access the training courses when they were onboard or abroad except practical exercises. This may be opportunity for the most seafarers for the purpose of their carrier development. The most respondents believe that the situation of world economy and world trade may affect the labour market of seafarers as well as the employment rate of seafarers and this may be big impact on the private MTCs that effect the fluctuation of enrollment rate of trainees.

4.3.3 Key Person's Perception on the Development of Private MTCs

To obtain the detail primary data on the development of Private MTCs, Key Informants Interview was conducted with the management level key person who is responsible for MET section of DMA and the principal of Private MTCs. In the interview, the questions were provided that policy liberalization or procedures adjustment for development of private MTCs, training ship requirement for cadets, what are the challenges of MTCs and how to overcome these challenges.

In the interview with responsible person of DMA, total three questions were asked and responses are summarized as follows:

Q1: How can adjust or liberalize the laws, rules and regulations for the development of private MTCs?

Answer: The Department of Marine Administration is the specialized executive body of the Government responsible for the implementation and enforcement of the regulatory functions embodied in the national maritime legislation. All of the laws, rules and regulations were conducted in line with the requirement of IMO conventions. DMA have been liberalized some rules and regulations for the development of MTCs. However, all MTCs should be followed strictly some laws, rules and regulations. For example, teachers and assessors in MTCs should be trained appropriately and possess minimum standards as stipulated the STCW Convention 78

as amended. Maritime administrations have the responsibility to ensure that instructors, supervisors and assessors are appropriately qualified for the particular types of training and competencies and levels of the seafarers as required by the STCW Convention as amended. Therefore, DMA could not adjust these laws, rules and regulations but other rules and regulations and procedures for implementation of private MTCs such as approval procedures and operating procedure could be adjusted as needed.

Q2: How can solve the problem that the lack of training ships for sea training in Myanmar?

Answer: Sea Training is an integral part of MET and assessed as a part of academic programs of maritime education institutions. Today all cadets are obliged to complete successfully at least one year sea training program on board ships to become navigation and marine engineering officers. Some countries such as China, South Korea and Japan have training ships and they provide sea training under the supervision of the maritime lecturers deployed on board for some phases of the training in particular for initial stages. In Myanmar, there have no training ships for sea training and therefore MMU and MMMC have to make an agreement with the shipping lines for cadet training programs. In the past, Myanmar Five Star Shipping Lines had cadet training program for the cadets of IMT.

Some institutions in EU have substituted simulator training instead of sea training. If the MTCs could install sufficient simulator for practical training, all trainee could be trained in a safe environment without the real dangers presented at sea. In addition, simulation affords the opportunity for training seafarers in a realistic environment through scenario based training which supports augmentation of skills, at the same time allowing safe environment for assessment. However, in order to obtain effective sea services, sea training should not be substituted with simulator training because the practical aspect of sea training is essential in preparing the cadets for their real work situations at sea.

Q3: Is there any program to give subsidies for private MTCs by the government?

Answer: In Myanmar, there is no program for the private sector of MET to give subsidies by the government. In some countries, their government provides the subsidies program for the private METIs in terms of cash, reducing tax or

scholarships program to the student who wants to be a seafarer. However, DMA could not effort to make this subsidies program, it can only decide by the state level.

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CHAPTER 5

CONCLUSION

This chapter summarizes the findings of this study and offers recommendations on the analysis on the sustaining development of private Maritime Training Centers in Myanmar. And this chapter evaluates the link between the literature reviewed and the research findings to come up with sound recommendations. Furthermore, this study identified and proposed the area of future research.

5.1 Findings

The study intended to understand the impacts and effectiveness of maritime policy and policy implementation on the private MTCs. The findings on the policy impacts on the private MTCs showed mixed responses. Based on the literature reviewed, Department of Marine Administration provides the laws, regulations, directives, circulars, notification and procedures in line with the legal framework and enactment of the Myanmar Merchant Shipping Act. Among these some policies such as quality policy, monitoring system, the qualification of instructors, and quality standard of system should maintain the same according to the directions of the IMO conventions. DMA cannot effort to adjust these policies because these are assessed by the IMO and other organizations, to make sure that Myanmar is following the relevant provisions of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, as amended. However, the study exposes other minor obstacles to the implementation of MET in Myanmar. The other policies implementation processes such as training system for officers, operating procedures for the MTCs should adjust according to the requirement of industry. Most of the respondents opined that DMA should set up the stable processing procedures, the uniform standards and instructions for approval of courses and institutes for all Maritime Training Centers. Most of the government policies are not barriers for the private Maritime Training Centers however some policies need to adjust for smoother

implementing for the sustaining development of the private MTCs. Nowadays, the state level of government interest is very little on the maritime sector, all the work load of maritime sector were done only by the focal department, DMA.

Based on the literature review and the survey results, there are challenges in economic factor for the private MTCs. The main challenge is the lack of funding for the expanding their facilities. Due to the high price of land and building materials, it is very expensive for the founding of the private MTCs. Only a few MTCs have sufficient funds for installing or expanding adequate facilities. Most of the teaching aids are very expensive, therefore not every MTC can afford to install and maintain their owned simulation systems. Another challenge for MTCs is lack or none of subsidies by government or other organizations, not like other countries; there are no subsidies from government or shipping lines or maritime organizations for the training centers or seafarers for the development of MET system. Therefore, MTCs have been invested their infrastructure and facilities on their own funds and the trainees pay the training cost by their self. The analysis pointed out that some seafarers face with the challenges about the funding to ensure that they continue with their education or advance their career through trainings.

The next challenge is the fees of training courses are lower than that of the international rate, although the training centers invested their facilities with the international standard but they only get the lower income due to the low income economy and lower income of the individuals. Although the seafarers get the international wages when they were onboard, the trainees do not tend to pay the training cost at the international rate. For example, the training cost for EDICS simulator in Philippine is twice that of Myanmar. Therefore they could not reinvest to install the modernized facilities so most of the training centers used the cheap facilities due to the lower rate of return. So the data analysis established from the private MTCs revealed the need to upgrade equipment for practical training. Furthermore, it is very difficult to find out the investors or loan or grant from the banks or other financial institutes for the MTCs because of the above reasons.

Based on the survey results, job opportunity is not only rely on the quality of MTCs but also other factors such world economy, volume of world trade, the number of world fleet and national fleet and so on. However, the ship owners or management search for the qualified or competence seafarers for their fleet. All MTCs have to train their trainees in order to achieve the requisite skills and to enable them to meet

with international standards in carrying out their duties. The MTCs could not create job opportunities for seafarers because they are not ship owners or manning agency but they could train the trainees to be a competence and proficient seafarers. Almost all of the respondents agree that they had got promotion after attending the training courses of MTCs. It can be concluded that MTCs gives the opportunities for the career development of the seafarers.

According to the survey results of this study, quality standards include quality of human resource (teachers), academic programs, the syllabus, the training courses base on IMO model courses, and assessment processes among others. The quality standard of MTCs could not obtain without competent human resources and adequate technological resources. Human resources factor is one of the important factors for the sustaining development of the private MTCs. The analysis indicates that the human and technological resources challenges in MET cannot be addressed without reference to the STCW Convention 78 as amended. Based on the survey results, there are sufficient instructors those can easily hire by the MTCs. Most of the instructors are retired mariners or ex-mariners so they have many experiences in their related field. The majority of the instructors are aged instructors but there cannot be generation gap for the qualified instructors because some of the mariners especially captains and chief mate tend to work in the MTCs to share their knowledge. Most of the instructors have not only the Diploma of Nautical Studies but also the certificate of competency for the related subjects. Some instructors have got the master degree from the world maritime university. They also have the certificate of Train the Trainer course to meet the quality standards of DMA. For the above reason, the sufficient instructors or the sufficient human resources may be the opportunity for the sustainable development of the private MTCs.

Almost all of the training courses that conduct in the private training centers are based on the IMO model courses. The MTCs and the instructors can use these model courses in updating or supplementing existing training courses or introducing new courses. The STCW tables of Competence provide guidelines for competency, knowledge and understanding, methods for demonstrating competence and criteria for evaluating competence. The data analysis illustrates that these are technology resources or opportunity for the training centers as well as challenges for MTCs if they could not update their syllabus, training courses in line with new IMO model courses.

Training with the simulator is effective training for the trainees; it can reduce sea training time in the sea and the requirement of training ships. Simulation is currently an accepted mode of developing competencies and MET institutions have implemented simulators in line with STCW and beyond STCW mandatory requirement of RADAR and ARPA. However, only few MTCs have the full mission Bridge simulators for training the operational and managerial courses. Other simulators such as crane simulators, wheel simulators and tanker cargo operating simulators are installed at some MTCs to train the ratings for their proficiency development. According to the survey results, all the trainees could not get sufficient time for using the simulators, this may affect the quality of training of the private MTCs.

All members of MTCs including BOD, instructors and staffs are required to be qualified with a certain amount of academic education and practical experiences, and the knowledge on instruction. In the general aspects of quality system management, the main problem identified is the shortage of funding in MET institutions. The financial problem in fact can affect the implementation of a QSS a lot because all work such as preparations for the establishment of the QSS, external evaluation and verification, and install simulators costs a lot of money. However, some MTCs provide their own quality policy and their training centers were audited by the international organizations such as ABS, Lloyds, NK, BV etc. to obtain ISO 9001;2015 certificate. The other MTCs that provide only COP courses have neither their own quality policy nor quality management system certificates ISO 9001; 2015. They only followed the quality directives of the DMA. When the training centers strictly followed the quality policy, it will be opportunity for the development of MTCs, if they don't it may be challenges for their development. This is so, as it is imperative to link MTCs objectives and achievements which should be guided by the IMO Model Courses, STCW Convention and Code, as well as national and international standards.

Based on the literature review, there are two main bodies which conduct assessments of seafarers including MTCs and the maritime administrations. The analysis established that all institutions have internal assessment of seafarers training, although for COC courses for officers, examinations and assessment is undertaken by the maritime administrations and where academics are involved.

According to the survey results, all respondents, instructors and seafarers agree with the concept of e-learning can be utilized to alleviate the technological challenges in training of seafarers. Use of computer applications provides a great potential in development of MET with the advancement of multi-media and communication technologies. These materials can be obtained from recognized institutions or online to augment computer based learning. Based on literature review, which indicates that computer based training is a cost effective alternative to provide practical training.

The study intended to assess the quality of Maritime Training Centers from the perspectives of seafarers. In line with the objective of the study, it was specifically sought the participants opinions on the methods of instructions of MTCs and the satisfaction of seafarers training and education. It was revealed that the major methods of instruction in all MTCs are theory, practical training, and simulation. The study intend to examine that the impacts and effectiveness of maritime education and training on seafarers' line of duties on onboard vessel. Most of the respondents were answered that the training they receive makes them able to operate and support their duties onboard. According to respondent's opinion, there are some challenges hindering the attainment of quality education and training such as lack of training ship, inadequate financing of MET institutions, inadequate time for simulator training and needs of modern equipment. The study also revealed that cooperation is necessary for quality training. The cooperation with foreign or local MTCs is benefit to the MTCs in terms of financial investment, technical advantages and knowledge sharing.

5.2 Recommendations

The maritime industry needs more competent specialists with new safety culture including morality, knowledge and skills for the sustainable development. The maritime education and training sector can be evaluated as an important and promising contributor to the growth of the maritime industry and capacity building of the seafarers. The maritime sector could create the job opportunities for the youth in Myanmar. It can solve partially the unemployment problem of the Myanmar. Therefore, the Government should realize that the potential of MET in economic growth. The Government should support to the private MTCs in terms of financial support, political will, and technical support from IMO and organize cooperation with maritime bodies.

In order to mitigate the challenges of the lack of funding of the private MTCs, the government or focal ministry should provide subsidies for these MTCs such as land using permit with low price, reduce tax when teaching aids devices imported or give grant or loan in kind of cash for the development of MTCs. Investment in the private MTCs could make benefits to the youth, seafarers, instructors and all stakeholder of maritime sector. So the government gives subsidies to these MTCs mean not only the reducing of unemployment rate of working forces in Myanmar, but promoting the social benefit of the seafarer's family and their love ones. Investment may come in the form of training upgrades and facilities, and adaptation to new technologies and innovation.

Furthermore, in order to reduce the challenges of human resources and technological resources, the private MTCs should provide cooperation and collaboration with recognized MET institutions and join international maritime education associations. Cooperation between MTCs can share computer based training, laboratory, workshops and simulators that make mutual benefits for each MTC. Appropriately qualified Human resource is a concern for many MET institutions and the shipping industry, the lack of efforts to develop human resources in the maritime industry has resulted in a lack of knowledge about career path mobility possibilities within the industry. Encourage collaboration with national, regional and global MET institutions and organizations to gain mutual benefits in teaching and learning methods for the local MTCs in order to obtain technical support on multimedia training platform, integrated e-learning and assessment, simulation, up-to-date innovations in maritime sector. The Government as well as the private MTCs should conduct capacity building in terms of human and technological resources for sustainable implementation and development of MET.

According to the STCW Convention, it emphasize on competency and proficiency. Therefore, MTCs have to provide effective simulation; computer based training and appropriately equipped laboratories to enhance practical training. Although MTCs face with the challenge of the lack of funding, every MTC should install adequate simulators for seafarers in order to make the sufficient practical training. Simulators are the main training facilities in MET, used for education and training purposes.

Quality Management System is one of the key factors of Maritime Education and Training. To make a quality management system in the training center, it should

encourage the participation, improving the quality awareness and involving the whole organization, by creating a quality culture within the organization. Moreover, MTCs should use quality assurance knowledge and techniques; enhance the use of quality assurance mechanisms, such as quality planning, preventive and correction procedure, auditing, verification and evaluation, and quality improvement. By using the quality management system in the private MTCs, they can produce the quality outcome or they can train the trainees as the competence seafarers.

This study only emphasize on the sustainable development of the private Maritime Training Centers. This study cannot cope with seafarer's employability and the social effect on their life. The research is recommended that the future study would focus upon the relation between employability and social effect of the seafarers. This research will help the stake holders that the concerns of seafarers are being heard, and benefits and privileges are given to encourage them to pursue their career as seafarers and how impact on their social life by choosing the careers as seafarers.

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APPENDIX

Questionnaire

(A) Demographic Data of Respondents (Instructors/Staffs of MTCs)

1 Gender

Male Female

2 Ages

Less than or equal 30 years old between 31-40 years old Between 41-50 years old
Between 51-60 years old 60 years old and above

3 Qualifications

Diploma Bachelor Degree Master Degree and Higher COC Holder

4 Designations

Management Level Instructor Staff Other

5 Working Experience/ Sea Services

Less than or equal 10 years Between 11 -20 years Between 21 -50 years
31 years and above

6 If you are instructor in METI, your teaching experience is

Less than or equal 10 years 11-20 year 21-30 year 31 years and above

(B) For the sustainable Development of MTCs

Policy and Policy implementation

1. The policy, rules and regulations and directives of MOTC, are supported for the sustainable development of the private MTC.

Yes No Don't Know

2. Are there any difficulties for the development of the private MTCs implemented by these policies?

Yes No Don't Know

3. Is there any policies or rules or regulations that need to adjust for the development of Private MTCs?

Yes No Don't Know

4. Is there the quality policy for the private MTCs that stated by the Administration?

Yes No Don't Know

5. Do the private MTCs have the own quality policy?

Yes No Don't know

6. Does the administration state exactly the quality of instructors and assessors?

Yes No Don't know

7. Does the administration monitor the private MTCs?

Yes No Don't know

8. Is there any difficulties implementation of daily works of MTCs under rules and regulations?

Yes No Don't know

9. Do the private MTCs have the co-operation with foreign MET Institutes?

Yes No Don't know

10. Do the private MTCs have the co-operation with local MTCs?

Yes No Don't know

11. Do you think that some barriers can overcome by co-operation with other MTCs?

Yes No Don't know

12. Do the private MTCs willing to launch e-learning /distance learning system?

Yes No Don't know

13. Do you think that the is existing regulations need to adjust for launching e-learning system?

Yes No Don't Know

(C) Capital Formation of Private MTCs and Infrastructure

1. The investment of your institutes come from-
Private Investment Partnership Investment Foreign Direct Investment
Joint Venture with foreigner

2. Do the private MTCs have sufficient funds for expanding existing facilities?
Yes No Don't know

3. Do the private MTCs receive the subsidies or grants from the government, or institutes or enterprise?
Yes No Don't know

4. Do they need large amount of funds to install teaching aids and equipment at the MTCs?
Yes No Don't know

5. Are there easy to access the land and easy to construct for the MTCs?
Yes No Don't know

6. Is there sufficient Infrastructure for operating MTCs?
Yes No Don't know

7. The MTCs are situated at the urban area.
Yes No Don't know

8. The MTCs received the profit from their investment.
Yes No Don't know

(D) Human resources and Technical Advantages

1. The MTCs could easily hire the competence instructors.

Yes No Don't know

2. All instructors are hired with the approved quality standard.

Yes No Don't know

3. Most of the instructors have attended Train the trainer courses for the maritime education.

Yes No Don't know

4. They also have been attended the refresher courses in local and abroad.

Yes No Don't know

5. Staffs of MTCs know very well that directives, procedures of Administrative and policy of MTCs.

Yes No Don't know

6. Syllabus and Curriculums that conducted by the MTCs are in line with STCW.

Yes No Don't know

7. It is difficult to change the course in time to adapt with up to date technology.

Yes No Don't know

8. The MTCs installed the sufficient teaching aids for practical training.

Yes No Don't know

9. Teaching aids of MTCs are in line with up to date technology and ship operation.

Yes No Don't know

10. It is difficult to teach modern information technology and communication technology at the private MTCs.

Yes No Don't

(E) Use of simulators and teaching soft skills

1. Training by simulators is effective training for the candidate.

Yes No Don't know

2. All simulators are in line with the electronic devices, machineries that using onboard.

Yes No Don't know

3. The MTCs could provide sufficient time for trainees using simulators.

Yes No Don't know

4. Should the MTCs provide the refresher courses for simulator instructors?

Yes No Don't know

5. Should MTCs teach English and computer literature for the trainee?

Yes No Don't know

6. Should MTCs teach soft skill such as discipline, team work for the capacity development of the trainees?

Yes No Don't know

7. Should MTCs teach the trainees the manner and attitude?

Yes No Don't know

8. Should MTCs teach in detail of rights and responsibilities of seafarers stated by the conventions?

Yes No Don't know

(A) Demographic Data of Respondents (Seafarers)

1. Age

Under 20 years between 21-30 years Between 31-40 years
Between 41-50 years Above 51 years

2. Education

High School Diploma Bachelor Degree
Master Degree and above

3. Occupation (Rank)

Management Level Operational Level Supporting Level

4. Working Experience

Under 5 years Between 5-10 years Between 11-20 years
Above 21 years

5. Salary (Income)

Under 500US\$ Between 500-1000 US\$ Between 1001-2000
US\$ Above 2000US\$

6. Frequency of attending MTCs

1-3 times 4-6 times 7-10 times Above 10times

(B) Reason for choice of seafarer carrier

1. How do you choice to attend MTCs?

MTC of near my house Famous for teaching technique
Low cost MTCs Training Center that attending my
friends

2. Factors attracting for seafarer carrier

Money/ Salary Hobby Want to travel around the
world According to Parent, Relatives and friends

3. Do you believe that your living standards will improve by doing seafarer job?

Yes No Don't know

4. Do you think that the role of MTC is important for the seafarer carrier development?

Yes No Don't know

(C) Evaluation on the Private Maritime Training Centers

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Curriculums that provided by MTCs are in line with STCW					
MTCs have Sufficient Infrastructure					
MTCs have Adequate Teaching Aids					
Teaching Technique are easy to understand for trainees					
Quality of Instructors are acceptable					
MTCs conduct Adequate Practical Training					
Training courses are support to Duty onboard					
Practical training with teaching aids relates to use devices onboard.					
MTCs can change their teaching technique due to the advanced Technology					
There are adequate instructors and teaching aids					

for specific courses					
MTCs make an assessment regularly.					
MTCs provide Quality Management System					
The administration monitored regularly to obtain quality standard.					

(D) Expectation of Job Opportunity and Carrier Development of Seafarers

1. Is there more job opportunity by attending training courses at MTCs?
Yes No Don't know.
2. Is there more convenient to apply job at the crew manning company after holding required certificate by attending MTCs?
Yes No Don't know
3. Did you get promotion by attending MTC?
Yes No Don't know.
4. What is important factor to be a competence seafarer?
a. Teaching of MTCs b. Effort of trainees c. Above all
5. Should MTC provide soft skill course other than competency courses?
Yes No Don't know.
5. What factor is most important for the carrier development of seafarers?
a. Training b. Effort of myself c. Moral d. Discipline e. Above all

(E) Cost of Training

1. Who is sponsor for the cost of training?
a. Myself b. Parent, Relatives c. Shipping company/Crew manning company
d. Scholarship
2. How do you think the training cost are suitable or not for trainees?
Yes No Don't know.
3. Is there any burden for the training cost?
Yes No Don't know.