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Joseph Nopalieh Tiataing

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**WORLD MARITIME UNIVERSITY**  
**Malmö, Sweden**

**EXPLORATION OF THE CONTRIBUTION OF MARITIME EDUCATION  
AND TRAINING TO THE GROWTH OF THE MARITIME INDUSTRY: A  
CASE STUDY OF CAMEROON**

By  
**TIATAING, JOSEPH NOPALIEH**  
**Cameroon**

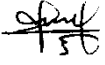
A dissertation submitted to the World Maritime University in partial fulfillment of the  
requirement for the award of the degree of

**MASTER OF SCIENCE**  
**IN**  
**MARITIME AFFAIRS**  
**MARITIME EDUCATION AND TRAINING**  
**2021**

## Declaration

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

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

(Signature): .....

(Date): ...20/09/21.....

Supervised by: Professor INGA, Bartuseviciene

Supervisor's affiliation:.....

### Acknowledgement

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***Joseph Nopalieh Tiataing***

## Abstract

Title of Dissertation: **Exploration of the contribution of maritime education and training to the growth of the maritime industry: A case study of Cameroon**

Degree: **Master of Science**

The aspiration of sustainable development requires us to resolve common problems and tensions and to recognize new horizons. Education must find ways of responding to such challenges, taking into account multiple worldviews and alternative knowledge systems, as well as new frontiers such as advances in digital technologies. In the maritime industry, it is difficult for education and training alone to solve all development challenges. A holistic approach to education can and should contribute to achieving a new development model. It requires a perfect operation and flexibility of a system in the complex environment of various challenges, growth prospects notwithstanding.

The essence of MET in the maritime industry is immeasurable. Therefore, MET as a system can only succeed in its drive by opening up to the other stakeholders in its environment. The maritime industry is an international industry that is growing very rapidly. Its human resource needs are enormous. METIs thus exist to empower these personnel with the necessary skills and competences. The exploration of the contribution of MET to the growth of the maritime industry therefore seeks the challenges, possible solutions and prospects of MET in this direction.

A mixed method of data collection and analysis is used in the research. The 33 respondents to the closed and open-ended questions in the survey, revealed perceptions of poor and inadequate use of modern technology tools, high degree of corruption, poor educational policies, insufficient lecturers in METIs, amongst others as challenges to both METIs and the shipping companies. As a system, there is a need for total cooperation to eliminate the challenges and forward to the future.

However, some limitations encountered include the limitation of sample population size, poor communications due to poor and lack of internet facilities, inadequate time to stretch to a wider range of interviews for greater reliability of the research outcomes. These did not negate in any way the results of the findings due to the diverse and rich educational and professional backgrounds of the respondents.

**Keywords:** MET, Complex systems, modern technology, knowledge management

## Table of Contents

Declaration	ii
Acknowledgement	iii
Abstract	iv
List of tables	ix
List of Figures	x
List of Abbreviations	xi
CHAPTER 1 - INTRODUCTION	1
1.1 Background and context	1
1.2 Problem Statement	5
1.3 Motivation for the Study	6
1.4 Research Aim and Objectives	7
1.5 Research Questions	7
1.6 Research Design and Methods	8
1.7 Significance of the Research	8
1.8 Scope of the study	9
1.9 Assumptions and potential Limitations	9
1.10: Expected Results	10
1.11 Structure of the dissertation	10
CHAPTER 2 - LITERATURE REVIEW	12
2.1 Introduction:	12
2.1.1 Basic definitions of MET, Maritime industry, & growth	12
2.1.2 The contribution of Maritime education and training to the industry.	16
2.2 The maritime industry in Cameroon	20
2.2.1.1 Administrative structure	22
2.2.1.2 Operations of the industry	23
2.3 Maritime education and Training system in Cameroon	25
2.3.1 The Educational System in Cameroon	25
2.3.2 The Concept of Maritime Education in Cameroon	31

2.3.3 The contributions of MET to the growth of the maritime industry in Cameroon and its challenges	37
2.3.3.1 Contributions	37
2.3.3.2 Challenges of MET	38
CHAPTER THREE: METHODOLOGY and METHODS	39
3.1 Introduction	39
3.2 Research Design/Methods	39
3.3 Targeted Population for the Study	40
3.3.1 Sample Size/Sampling Method	40
<b>3.3.2 Procedure and Ethical Consideration</b>	40
3.4 Data Collection	41
3.4.1 Sources of Data Collection	41
3.4.2 Tools used in collecting the data	41
3.4.2.1 Questionnaire and Administration	41
3.5 Secondary Data Collection	42
3.5.1 Method of Data Analysis	42
3.5.2 Responses and limitations	43
CHAPTER 4 - PRESENTATION OF FINDINGS	44
4.1 Preliminary analysis	44
<b>4.2 Analysis of the closed and Open-ended questions responses</b>	50
4.2.1 Research question (RESQ) 1	50
4.2.2 RESQ 2	53
4.2.3 RESQ 3	55
4.2.4 RESQ 4	60
4.2.4 RESQ 5	61
4.2.5 RESQ 6	66
CHAPTER 5 DISCUSSION OF FINDINGS	67
CHAPTER 6 CONCLUSIONS AND RECOMMENDATIONS	71
6.1 Introduction	71
6.2 Major Findings of the Study	71



6.3 General conclusions	72
6.4 Implications of findings	73
6.5 Recommendations	74
REFERENCES	78
APPENDICES	89
<b>Appendix 1</b>	89
<i>Sample Questionnaire</i>	89
<b>Appendix 2</b>	94
<i>Research ethics committee Protocol</i>	95

List of tables

<b>Table 1</b> Cameroonian education system .....	4
<b>Table 2</b> World's fleet according to Lloyds register of shipping-1889.....	21
<b>Table 3</b> Population partition by cities .....	26
<b>Table 4</b> Cameroon's population distribution by age.....	28
<b>Table 5</b> RMU Maritime (STCW) Programmes and qualifications .....	33
<b>Table 6</b> Public and Private higher institutions of learning in Cameroon .....	36
<b>Table 7</b> Opinions on ways to improve port performance.....	62
<b>Table 8</b> Perceptions on ways to overcome the challenges to the growth of the maritime industry .....	64
<b>Table 9</b> Perceptions on how to mitigate obstacles to MET and improve on the growth and development of the shipping industry in the country .....	65

## List of Figures

<b>Figure 1</b> Some of the key aspects of the research explained in the body of the essay ...	15
<b>Figure 2</b> The maritime industry .....	24
<b>Figure 3</b> Map of Cameroon's population distribution according to major cities 2021 ...	27
<b>Figure 4</b> Graphical representation of Cameroon's population - 2021 .....	27
<b>Figure 5</b> Nationality of various respondents .....	45
<b>Figure 6</b> Gender of respondents .....	46
<b>Figure 7</b> Ages of respondents .....	46
<b>Figure 8</b> Educational attainment of respondents .....	47
<b>Figure 9</b> Occupation of respondent .....	48
<b>Figure 10</b> Work experience of respondents .....	48
<b>Figure 11</b> Post held by respondent .....	49
<b>Figure 12</b> Sector of employment .....	49
<b>Figure 13</b> Views on poorly developed technical professional education for the growth of industry .....	51
<b>Figure 14</b> Professionally trained teachers are rare .....	52
<b>Figure 15</b> Political gimmicks slow METIs contribution to growth of the industry .....	52
<b>Figure 16</b> Inadequate and poor use of modern technology tools .....	53
<b>Figure 17</b> Poor quality control system in METIs limits efficiency .....	54
<b>Figure 18</b> Opinion on poorly developed curriculum .....	55
<b>Figure 19</b> Limited scope for the training of professionals weakens METIs ability to contribute to the growth of the maritime industry .....	56
<b>Figure 20</b> Corrupt practices at the ports hinder growth of the industry .....	57
<b>Figure 21</b> Political gimmicks slow METIs contribution to the growth of the industry ..	58
<b>Figure 22</b> Cameroonian ports are poorly equipped with modern technology tools .....	59
<b>Figure 23</b> Can continuous education and training improve port performance and growth. ....	60
<b>Figure 24</b> Limited scope for the training of maritime professionals limit METI's ability to contribute to growth of industry .....	61
<b>Figure 25</b> suggestions for improving port performance for growth .....	63
<b>Figure 26</b> Suggestions on how to overcome the challenges to the growth f the maritime industry .....	64
<b>Figure 27</b> Suggestions on improving the growth of the maritime industry via MET .....	65

## List of Abbreviations

WMU	World Maritime University
RMU	Regional Maritime University
MINCONMAR	Ministerial Conference of West and Central African States on Maritime Transport
MOWCA	Maritime Organization for West and Central Africa
CAR	Central African Republic
CAMSHIP	Cameroon Shipping Line
IMO	International Maritime Organization
STCW	Standard of Training, Certification and Watch-keeping
MET	Maritime Education and Training
METI	Maritime education and Training Institution
SDGs	Sustainable Development Goals
CEMAC	Economic and monetary community of central African states
DAMVN	Department d'Administration des voies Navigable
LINAFI	Limbe Nautical Arts and Fisheries Institute
UNDP	United Nations Development Program
GDP	Gross Domestic Product
OAPI	Organization for African
UNESCO	United Nations Educational, Scientific and Cultural Organization
OECD	Organization for Economic Co-operation and Development
RESQ	Research Question
2M	Grope Marine Magistrale
HITL	Higher Institute of Transport and Logistics
NPUI	National Polytechnic University Institute

HIPAL	Higher Institute of Petroleum and Logistics
HIPE	Higher Institute for Professional Excellence
HIBMAT	Higher Institute of Business Management and Technology
BUST	Bamenda University of Science and Technology
MINEBASE	Ministry of Basic Education
MINESEC	Ministry of Secondary Education
MINESUP	Ministry of Higher Education
FSLC	First School Leaving certificate
GCE O/L	General Certificate of Education – Ordinary Level
GCE A/L	General Certificate of Education – Advanced Level
MBA	Master of Business Administration
MSc	Master of Science
PhD	Doctor of philosophy

## CHAPTER 1 - INTRODUCTION

### 1.1 Background and context

Cameroon is a country in the central part of Africa and lies within a strategic demographic crossroad of the Niger and Congo basins, and shares the physical characteristics of both. It is located on the west coast of Africa with Nigeria to the west, Chad to the north, CAR to the east, and Congo-Brazzaville, Gabon, and Equatorial Guinea to the south (Mbaku & Kimenyi, 2005).

It has a surface area of 475,440 square kilometers (183,567 sq. miles). The capital is Yaoundé, the second most thickly populated city in the country.

Cameroon has two major seaports-Douala and Kribi. There is one river port in Garoua, while the construction of another one, which is a natural deep seaport in Limbe, is in the pipeline.

The oceans and the inland water bodies of Cameroon, like other west/central African countries, serve as very important food, energy, transport, and trade sources for its populations.

Cameroon is seldom mentioned as one of the traditional maritime nations of the world although the country relies heavily on maritime transport for its trade.

The world today is fast becoming a global village and international trade tends to take the central stage. Shipping services are demanded because of the demand for goods internationally. Seagoing staff is the human resource needed to render these services. Therefore, they need to be trained and rendered competent to do the job. The IMO international convention on the training of seafarers is clear on this as per STCW 1978 convention as amended.

“International maritime trade growth slowed down in 2018 by 4.1%; 2.7% in 2017- 2018. International maritime trade volumes grew by 2.7% (2018) • Growth at a slower pace of below the historical average of 3% (1970-2017) and 4.1% (2017). Volumes reached 11 billion tons” (Brooks & Faust, 2018).

The history of shipping and maritime education as well as their present state in Cameroon is very important because it serves as a basis of this research. The Cameroon Shipping Line, commonly called CAMSHIP, animated the shipping industry in the early 70s. It was created in 1974 during the First Republic of Cameroon (1960-1982), with the acquisition of six cargo ships. The role of CAMSHIP was principally to transport cargo from abroad into the country (imports) and overseas (exports), for Cameroonian businesses. Turnaround time in the ports was greatly reduced as opposed to foreign ships that did the same job. During this period, the human resource that trained mainly in Ghana was the main area of concern of CAMSHIP for efficient service delivery. Retraining later became the new order for CAMSHIP.

Importers and Exporters in Cameroon today, suffer so much as the absence of the Cameroon Shipping Lines, CAMSHIP, is having a serious negative effect on the import and export trade of the country. The admonishment was made in Douala on January 15 by the Cameroonian-born General Manager of a maritime company, 'Groupe Marine Magistrale', 2M, Jean-Paul Kamga, in an address he presented at a ceremony to launch officially an innovation in harbor handling, known as Harbor Handling with Big Bags, H2B2. It should be noted that the H2B2, which is a creation of Marine Magistrale, has been registered with the Organization of African Intellectual Property Rights, OAPI. The official launching ceremony of H2B2 was presided over by the Minister of Industry, Mines, and Technological Development then, Badel Ndinga Ndanga

Kamga told the Minister that the effects of the 'death' of CAMSHIP, dealt a very serious blow to the shipping business in Cameroon. He said looking back to the old days of CAMSHIP, in the 70s and 80s, he felt disappointed as ships belonging to CAMSHIP that used to transport products from the country straight to Europe and transported goods from Europe straight to Cameroon were no longer there for this type of business.

Mr. Kamga went on to say that, foreign ships that come to the Cameroon Port (Douala), have the general tendency of, "loading first in Cameroon and offloading last in the country." He said, in such a situation, ships that load first at the Douala Port, take the

products forward and backward, from one African Port to the other, before one-day setting sail for Europe. He said when it comes to unloading goods from Europe; the tendency is for the ships to go first, to all the other ports where they are programmed to offload, before coming to Cameroon, as the last port.

Kamga disclosed that the transit time for products exported from Cameroon to Europe, and vice versa, is 40 days, which means more than a month. He recalled that CAMSHIP used to cover the distance in barely days. He stressed that the situation is not good for importers and exporters, as well as for the country's economy. He said exporters in Cameroon are generally in a disadvantaged position in the European market, when in competition with their counterparts in other African countries whose products move straight to Europe because they have the advantage of time.

The Government, a couple of years ago, privatized CAMSHIP. With the privatization, the former state-owned shipping lines fell into foreign hands and the name and the new owners changed objectives of the company. Since the privatization of CAMSHIP, there has been no shipping lines, so far which in reality, is out to protect the interest of Cameroon, especially the importers and exporters.

In Cameroon, three ministries oversee education namely: the ministry of Basic education (MINEBASE), the ministry of Secondary education (MINESEC), and the Ministry of Higher education (MINESUP). These three ministries are responsible for the educational policy, coordination, administration, and monitoring, with many different stakeholders handling implementation and collaboration with the national, regional, and local authorities. Both public and private sector schools coexist for extensive coverage of the needy populations. The education is both Technical (Industrial and commercial), and general. Table 1 below summarizes this.



Table 1

*Cameroonian education system*

Type	Duration	Certificate/Diploma obtained		
<b>Kindergarten</b> (Nursery school)	2 years	Nursery School Diploma		
<b>Primary</b>	6 years	First School Leaving Certificate (FSLC)		
<b>Secondary</b>	5 years	<b>General</b>	<b>Technical</b> (Vocational training)	GCE O/L ( Gen. / Technical)
<b>High school</b>	2-3 years	- General education <b>2yrs</b> - Technical Commercial <b>2 yrs.</b> - Technical Industrial <b>3 yrs.</b>		GCE A/L General GCE A/L Commercial GCE A/L Industrial
<b>Tertiary</b>	3-5 years	-University <b>3 yrs.</b> - University <b>4yrs</b> - Postgraduate studies: >Masters, <b>1-2 years</b> >PGD, <b>1-2 years</b> > Doctorate <b>3-5 years</b>		Bachelor's Degree Professional Diploma MBA, MSc Degrees Postgraduate Diploma PhD

The maritime study is a field of studies that embodies many different disciplines that take into consideration both liberal arts and business as the very solid base for understanding the behavior and relationship that exists between humankind and the oceans the world over. It thus touches on broad-based issues. Through maritime education, lifelong skills and competencies are built into human beings to make up the labor force needed to run the shipping industries, which have tremendous economic benefits to the nation.

Maritime education and training provide the knowledge and skills needed for the optimization of its system under international law. Knowledge gained spreads across the various maritime clusters for the leadership of contemporary organizations to make use of while paying attention to strategic planning and human resource management.

MET's contribution to the development of the maritime industry in Cameroon can be seen through the lens of Ghana who because of some structural changes in its Nautical College and its impact on its seafarers in 1982, took interest in the creation of a maritime academy. As a follow up to this, Ghana, with the assistance of UNDP, met the Ministerial Conference of West and Central African states on Maritime Transport (MINCONMAR)-known as MOWCA today, in quest of a solution. Some west and central African states - Cameroon being one of them, were invited to join her in the establishment of a regional academy to serve the needs of member states. The essence of the academy was to ensure maritime labor capacity building, promote regional cooperation in the maritime industry, and further regional growth in this respect (Manuel et al, 2020). From then, based on the Regionalization of the Ghana Nautical College, Law no PNDC Law 33 was promulgated in 1982 and the college became a Regional Maritime Academy to which state membership was attributed to Cameroon, Gambia, Ghana, Liberia and Sierra Leone (Manuel et al, 2020). The academy later evolved to a full flesh Maritime University and today known as the Regional Maritime University (RMU). Thence, Cameroon has been acting through this medium to contribute her mite to the growth of her maritime industry. Through findings, academic programs could be designed to address the relevant issues to boost the growth of the industry.

## 1.2 Problem Statement

MOWCA, established in May 1975-Abidjan Cote D'Ivoire is an umbrella organization covering some 20 countries that carry out shipping activities in its jurisdiction. Shipping is an activity that entails the great use of human labor. MOWCA, therefore, had as the main preoccupation to strengthen the institutions concerned, with maritime education and training so they could continue to acquire knowledge and skills for capacity building. Such

MET Institutions include; the Regional Maritime University in Accra-Ghana, Abidjan, and Nigeria to provide quality education and training at all levels of maritime training principally, seafarers. This activity has never been so smooth due to some challenges both at the level of delivery and applicability of the knowledge acquired. Despite the efforts made by independent countries, the number of training institutions is still low. Quality standards still have issues to address; the number of trained seafarers is also low, seafarer demand from these areas despite the booming trade, tends to be at almost an all-time low situation. The lack of a genuine domestic shipping company and the largely inadequate number of MET institutions for the training of the much-needed human resources for the shipping industry, are a major cause for concern.

The researcher viewing all these difficulties then decided to *explore the actual contributions made by MET institutions (in Cameroon as an independent country), to the growth of the maritime industry, the challenges faced in making these contributions, and whether there are prospects for improvement in this very important sector of the economy.*

### 1.3 Motivation for the Study

The maritime industry makes up an important sector of every contemporary economy. It is more so because the world has become a global village due to international trade, which has taken a central stage. Over 90 percent of world trade is carried out through maritime transport as the cheapest and guaranteed mode of transportation. A country with a vibrant maritime sector is destined for rapid growth in general - increased levels of income, employment, living standards, and infrastructural and increased capacity building.

Education and training is one of the major determinants of growth and therefore cannot be underestimated. Maritime education and training are thus important. Through Maritime Education and Training, the human beings that constitute the labor force for the maritime industry (Fei, 2018) acquire lifelong skills and competencies. Maritime education and training, and the maritime industry are inextricably linked. Generally, about 80 - 90

percent of accidents at sea are often attributed to human error, hence the need for seafarers to be well trained and competent (Baylon et al., 2011).

#### 1.4 Research Aim and Objectives

The study aimed at *exploring the contributions of MET to the growth of the maritime industry in Cameroon* has as objectives to:

- Explore MET from the system theory perspective and its role in the maritime industry
- Analyze challenges and prospects for the growth of the maritime industry in Cameroon.
- Investigate the contribution of MET to the growth of the maritime industry in Cameroon.

#### 1.5 Research Questions

To carry out this research effectively, the researcher will embark on the following research questions:

- i. Can the system of education pursued by Cameroon ensure growth of the maritime industry?
- ii. What challenges do METIs as training institutions face in rendering their services?
- iii. How do these hindrances affect their ability to contribute to the growth of the maritime industry in the country?
- iv. Can continuous education improve the performance of the existing personnel for a future and better maritime industry in Cameroon?
- v. What growth prospects via MET and other possible domains are available for the industry?
- vi. How can MET in Cameroon be explained from the system theory perspective?

### 1.6 Research Design and Methods

Research design is a framework of how data is collected and analyzed for the purpose of research. Alternatively, “it can be taken to mean establishing a structure and approach of investigation through which answers to research questions are obtained for purposeful control of variance”, Kerlinger as cited by Prabhat et al. (2015 p.18). A research design contains a choice of data collection and analysis, which according to Saunders et al. (2015), are informed by research philosophies and approaches. The latter is just a single layer of the “Research Onion” design developed by Saunders et al. (2007) in an attempt to explain the processes leading to the method of data collection to which the research will identify.

The researcher here uses the descriptive research design which helps him to analyze texts, summarize and present information to explore meaning out of it. The method of narrative data analysis is used. This research study deals mostly with observation and even experiences. Secondary data from journals, reports, and visual observations are used to describe the outcome. Consequently, the researcher builds the study more on qualitative analyses.

### 1.7 Significance of the Research

This study is of great importance to Cameroon in the amelioration of its METI management strategies to improve on its productivity leading to the supply of competent seafarers according to STCW ‘78 as amended: Article VI; Regulations I/2, I/6, and I/10, and other maritime professionals.

A research study of this magnitude is going to be of some importance to many a scholar in general. As such, the work adds to the existing literature on the maritime sector in this region as a whole and Cameroon in particular. This research may provoke further research by future researchers in advancing knowledge.

The study would also help policymakers, opinion leaders, practitioners, development workers, and the community in general in awareness and any decision regarding the maritime industry.

### 1.8 Scope of the study

In terms of space, the scope of this study is the maritime education and training institutions, the maritime industry that embodies the shipping companies and affiliates, as well as the government that takes the top position of the overseer and regulator of the functioning of this sector. This is a system and therefore bound to collaborate with the other three stakeholders for the optimization of their unique purpose.

In terms of time, the study covers an overview of the period that stretches from when Cameroon was effectively engaged in the business of shipping (about 1970) to the present date. Although the research duels on the contribution of MET to the growth of the maritime industry in Cameroon, the very nature of the maritime industry warrants us to extend our study scope to a little beyond the confines of Cameroon for benchmark scenarios in some cases and optimizing the findings.

### 1.9 Assumptions and potential Limitations

The research study is based on the following assumptions:

- That the expected participants will readily cooperate with the researcher to permit for data collection.
- That the participants have a literacy rate that can permit the emission of fair answers.
- That the researcher will be able to communicate effectively with the participants via anticipated means such as telephone, WhatsApp, and other electronic means that may seem useful at the time of communication.
- Likely Limitations will include the following:
  - To reach all the participants may be difficult given that they are found in different parts of the region, some of which may have electricity, internet, bad roads, and other problems

- The existence of covid-19 may be a major hindrance in some jurisdictions due, as people may not want to be exposed.

However, the best way the researcher plans to ensure effective coverage of the various areas is through telephone interviews, close-ended questionnaires but with a very limited number of open-ended questions.

#### 1.10: Expected Results

It is expected that in many of the areas of operation of the Maritime activities in Cameroon,

- Many challenges concerning METI's activities will manifest.
- Poor infrastructural capacity or facilities for maritime education will be pointed out.
- Inadequate financing amongst others is likely to surface.
- The researcher shall identify inadequacies in methods of education and retraining.
- The researcher will furthermore, identify gaps for which further literature could be developed.

All of these, including others, will enable the researcher to formulate a trend that will assist in making logical conclusions to the government to make meaningful decisions.

#### 1.11 Structure of the dissertation

The dissertation is divided into six chapters for a comprehensive and chronological understanding. Chapter 1 is the introduction that discusses the background to the study. Chapter 2 is the review of related literature. This includes works by earlier researchers on specific or general issues related to the studies. Chapter 3 dwells on the framework and methodology. Here, the researcher pays attention to the research design, the targeted approach on how data is collected. Chapter 4 analyzes the data collected from various stakeholders and presents the findings. Chapter 5 discusses the results of the findings and

Chapter 6 ends with conclusions and recommendations on the possible prospects for improved productivity, growth, and development, increased collaboration between the stakeholders for goal optimization.



## CHAPTER 2 - LITERATURE REVIEW

### 2.1 Introduction:

This chapter explains the basic concepts of maritime education and training, the maritime industry, and growth. A deeper understanding of both MET and the Maritime industry within the context of Cameroon, as well as MET's contribution to the maritime industry and challenges, are sought. In the context of this dissertation, shipping industry will invariably mean maritime industry even though shipping is an aspect of the maritime industry (Mukherjee, 2005).

Furthermore, it zooms into the previous literature on this topic via the various sub-areas as presented in the table of contents. For the purpose of coherence and comprehension of this topic, the researcher throws some light on the basic concepts implied in the topic. He steps forward to have an overview of the contribution of maritime education and training institutions (METI), to the maritime industry as a whole, as compared to countries with good practices as the case may be. The MET situation in Cameroon is then explored with some references to some of those countries that have been able to obtain some positive impact of MET in their maritime industry.

#### 2.1.1 Basic definitions of MET, Maritime industry, & growth

The maritime industry concerns activities that touch on the oceans, seas, ships, and their navigation from point A to B. In this industry, broad groups of economic activities related to the sea and sea resources constitute the maritime functions. They englobe the likely uses of the seas and oceans by humankind. Workers in this industry generally find employment in fishing, seafood processing, shipyards, aquaculture, marine transportation, and commercial driving. Alternatively, the maritime industry concerns maritime and fluvial transport, which is simply the transportation of people and cargo by waterways. In this industry, ship-owners, charterers, and other concerns in the shipping business interact to ensure the smooth movement of freight and people in safe waters.

Over 90% of world trade is by sea via shipping. The maritime industry is therefore a manufacturing industry whose operations are largely knowledge-based. The shipping workforce needs to be highly competent, equipped with experience-based and tacit knowledge in fields of engineering, navigation and management.

Maritime education and training (MET) conventionally refers to the system of education aimed to provide and ensure the provision of qualified seafarers for shipping (Mitroussi & Notteboom, 2015). In some cases, maritime education and training simply describes the situation where a specialized education, combining classroom instruction, hands-on experience, and professional development, prepares students and leaders for a successful career in international business and logistics, maritime policy, engineering, technology, or in the maritime and transportation industries (Choi & Park, 2005)

The first formal maritime school created in 1419 by Infant Henry in the UK (Rodger, 2004), had as preoccupation the training of seafarers. The successful venture then later grew to provide great talents to the shipping industry including Ratings and Officers for naval and merchant ships (Dong et al., 2005)

However, there is a need to redefine Maritime Education and Training from a much bigger perspective as the growth and development of the shipping industry contributes tremendously to the global economy. With growth, areas like maritime finance, security, environmental protection as well as other maritime disciplines need consideration (Dong et al., 2014).

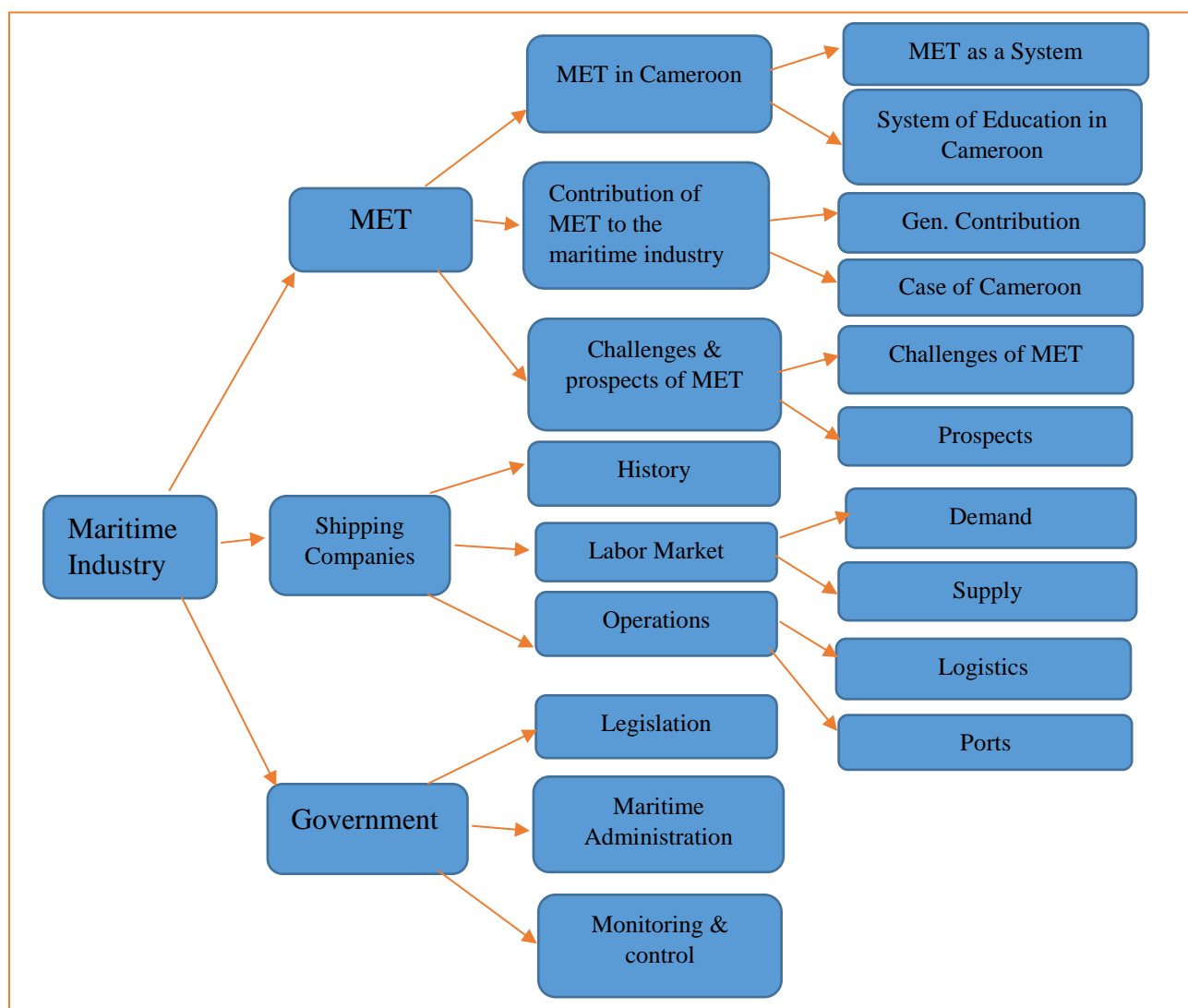
Today, in the work context of MET, the focus tends to be on leadership and administration of human development processes as well as organizational management in both academic and non-academic settings. This aims to provide the necessary knowledge for the optimization of maritime education systems under international law, creating, acquiring and transferring knowledge across maritime knowledge clusters in order to attain optimum

leadership of contemporary maritime organizations (Oldenburg et al., 2010). The importance of maritime education and training thus rests in the fact that its high quality assures the quality of both the practical skills and the competence of qualified seafarers to keep vessels safe, protect the environment, and provide a smooth flow of trade. This underpins the relevance of MET in the growth and development of the maritime industry.

Growth refers to the gradual or progressive increase in the size of something, or simply a stage of development of something (Webster, 1828). Therefore, development is an integral part of growth. Growth in the maritime industry will mean the quantitative and qualitative increase in the maritime industry. This implies the ability of the country to meet all the necessary international conventions set by the IMO as well as the related protocols as due, in order to win the IMO's support in her shipping activities. Growth and development would also imply a situation where the country may want to make herself internationally recognized as a provider of a particular service e.g. the supply of seafarers, through which she expands her scope of activities for a better economic value. Figure 1 below summarizes the key areas of the research topic for literature review.

**Figure 1**

*Some of the key aspects of the research explained in the body of the essay*



*Note:* Source: Researcher's design

### 2.1.2 The contribution of Maritime education and training to the growth of the Maritime industry.

Maritime education and training are very vital to the maritime industry. Investing in seafarer education, training and certification as well as other maritime professionals will therefore promote the growth of the maritime industry (Demirel and Mehta, 2009). The overall contribution of MET to this very important, dynamic, and fastest-growing sector of the economy cannot be underestimated. The paragraphs below present some of the contributions of MET to the welfare and growth of the maritime industry.

Shipping is a highly technical and professional domain that requires careful handling. Professionals who include the seafarers as another major maritime workforce operate it. Given the important role this sector plays, such a work force need requires good education and training through which they are empowered with knowledge, strong skills, and competencies.

The shipping industry, as a global phenomenon, links the nations of the world through international trade. This activity cannot run without the much-needed trained workforce- the seafarers and other professionals like the port managers, logisticians, shipping agents, shipbrokers amongst others. There is therefore an absolute need to maintain a high level and effective standard of education and training for the workforce (UN Secretary General- Antonio Guterres, 2015) on the 2015 UN world maritime day.

The human element is very important in the maritime industry. Its relevance therefore grows with the industry. It is best said that without education and training of ship captains, engineers and seafarers in particular, as provided for by the STCW 78 convention as amended, advanced skills and competences will be greatly hampered, and ship sail will be unsafe (Fei, 2018).

The fluctuating demand for seafarers most often is due not only to income variations but also to the technical competence and attributes of the seafarers and to which all originate from the education and training given to them. The foregoing analysis of the seafarer

situation as an example, however, points to the important role played by MET (Bach et al., 2005; Winchester et al., 2005).

As of date, Cameroon has signed about seventeen of the IMO conventions including the STCW 78 as amended (*IMO status of conventions, and ratifications by state*) and ratified some. Ndze (2021) drawing inspiration from the example of the EU that has developed strong maritime legislation applicable to its member countries, points out that Cameroon could do the same. In fact, according to Bellefontaine (2018), CEMAC of which Cameroon is a member, plays an important role in up lifting what may otherwise be seen as ill-adapted maritime legislation of its member states. In this way, the education and training of shipping professionals within the zone, also takes into account the local realities.

The growth of the maritime industry may have some undesirable consequences on the environment for instance. The human element is again seen to be very important here to ensure the high standards of safety and guarantee of environmental protection and sustainability.

The achievement of the UN sustainable development goals - SDG, cannot succeed without education and training. Consideration of a few cases of these SDGs confirms the important role of MET in their realization. Examples are Poverty-goal 1, Quality education-goal 4, Clean water and Sanitation-goal 6, Decent work and economic growth-goal 8, and many more (IMO SG-Koii Sekimozu, 2015). Although education and training are important in the attainment of these SDGs, goal number 4 on quality education, in particular, is important. Obtaining quality education is the cornerstone for the improvement of people's lives and sustainable development.

Through continuing education and training, the maritime industry can be sustained. This is due to the rapidly changing socio-economic, political, and cultural environments. It is only through education and training that such volatility in the maritime sector can be easily

addressed (Wilson et al., 2002; Kelly, 2012; Cunningham, 2015). Introducing MET, especially at the basic and secondary school levels guarantees the sustainability of the maritime industry in the end, all things being equal.

The fourth industrial revolution is highly characterized by a wonderful technological mix. Without education and training, the new challenges and opportunities for adaptation would be difficult. Stakeholders within the shipping industry will be kept abreast of the new paradigms by adopting and creating new ways through which the workforce can be better trained for the future.

However, the question is whether there is a rationale for engaging new educational strategies when the 4th industrial revolution brings to all, easy access to varied digital information? Luthra, & Mangla, (2018). still holds that MET is an indispensable element to keep pace with the vast and fast changes that are taking place in the shipping and maritime industry as a whole. To prepare the people and the society that will embrace this challenging future, therefore, needs lifelong all-engaging education and training, be it formal, informal, or digital Luthra & Mangla, (2018).

MET has in this contemporary era proven to be very useful to the growing maritime industry (Cunningham, 2015). Largely, MET enhances growth, expansion, and positive change (Heirs, S. & Manuel, M. 2021). Muirhead, (2002) supports the ideology of Cunningham pointing out that activities of high value in the world today include maritime safety and environmental management. Richards (2018), on his part, opines that MET as one of the elements of vocational education and training (VET) is influenced by factors such as *the global economy, industry, and government policy* and should therefore not reduce in importance due to the fourth industrial revolution. The views of these three scholars regarding MET and influence on the maritime industry as seen above, are therefore similar

Generally, the desire to work brings about changes in Science through discoveries and technology. MET, therefore, provides knowledge and skills needed by the shipping industry.

Through MET, maritime safety is ensured. Prior to accident causation, was the reliance of the maritime industry on the employment of multicultural crews. Though good, many misunderstandings coming from such a mixed crew were responsible for the many accidents that occurred. MET, however, helps to narrow or eliminate such gaps (Horck, 2006).

Another important contribution of MET to the growth of the maritime industry is the creation of awareness. The potential benefits of the maritime industry to the youths and other stakeholders can be understood better through the dissemination of information and the best way to do so is through education. This researcher believes that youths constitute future cadet trainees. Once empowered with the necessary knowledge, skills, and competencies, they can pick up good and well-paid jobs as seafarers. This is most likely to have a positive effect on the reasoning of their peers who may eventually join the same jobs to the advantage of the maritime industry labor supply. This helps in building the career path for such interested persons (Cunningham, 2015).

Shipping activities and ports are very instrumental in determining coasts and ocean development either directly or indirectly. Shipping as an international mode of transportation influences coastal settlements, hence economic development. Such development often goes with a certain degree of destruction of biodiversity, coastal environment, and oceans. Today, these aspects of shipping and ports seem to be collaborative in integrated coastal development concepts. Due to the relevance of the coastal and economic activities generated, shipping activities grow.



MET provides an avenue for new knowledge, greater professional values, and practices which are later used to manage both the actors and their activities, in relation to how shipping affects coastal development, its growth, and preservation (McConnel, 2002).

## 2.2 The maritime industry in Cameroon

The importance of ports in Cameroon manifested itself a long time ago during the era of the slave trade.

The notion of maritime-related issues in Cameroon all started by the Germans within the period 1884-1914 with the construction of a railroad and the port of Douala (Rudin, 1938). Prior to this period, Africa used rivers and ports for the transportation of people and food items, even to Europe.

At the outbreak of World War II, the French and the British chased away the Germans and shared the country into two disproportionate parts ( $\frac{1}{5}$  of the German Kamerun to the UK to rule under Nigeria, and  $\frac{4}{5}$  given to France).

The interest here is in the Central African sub-region within which Cameroon is located. Cameroon, like many other African countries along the coast, had its ports. The colonial administrators then later decided to improve on these ports given their socio-economic and political importance (Oliver, 1958; Nkwi, 2017).

In Douala, where the country's first port construction started, one could see the place bustling with activities (Rudin, 1938). Rudin noted that the port of Douala was one of the best in West Africa. This was corroborated by (Fanso, 1989) & Nkwi, 2017), amongst others. This however, does not seem to be the case today because of the many hurdles the port faces as highlighted below.

The shipping industry is the lifeblood of the world economy because of the role it plays in international trade facilitation. Through international trade, countries are able to consume goods they could not produce probably because of high production costs or simply void of the required technology. Employments increase as coastal settlements

develop, and there is increased economic growth and its associated benefits (Cunningham, 2005, Sama, 2020). These are therefore the fallouts of the effective running of the ports. In this vein, attention has to be paid to the areas that constitute veritable drivers for the economic development of the nation. The maritime industry is one such sector. International trade plays a very significant role in keeping the world's people together. Over 90% of this trade is carried out by shipping using specialized vehicles called ships over the seas and oceans of the world. Shipping requires the use of trained labor - the seafarers (Fei, 2018). The knowledge, skills, and competencies that these seafarers need to man the ships safely can only be achieved through proper maritime education and training (MET).

The world's fleet according to Lloyds Register of shipping at that time - 1889, presented a global situation of 28,180 steamers and sailing vessels with a total tonnage of 27,673,628. About 39% of this was British and the rest for the other major nations were as presented in Table 2 below.

**Table 2**

*World's fleet according to Lloyds register of shipping-1889*

Country	Number	of	Total Tonnage
Great Britain	10,990		10792714
United States	3,010		2405887
Norway	2,528		1604230
Germany	1,676		2453334
Sweden	1,408		643527
Italy	1,150		/
France	1,182		/

*Note:* Source: 1889 World's Fleet - Boston Daily Globe

This trend as expressed in Table 2 above, created a situation of concern and the French in particular later took interest in maritime issues.

## 2.2.1 Administrative Structure and Operation of the industry.

### 2.2.1.1 Administrative structure

A minister appointed by a presidential decree heads the entire ministry of transport. This was a decision of the president right back on 09/12/2011 by decree N<sup>o</sup> 2011/401 and another on December 01, 2012, re-organizing the government with the minister of transport to head the Cameroon Maritime Authority and all other modes of transport in the country.

Administratively, a special department put in place by the government handles the maritime industry in the country. This unit, the Department of Maritime Affairs and Inland Waterways (Department d'Administration des Voies Navigables - DAMVN) is headed by a director with many functions amongst which are the following:

- Elaborates and puts in place government policy regarding maritime, river, and lake transport.
- Follows up international negotiations, accords, and conferences with respect to maritime transport.
- Manages matters related to maritime safety, security, and environmental protection.
- Carries out search and rescue operations.
- Follows up relations with maritime and para-maritime professions.
- Issues authorizations to companies intervening in the domain of maritime affairs.
- Ensures the respect of rules in the settlement of disputes in the domain of maritime affairs.

- Elaborates and follows up the implementation of regulations with respect to maritime transport and inland waterways.

All of these are meant to enhance management for subsequent optimal results. Challenges however, still exist due to the show of little or no interest in the signing of international conventions and agreements pertaining to the smooth running of the maritime sector activities. Power was initially in the hands of ministers who could sign these documents on behalf of the state depending on affiliation and personal interest (Cameroon Tribune, April 2012).

This tendency never only slowed coordination and government action with reference to the financing of external projects but also the proper management of the obligations that come with the signing of such conventions and agreements.

To address this problem, the prime minister and head of the government on 19 April 2012, signed a circular instructing all the ministers to respect strictly the presidential order as stated earlier on above (Cameroon Tribune, 2012). This poor behavior of high state functionaries further compounded the bureaucracy involved in negotiating and signing international agreements and conventions. Hence, the slow pace of ratification of the conventions.

#### 2.2.1.2 Operations of the industry

Maritime growth generally focuses on the human element and skills, and so governments tend to put up policies that support salaries mostly in the public sector. To attract quality maritime personnel, such salaries are usually higher than fixed in other sectors. The operation of the industry is grouped into four major categories namely shipping, marine, ports, and maritime business and services.

The shipping sector involves principally, the transportation of cargo, while the marine sector is concerned with cruising (passenger transport). Ports on the other hand deal with stevedoring as the maritime business and services engage offshore oil rigs exploration and production. Through this grouping, proper management is sought for optimal results through drivers such as Growth in global manufacturing, Consumer end-product demand,

Technological innovations, and Costs of vessels and truck fleets. Figure 2.1 below supports the above explanation.

**Figure 2**

*The maritime industry*



*Note.* Source: Author's adaptation from the maritime repository

The government manages the industry through the department of Maritime and inland waterways, which is the Maritime Administration unit in charge. However, some challenges are still faced as the activities are carried out. Douala, which is the major port of Cameroon, is the reference point.

The following are some of the recent challenges and obstacles faced by the maritime industry as earlier indicated in the academic literature and documents:

- The time spent at the port for clearance is usually much longer than expected-more than two weeks sometimes. Though the least efficient port in the sub-region, it, however, contributes its mite to the growth of the industry (Souleyman Coulibaly, world bank lead economist for Central Africa, 2015).

- An inadequate number of maritime experts and METIs. In developing countries like Cameroon, the need for well-trained labor for the public sector regarding the core civil service and the maritime sector is indisputable. Maritime governance thus becomes a problem as maritime administrators, coastguards, ship captains, are poorly trained (Iheduru, (1993).
- Constraints resulting from too much dependency on the hierarchy constitutes another challenge. This, however, weakened performance, hence a fall in productivity as compared to public administrators with financial autonomy (Moynihan & Pandey, 2010).

## 2.3 Maritime education and Training system in Cameroon

### 2.3.1 The Educational System in Cameroon

In Cameroon, three ministries oversee education namely: the ministry of Basic education (MINEBASE), the ministry of Secondary education (MINESEC), and the Ministry of Higher education (MINESUP). These three ministries are responsible for the educational policy, coordination, administration, and monitoring, with many different stakeholders handling implementation and collaboration with the national, regional, and local authorities. Both public and private sector schools coexist for extensive coverage of the academic needs of the needy populations. The education is both Technical (Industrial and commercial) and general. Technical education is orientated more towards professionalism, unlike general studies which are not specific.

The three ministries in charge of education as stated in the paragraph above play a collaborative role together with the government to ensure efficiency in rendering educational services to the rapidly growing population of the country.

On July 1, 2021, according to the current United Nations data on world population estimate, Cameroon's population stands at about 27,291,117 people divided according to

major cities. Table 3 , and Figures 3 and 4 below, illustrate the partition and diagrammatic representation of the above stated population

**Table 3**

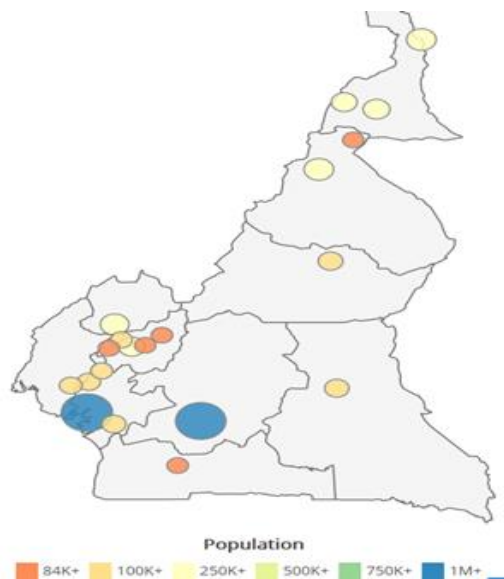
*Population partition by cities*

<b>Name</b>	<b>Population</b>
Douala	1,338,082
Yaounde	1,299,369
Garoua	436,899
Kouseri	435,547
Bamenda	393,835
Maroua	319,941
Bafoussam	290,768
Mokolo	275,239
Ngaoundere	231,357
Bertoua	218,111

*Note.* Source: UN Population estimates, 2021

**Figure 3**

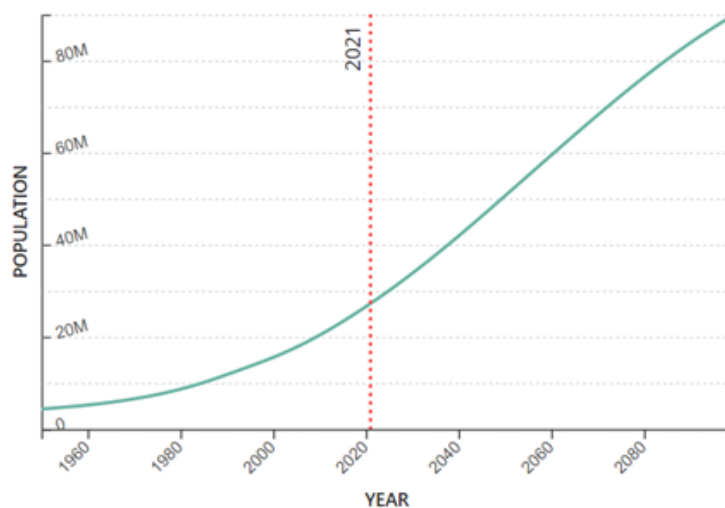
*Map of Cameroon's population distribution according to major cities 2021*



Note. Source: UN world population estimates, 2021

**Figure 4**

*Graphical representation of Cameroon's population - 2021*



Note. Source: UN world population estimates, 2021



**Table 4***Cameroon's population distribution by age*

Age range	Percentage
<14 years	41.25%
15 - 24 years	21.13%
25 - 54 years	30.64%
55 - 64 years	3.87%
65 years +	3.11%

*Note.* Source: UN world population estimates, 2021

The country has a population with a median age of 18.7 years. Those within the youthful age stands at approximately 61.29%. With a growth rate of 2.59% and a high birth rate of 34.7%, the population is likely going to remain young for some time in the future. Notice that population concentrations are much higher in the cities where most educational and other facilities are. This does not however negate the importance of rural settings where some minimal facilities may also be located. The significance of this data is therefore that a majority of the country's population is still of school-going age and if well orientated to embrace MET, this will likely impact more positively on the maritime industry in the future. There is therefore a need to ensure an efficient educational system (Besong, 2014). According to this scholar, educational efficiency refers to a proportionate input into the system, giving a proportionate output in return. In clearer terms, activity is said to be efficient when with a given quantity /quality of input, it is able to bring out the maximum output per unit of time. Rogers and Ruchlin (1971), confirm this view by saying that efficiency has a close link with productivity. Thus by maximizing productivity, efficiency

is maximized as well. Akangbou (1987) has similar meaning for efficiency. It is simply the ratio between the output of an organization and the inputs used in producing that output. Although this researcher agrees with the above definitions of efficiency as equally confirmed by Grant, (2000) in Stanlake's Introductory Economics, the definitions are however silent on the quality of the output to be realized.

From the foregoing scholastic discussions, it follows that efficiency could be safely considered as using a minimum amount/quality of inputs to achieve a maximum level of output. With this analysis of the term efficiency, what then could be the efficiency of education? As advanced by Akangbou (1987), "efficiency of education is the relationship that exists between the outputs of the educational system and the inputs used to produce such outputs". Ojedele (1998) aligns with Besong (2014) as he sees educational efficiency as that situation in which the educational administrator is able to impart knowledge and skills in a particular time, given certain productive resources like learning infrastructure, teachers, students, and other materials. On another count, Fadipe & Oluchukwu (1999) underscores the importance of a school system to be that relationship that exists between inputs (teachers, students, materials) and what the school system offers. The system is efficient when it produces maximum output with minimum input.

Considering the above definitions and explanations, we notice a point of convergence where all see efficiency of education, to imply the necessity for best use of productive resources such as labor and other materials, for possible opportunities dedicated to education for ultimate pre-determined results.

This researcher however sees a line of weakness in these explanations as no assumptions are made prior to this. Political instability, natural disasters, wars, and any other unforeseen could result in the contrary.

Emphasis is placed on educational efficiency here because education is important in the development of a nation, yet the resources needed for its realization are scarce. Avoidance of wastage of resources is thus necessary.

For education to be a real asset in national development there is a need to have in place various measures to maintain and improve the prescribed educational standards put in place by the educational policy body of the country. On April 14, 1998, law N° 98/004 regarding minimum standards at all levels of education in the country was made. Inspectors were appointed to oversee the smooth implementation of this policy using stated indicators.

Efficiency indicators are those key performance indicators that guide the inspectors to monitor and ensure that high standards are maintained and the schools run as planned (Fadipe, 2000).

In fact, a number of scholars who came out with some quality control tools that could help in managing educational efficiency carried out studies that the importance of space, equipment, books, teachers, materials, and administrative personnel (Nwagwu, 1983; Fadipe, 2000).

According to Tafah (1989), effective control for educational efficiency is a laudable idea as this will not only minimize the cost of education but also increase the scope and variety of educational systems in Cameroon. This researcher, though sees the extent of the validity of the above researchers' views, strongly agrees with Tafah (1989) in his own view on economies of scale in education because, diversifying education as early as that 1989 period to include Maritime Education and Training, would have given the maritime industry today a different and better face in the country. Worthy of note too is the bicultural nature of Cameroon at independence from 1961. The educational system, though reflected in biculturalism, never attracted serious attention that could see the reformation that could introduce the much needed maritime education and training for the fastest growing and stable industry in the world-the maritime industry (Ngoh, 2011; Fonkeng, 2007; Gwangfogbe, 1995; Tafah, 1989). In his book entitled "Changing Regimes and Educational Development in Cameroon", published in 2018 by Spears Media Press, Gwangfogbe opines that the educational system in Cameroon has not been stable

and even progressive since 1886 due to changing regimes in the administration of the country.

### 2.3.2 The Concept of Maritime Education in Cameroon

This concept can be looked at from the angle of the system theory. The systems theory was first established by Bertalanffy, and Miller between the periods of 1960 and 1970. Researchers to use in analyzing and understanding how organizations functioned (education as an example), later on borrowed the system based on “Living Biological Organism”. System theory looks at the entire organization and not its parts (Bertalanffy, 1972). This explains why it is commonplace to say, “The system is greater than the sum of all its parts” (Arnold & Wade, 2015).

A system by definition is an embodiment of distinct parts of a whole that function together to obtain a common finality. Such distinct parts are however interrelated.

The system theory attempts to describe and explain how organizations work in many different ways to realize organizational goals. The system is thus an open one because it cannot avoid contacts with the environment in which it operates (Amagoh, (2008). According to Lalande et al., (2015), and supporting Amagoh, (2008) the complexity of the system can be understood by studying how these parts of the whole interrelate and function. As an educational system, MET is a system, which has its own unique way of functioning to be able to attain its overall objective of knowledge transfer. It is, however; open to its environment, which affects its operations in certain ways (Daft, 2010). As an open system, every organization (and MET is a system), is made up of independent but interrelated parts. Such parts Inputs, eg Learning infrastructure and materials, students, finances, information and technology,

- Production processes otherwise known as throughputs, eg teaching/learning activities,
- Output, eg knowledge, skills and competences acquired that have some added value on the labor market,

- The environment within which it operates made up of shipping companies, other METIs, and the government, and
- The feedback loop, to enable the organization to know if it is doing well or not.

Both NPUI Bamenda and HITL of The University of Bamenda, are good examples of METIs from the private and public sectors respectively, and which have schools and departments that interconnect in a bit to obtain a common result within the provisions of state rules and regulations, international conventions, and the exigencies of the shipping companies. As Yawson (2013) puts it, these MET cannot be achieved without feeling the influence of their environment. Therefore, Feedback as a monitoring tool is indispensable within a competitive environment like this one that affects internal performance.

Briefly, Katz and Kahn (1966) hold that every system has the following as identifiers, which must be taken care of, if the organization has to be resilient or avoid the situation of entropy namely:

*Input, throughput, cyclical processes, negative entropy, negative feedback and coding, dynamic homeostasis, differentiation and equifinality. In this way, METIs can survive in the complex system.*

In the light of METIs, the IMO established an international maritime training institution in 1983 in Sweden to train specialist maritime personnel. It was named World Maritime University (WMU). The study programs included:

- Maritime safety and environmental protection,
- Maritime administration,
- Maritime education and training,
- Ports/shipping and Logistics management

Persons trained in the above fields were awarded a Master of Science (MSc) degree or a postgraduate diploma as the study warranted (Aggrey, 2000). Cameroon has been a beneficiary to this like the Akwo, Azama, Nsahlai, and Ndze, now retirees.

For purposes of localized and cheaper training, the Ghana Nautical College was progressively transformed to a Regional maritime academy in 1982. Later on 25 October

2007, the then Ghanaian president - John A. Kuffor, upgraded the academy to a full flesh University named The *REGIONAL MARITIME UNIVERSITY (RMU)*. The founding members of this tertiary institution were Cameroon, Gambia, Ghana, Liberia, and Sierra Leone (Manuel et al, 2020). These five member countries were hitherto members of the Maritime Organization of West and Central Africa (MOWCA) whose interest then was to see how international trade could be encouraged, and therefore strongly encouraged the move to have the Regional Maritime University (RMU) in place. The essence of this institution was to see how maritime education and training could be carried out effectively to ensure the growth and sustainability of the maritime industry in the west and central parts of Africa. Table 5 below shows the various programmes offered and the qualifications.

**Table 5**

*RMU Maritime (STCW) Programmes and qualifications*

Faculty	Programme	Duration	Remarks
Faculty of maritime studies	BSc, Nautical Science	8 semesters (4years)	Addresses STCW requirements under Chapter II
Faculty of engineering and applied sciences	-Marine Electrical & Electronic engineering	8 semesters (4years)	Addresses STCW requirements under Chapter III (regulation III/6)
	-BSc Marine Engineering		Addresses STCW requirements under Chapter III

*Note.* Source: Maritime education and training in Africa (AFRIMET) – Manuel, 2020

Cameroon, like the other member countries, since then has been having most of her maritime experts or personnel trained at this Higher Institution of quality learning -

Regional Maritime University (*Turkson & Darkey, 2011; Manuel et al, 2020*). This equally insinuates and supports the importance and institution of METIs in the member countries.

The geographical location of Cameroon is so strategic especially in the central African sub-region of the gulf of Guinea. This location boosts Cameroon's interest in international seaborne trade, hence port infrastructure. It is, therefore, necessary to embark on measures that will ensure safety and marine environmental protection as the trade and port facilities grow. With this, Ida Ngo (2019) pointed out that sustainability of the entire maritime domain and all other departments that depend on it is guaranteed. This researcher subscribes to the viewpoint of Ngo (2019) as also corroborated by *Turkson and Darkey (2011)* who pointed out and rightfully so, that MOWCA's collaboration to get Ghana's Nautical college to transform right up to a full University status was geared towards regional cooperation and sustenance of development and growth of the West and Central African maritime industry.

However, for the past several years, the training of Cameroon's maritime personnel at RMU, and other maritime institutions the world over, has been a gradual process. The department of Maritime Affairs and inland waterways when contacted for statistics of those who have so far trained at RMU and elsewhere, was not able to get its records for reason of poor documentation. Nonetheless, the few trained have been able to optimize the role of MET in the growth and development of the maritime sector in Cameroon.

In Cameroon, over thirty maritime education and training institutions exist and are run by both the public and private sectors. They do so at the Higher education and Diploma levels. Academic degrees are awarded at the higher education level while the Higher National Diploma - HND certificates are awarded at the diploma level.

In order to narrow this gap, a number of these MET institutions were created to ensure sustainable growth and development of the maritime industry. This is done by adding value to interested persons via various training programs for new skills and competencies.

Of the many MET institutions that exist in Cameroon, only a few of them carry on with the very specialized/professional training of the seafarers. However, other maritime professionals such as port managers, terminal operations managers, port logisticians, and lawyers amongst others are trained in these institutions. For the purpose of a better understanding of the situation in place, the list of the institutions is presented in separate groups depending on their training programs. Group A represents indigenous schools in the country that train some classes of maritime personnel at both the degree and Diploma levels while group B represents those schools that opt to train some specialized maritime personnel like seafarers, engineers, ship captains, by affiliating to foreign specialized METIs.



**Table 6***Public and Private higher institutions of learning in Cameroon*

<b>Group A</b> Emphasis on training in the areas of Logistics and Transportation Management as well as Ports and Shipping Management	<b>Group B</b> Professional training requirements of the seafarers
<ul style="list-style-type: none"> <li>• Higher Institute of Transport and Logistics (HITL)-The University of Bamenda</li> <li>• The school of applied Logistics-University of Douala</li> <li>• Ecole Nationale Supérieure Polytechnique de Douala</li> <li>• National Polytechnic University Institute (NPUI) Bamenda</li> <li>• Bamenda University of Science and Technology (BUST) Bamenda</li> <li>• Laureate Polytechnic Bamenda</li> <li>• Higher Institute of Petroleum and Logistics (HIPAL), Bamenda</li> <li>• Higher Institute of Business Studies, Management and Technology (HIBMAT) Buea</li> <li>• Higher Institute for Professional Excellence (HIPE), Douala</li> <li>• Institut Universitaire de la Cote (IUC), Douala</li> <li>• Institut Universitaire des Grandes Ecoles des Tropiques (IUGET), Douala</li> <li>• Institute of Maritime Techniques Douala</li> <li>• AIMS Kribi-Advanced Institute of Maritime Studies</li> <li>• Institut Supérieur SIANTOU Yaoundé</li> </ul>	<p>National Institutions</p> <ul style="list-style-type: none"> <li>• Limbe Nautical Arts &amp; Fisheries Institute (LINAfi), Limbe (Fishery, Technology, Navigation &amp; Mechanics Institute)</li> <li>• Maritime Training Institute for Professional Navigators (Online training of seafarers: FURUNO ECDIS, FURUNO AUTOPILOT, and FURUNO ECDIS-Chart Handling)</li> <li>• Maritime Academy - Maritime Training Center (Represents a specialist foreign maritime University and trains seafarers in different capacities)</li> </ul> <p>Foreign institutions</p> <ul style="list-style-type: none"> <li>• SUNY Maritime college, New York;</li> <li>• California Maritime Academy, Vallejo, CA</li> </ul>

*Note.* Source: The Ministry of Higher Education (MINESUP), 2020 directory)

These METIs though many, focus on diverse areas of training. Only the few institutions in Group B above dwell on the professional training requirements of the seafarers. Those in Group A, lay emphasis on training in the areas of Logistics and Transportation Management as well as Ports and Shipping Management.

The few MET institutions that deal with seafarer training do so by affiliating to foreign specialist Universities with whom the training is done online.

Glaring examples of such foreign institutions include *SUNY Maritime college, New York*; *California Maritime Academy, Vallejo, CA*

### 2.3.3 The contributions of MET to the growth of the maritime industry in Cameroon and its challenges

#### 2.3.3.1 Contributions

As earlier analyzed above, in general, education and training of high standard is of great importance to the maritime sector and thus helps in the growth of the industry.

The quality, practical skills, and competence of seafarers guarantee safety in vessel handling and the protection of the environment as international trade is carried on. The maritime industry in Cameroon, as exhibited by the port of Douala especially, is endowed with this kind of labor which is trained mostly out of the country, more specifically in Ghana.

Cameroon's position in the central African sub-region is so strategic. It serves in addition, two landlocked countries of Tchad and Central African Republics. Despite the trained labor for the industry, some inefficiencies still exist which hamper growth (Gregor Binkert-IBRD, 2015). The time spent at the airport is usually too long, sometimes going beyond two weeks for even simple cargoes.

MET enables port activities to serve as prime movers of development and growth. Efficient port management impacts positively on the lives of both employees and indirect benefactors via increased incomes, and better living standards.

The relevance of MET is also seen in the area of Port State Control (PSC). Without efficient and well-trained coast guards, maritime administrators, and navigation officers, PSC will be a failure. MET, thus facilitates this aspect thereby contributing to the growth of the maritime industry in Cameroon (McConnell, 2002; Ida, 2019).

The development of coastal settlement and their sustainability can only be successful with proper education and training that integrates professional values and practices that bring about growth and development (Mbongalle, 2019; Gilpin, 2007).

#### 2.3.3.2 Challenges of MET

MET, as important as it is to Cameroon's maritime industry, though lowly developed, has a number of challenges. The absence of a strong policy at the national level regarding the expansion of the human resource capacity further compounds the problems. As confirmed by Manuel et al. (2020) and Basak (2017), amongst the myriad of these challenges, are the following:

- Inadequate financing
- Discriminatory leadership at the institutional level,
- Maritime awareness and appreciation, as well as enormous human resource constraints
- Seafarer education and training is still problematic because of the absence of training berths at sea.
- Shortage of infrastructure – shore and offshore,
- Lack of effective supervision and monitoring of existing institutions,
- Shortage of qualified and motivated teachers in METIs,
- Insufficient instructional materials,
- Curriculum deficiency
- Unstable educational policies due to political instability.

## CHAPTER THREE: METHODOLOGY and METHODS

### 3.1 Introduction

This chapter offers the study framework and the methodology used to analyze the data collected on the research topic. Focus is on the Shipping/Maritime industry with Cameroon as a case study. The data gathered from both oral and written sources reveal the relationship between MET and the maritime industry. Correspondingly, the chapter would focus on research design, targeted sample population for data collection and methods/techniques used. To these will be a consideration of the procedures and ethical considerations, data processing analyses, constraints and limitations encountered in the systematic data collection, most of which would be gathered through questionnaires.

### 3.2 Research Design/Methods

Research design is a framework that relates the process of data collection and analysis for the purpose of research. Alternatively, “it can be taken to mean establishing a structure and approach of investigation through which answers to research questions are obtained for purposeful control of variance”, Kerlinger as cited by Prabhat et al. (2015 p.18). A research design contains a choice of data collection and analysis which according to Saunders et al.(2015), are informed by research philosophies and approaches. The latter is just a single layer of the “Research Onion” design developed by Saunders et al. (2007) in an attempt to explain the processes leading to the method of data collection to which the research will identify. Sama (2020), says the layers of this “Onion” are identical to the scheme developed by Kevin et al. (n/d) referred to as the “Method Map”

The researcher here uses a mixed method of qualitative and quantitative approaches in the research design. An inductive method wherein a move from specific observations to making broad generalizations is used.

Since the research study deals mostly with observation, even experiences and theoretical frameworks in the area of interest, the researcher builds the study more on qualitative

analyses notwithstanding the use of the descriptive quantitative approach to analyze data collected.

### 3.3 Targeted Population for the Study

Directly concerned are entities that have some connection with the maritime activities, direct stakeholders will thus serve as the targeted population in this study. This would include virtual field visits to the concerned entities such as the METIs, Shipping company officials and/or staff, teachers and lecturers of maritime education and training, with other stakeholders.

#### 3.3.1 Sample Size/Sampling Method

According to LoBiondo-Wood and Haber (1998), sampling is simply a process by which a portion of a population is selected to represent the entire population. In this study, a sample size of 45 respondents was selected at random through pre-consultation via emails, and taking into account qualifiers as age, educational level, job position and work experience amongst others.

#### 3.3.2 Procedure and Ethical Consideration

Both methods qualitative and quantitative - questionnaire with closed and open-ended questions were used to collect the empirical data". The questionnaire was developed and administered specifically in English, the common language of the respondents. This was done in three major parts with each containing closed and open-ended questions.

The information obtained through these sources gave the researcher a greater insight into the relationship between MET and the growth of the maritime industry.

In undertaking the exercise, the integrity of the informants was secured as information obtained was purposely for academics. The Research and Ethics Committee of the University-WMU issued a protocol to this effect (See Appendix 2). In addition, the

researcher gave consent forms and information sheets to the respondents as a further guarantee of their security. Questionnaire did not carry any names and the respondents responded graciously.

### 3.4 Data Collection

#### 3.4.1 Sources of Data Collection

The data collected during this research was of two types-the primary and the secondary data. The primary data helped the researcher to obtain new and original information through questionnaires while secondary data was gathered from books, journals, articles, newspapers, dissertations, reports, libraries (online consultation of the British Council Library in Yaoundé), conventions and lecture notes. This data provides useful statistics to analyze the findings.

#### 3.4.2 Tools used in collecting the data

##### 3.4.2.1 Questionnaire and Administration

Oppenheim (2000), sees the questionnaire as that tool that is used for collecting and recording information about a particular issue of interest. Both the structured and unstructured questionnaire were used in the survey (See Appendix 1). Quantitatively, discrepancies are minimized. It is equally easy to administer in a predetermined order (DeVaus, 2002). Also, it is consistent in answers and easy to manage (Robson, 2007). The questionnaire above all is one of the most widely used tools of quantitative data collection and analyses (Saunders et al., 2007).

Based on the research questions, the researcher administered an online questionnaire established through Google forms. To raise the response rate, the researcher ensured the following:

- Pilot testing was done with maritime students and colleagues,

- Good visual design and user-friendly online interface was ensured,
- Pre-notification emails were sent to targeted participants,
- Reminders were equally sent to the targeted respondents periodically.

The questionnaire was later sent to the respondents sourced through personal contacts (Emails) and social media platforms.

### 3.5 Secondary Data Collection

The researcher made use of the public libraries directly and online. Some of the information was photocopied, others downloaded and current ones in the computers were taken into a USB flash for exploration. The British Council library and public library at the municipal council in Bamenda-Cameroon, the library of The University of Bamenda where enormous data on government educational policy in Cameroon was collected. The internet was also consulted where articles, books, posts, journals and much more on methodology were derived. The secondary sources gave the researcher knowledge on handling the study as well as relevant data for this write-up.

#### 3.5.1 Method of Data Analysis

The analysis here is based on the data collected via the primary and secondary sources. Here the researcher analyzes the collected data descriptively using tables, graphs and charts. Quantitative wise, the researcher uses the descriptive statistical approach to establish the degree of the relationship that exists between METIs and the Maritime industry. Frequencies were used to gain an indication of how many times a particular response occurred. This assisted in fitting responses into particular categories. Apart from being easy to interpret, percentages were also used to show comparisons between categories of responses.

It is an academic work that deserves some level of honesty and it is for that purpose that this research is done without which the study would fall short of its expectations. The

researcher made use of the Excel 2007 spreadsheet for analysis ensuring some quality control. Quality data analysis on the other hand, and according to Amin (2005), is a process of data analysis, which involves making sense out of test data, asking analytical questions and writing memos for methods used in analysis.

They were then jointly analyzed to produce valuable information that we find in this dissertation. The results are presented in either tables, charts or figures following the research questions and objectives. The analysis of the various data helped the researcher to reduce errors from human bias and strengths. The processed data is filtered, transformed with supporting evidence for the relevant conclusions.

### 3.5.2 Responses and limitations

The questionnaire developed through google forms was sent to some 45 participants. Enough time was given to each respondent to study, answer the questions and submit responses online via emails on appointed dates. The response rate was 73.3%. The appreciable response rate notwithstanding, the researcher still finds the following limitations to the research:

- The sample size population is not representative enough of those concerned with the topic in research. This may likely play on the reliability of the findings. However, with the cross-sectional source of the respondents (seven different nationalities) and diverse backgrounds of education, professions, ages and work experience, the researcher does not doubt the reliability of the findings via this approach.
- Reliance on questionnaire alone as a data source for a research of this dimension constitutes a huge setback to the amount of data collected.
- The prevalence of the covid-19 pandemic to a reasonable extent limits the mobility of the researcher to conduct interviews and even cover a wider size of the respondents of the questionnaire.
- Poor communications also limited the free flow of information between the respondents and the researcher. Time therefore became of essence.



## CHAPTER 4 - PRESENTATION OF FINDINGS

This chapter presents the outcome of the survey carried out using questionnaires administered to respondents of varied backgrounds. Though quantitative in nature, the findings are presented in a descriptive content analysis of the data collected, aimed to address the understated research questions.

- Can the system of education pursued by Cameroon ensure growth of the maritime industry?
- What challenges do METIs as training institutions face in rendering their services?
- How do these hindrances affect their ability to contribute to the growth of the maritime industry in the country?
- Can continuous education improve the performance of the existing personnel for a future and better maritime industry in Cameroon?

With this, the presentation takes two principal parts -

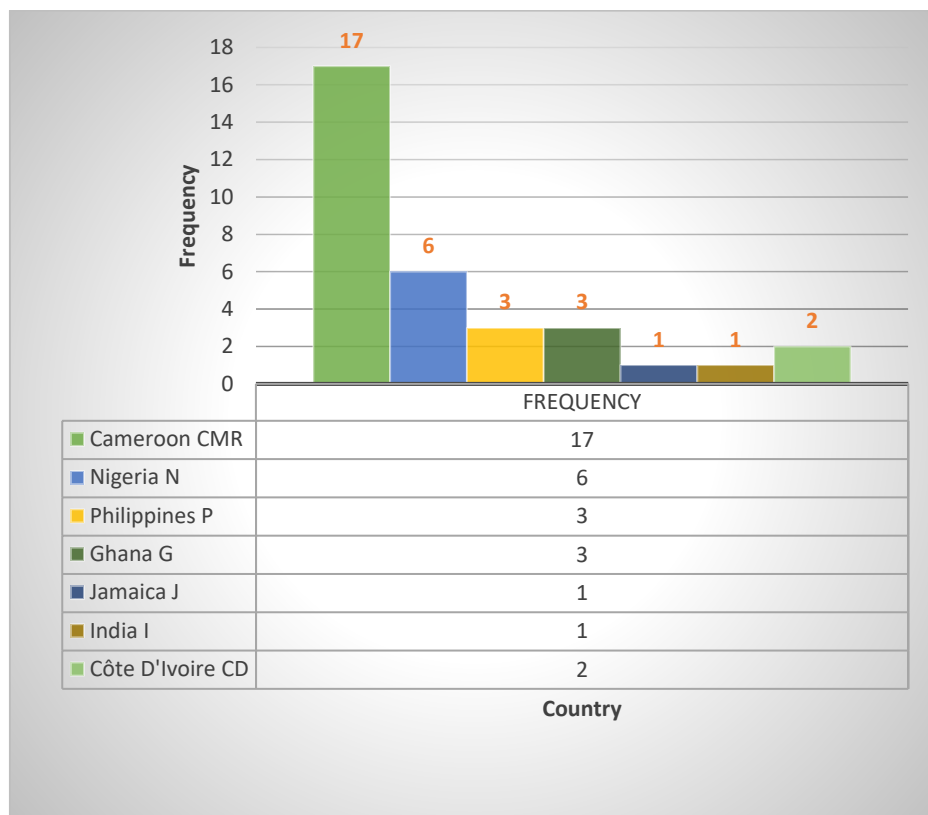
- Preliminary analysis which involves the demographic and other characteristics of the respondents, and
- Analysis of the responses, which touches on the closed and open-ended questions as per the questionnaire.

### 4.1 Preliminary analysis

Here tables, graphs and charts are used to present the situation of the findings accordingly. The chosen population sample constituted 45 stakeholders of varied backgrounds like merchants, MET students and teachers, maritime experts, CEOs of shipping companies and METIs. Of the 45 questionnaires given out, 33 participants responded positively giving a participation rate of 73.3%. Considering the dimension of the research topic, seven different nationalities were involved in the survey as figure 5 below demonstrates.

**Figure 5**

*Nationality of various respondents*



*Note.* Source: Survey results

Figure 5 above shows the various nationalities involved in the survey. Cameroon as a case study nation with 17 offers (51.5%) followed by Nigeria as a major shipping country in the **MOWCA** (*Maritime Organization of West and Central Africa*) zone where Cameroon is equally a member, with 06 offers (18.2%).

**Figure 6**

*Gender of respondents*

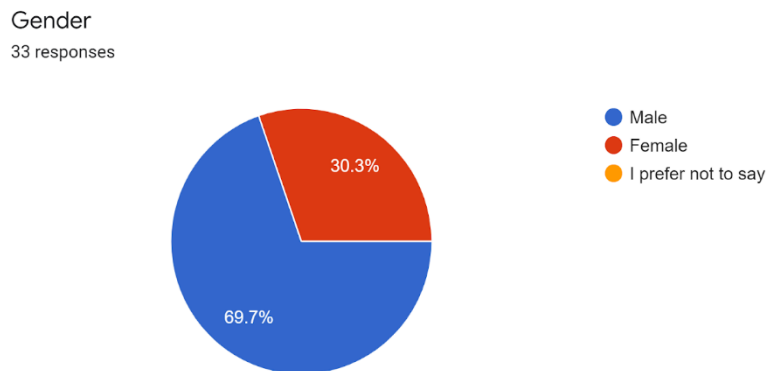
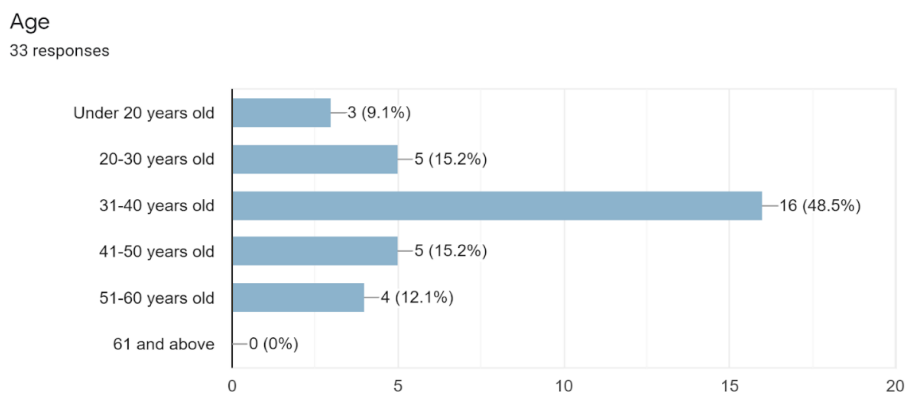


Figure 6 above presents the gender situation of the participants in the survey. Notice that approximately 30% of the respondents were female. This gives a sense of some unbiasedness in the data collection.

**Figure 7**

*Ages of respondents*



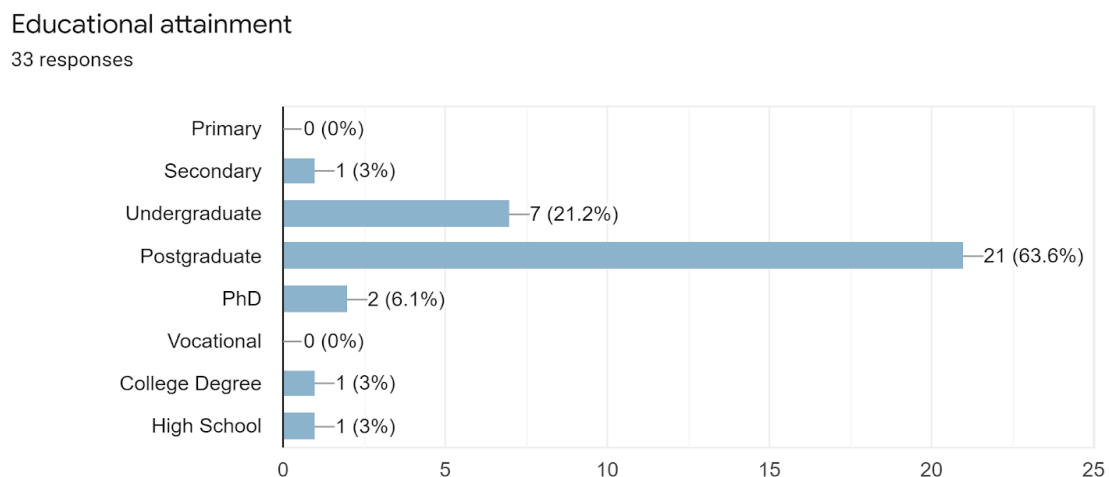
*Note.* Source: Survey results

Figure 7 above reveals, the age of the participants to range from slightly less than 20 years to 61 years and above. This range was given due consideration for the survey to ensure a broader cross-sectional opinion coverage and a reasonable degree of reliability

The age group of 31-40 years which forms the largest part of the working age group, was outstanding in the survey with a participation rate of 48.5% (16 offers)

**Figure 8**

*Educational attainment of respondents*



*Note.* Source: Survey results

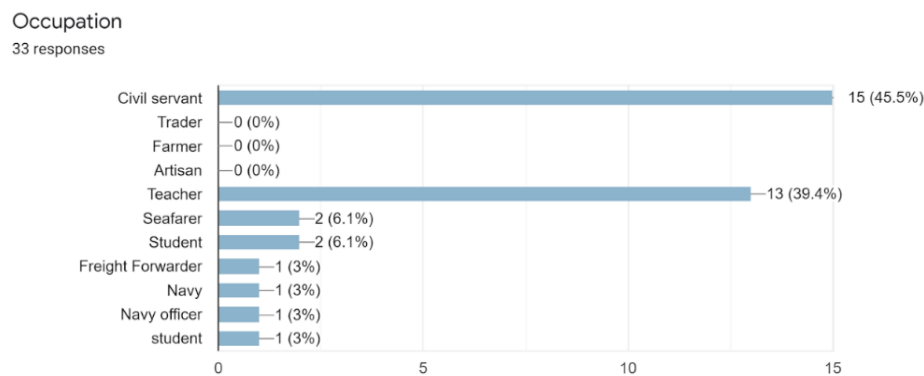
According to the graphing in figure 8, the educational level of the respondents ranges from secondary to University level. Most of the respondents here fall within the postgraduate level with a 63.6% participation rate. An amazing 6.1% coverage rate comes from persons with the highest academic qualification-the PhD. The caliber of respondents here therefore lends credence to the outcome of this survey.

Furthermore, the occupational type of the respondents (Figure 9) coupled with their work experiences (Fig. 10) add value to the results of this survey. In Figure 9, **45.5%** and **39.4%**

of the respondents are civil servants and teachers respectively. Figure 10 on its part paints a picture of about **82%** ( $51.5+15.2+9+1+6.1 = 81.9\%$ ) of the respondents having a minimum working knowledge and experience of above 5years. This is a plus to the survey.

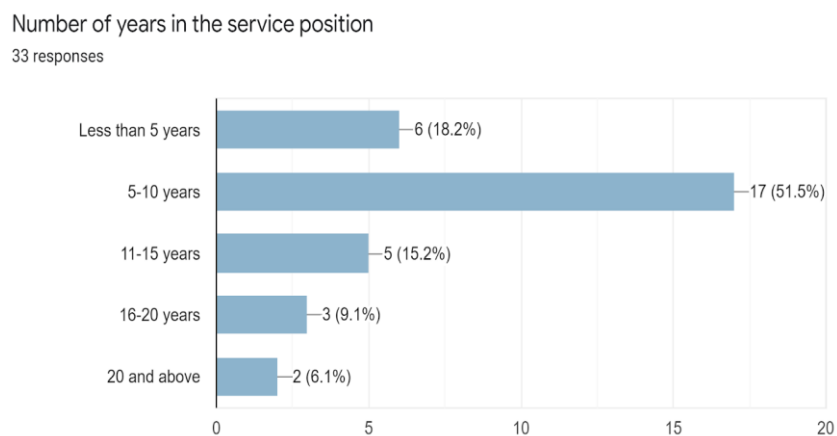
**Figure 9**

*Occupation of respondent*



**Figure 10**

*Work experience of respondents*

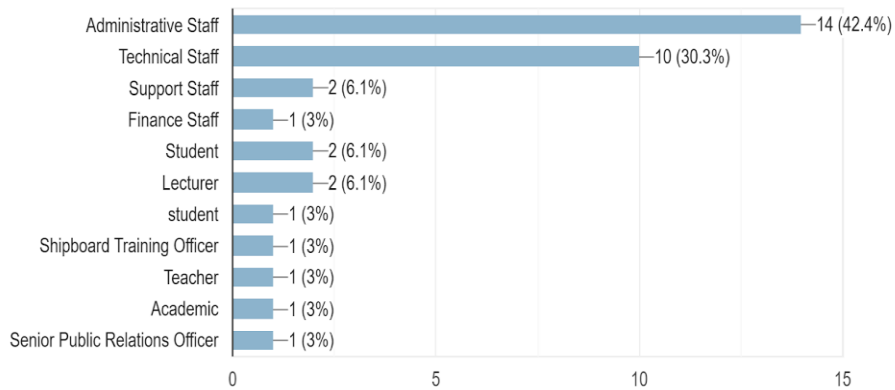


**Figure 11**

*Job designation of respondent*

What designation do you hold in your institution?

33 responses

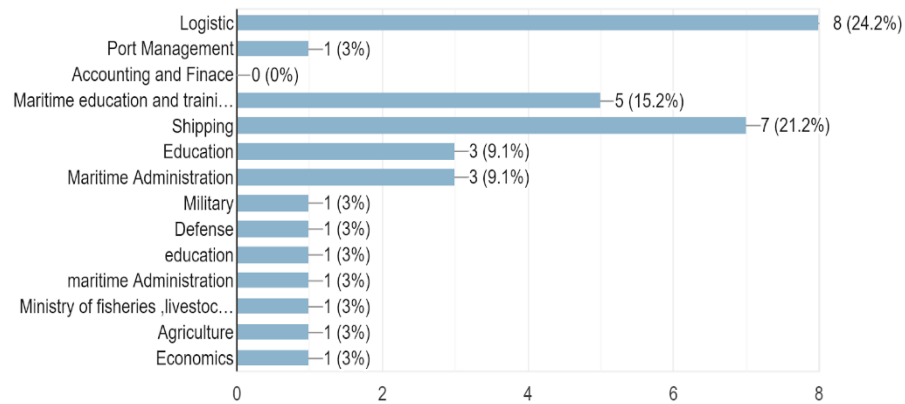


**Figure 12**

*Sector of employment*

Under what sector?

33 responses



Figures 11 and 12 above, respectively present interesting situations of job designation and related sector. Notice in figure 11 that most of the respondents (42.4% and 30.3%) hold administrative and technical positions respectively, which implies that they are privy to some kind of information that could be of importance to the shipping industry. However, the percentage of Logisticians, shipping management, maritime education and training staff that glaringly stands out at 24.2%, 21.2% and 15.2% respectively, confirms this notion. Again, the quality of the respondents here is of essence.

To conclude here, the researcher observes that, although some respondents in certain professions in certain sectors might not have given the responses of prime interest probably because of the positions they hold. However, this does not negate their views wherever that is expressed. Their opinions count.

#### **4.2 Analysis of the closed and Open-ended questions responses**

Here, questions presented to the respondents were in three parts namely

- Questions on the general knowledge on the maritime industry and growth,
- Challenges to the growth of the maritime industry in the country, and
- How well METIs contribute to the growth of the maritime industry.

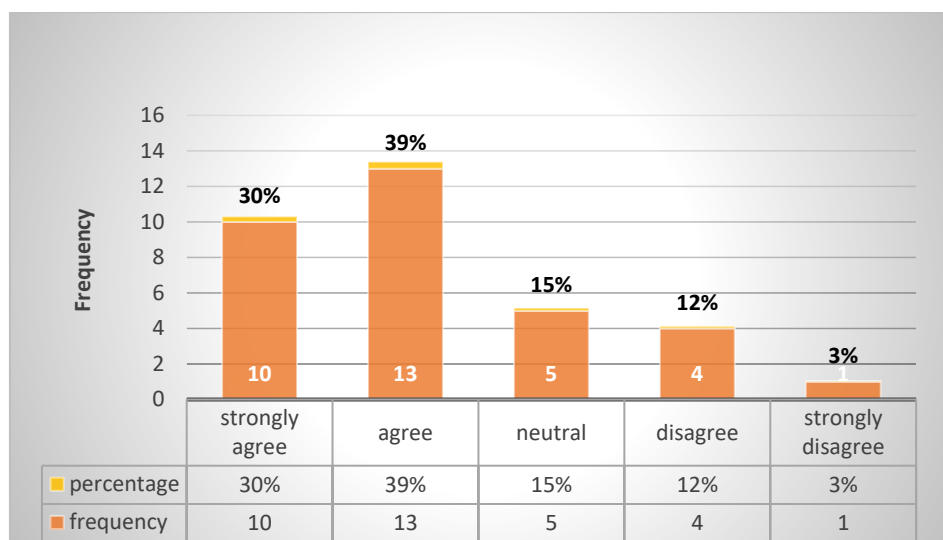
In presenting the findings, the researcher analyzes the respondents' views on some of the questions in the survey that hit harder on the problem. In order to know the extent to which these opinions affect the growth of the industry, the researcher relates them to the research questions.

##### **4.2.1 Research question (RESQ) 1: *Can the system of education pursued by Cameroon ensure the growth of the maritime industry?***

The various opinions of the respondents to the closed-ended questions are as x-rayed by the Figures below, attempting answering this RESQ.

**Figure 13**

*Views on poorly developed technical professional education for the growth of industry*



*Note.* Source: survey results

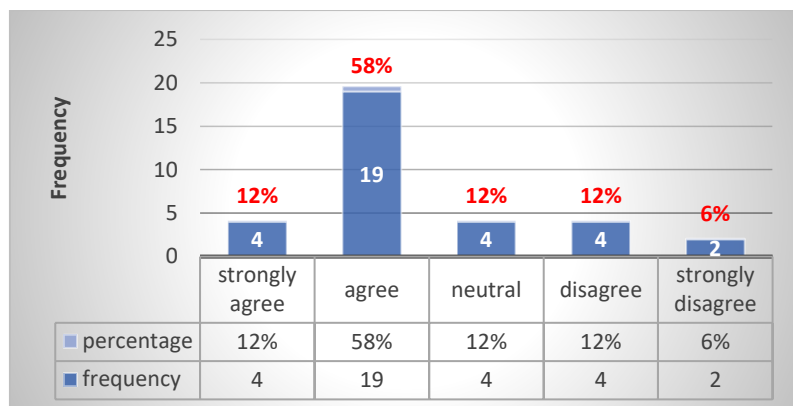
Here, 30% of the respondents strongly agree that there is poor development of technical professional education needed for industrial growth, a view supported by 39% of other respondents. This shows that technical professional education is necessary for the growth of the maritime industry. However, the 15% neutral respondents may be due to the diverse nature of the backgrounds of the respondents.

Figures 14 and 15 below show a similar conclusion though from different perspectives.



**Figure 14**

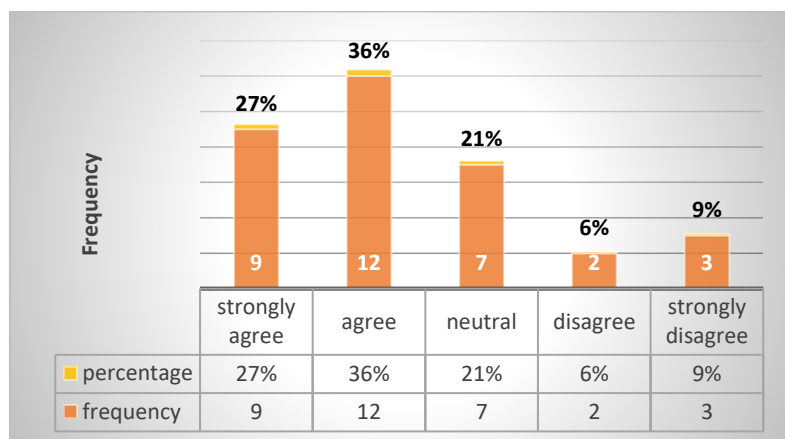
*Professionally trained teachers are rare*



*Note.* Source: Survey results

**Figure 15**

*Political gimmicks slow METIs contribution to growth of the industry*



*Note.* Source: Survey results

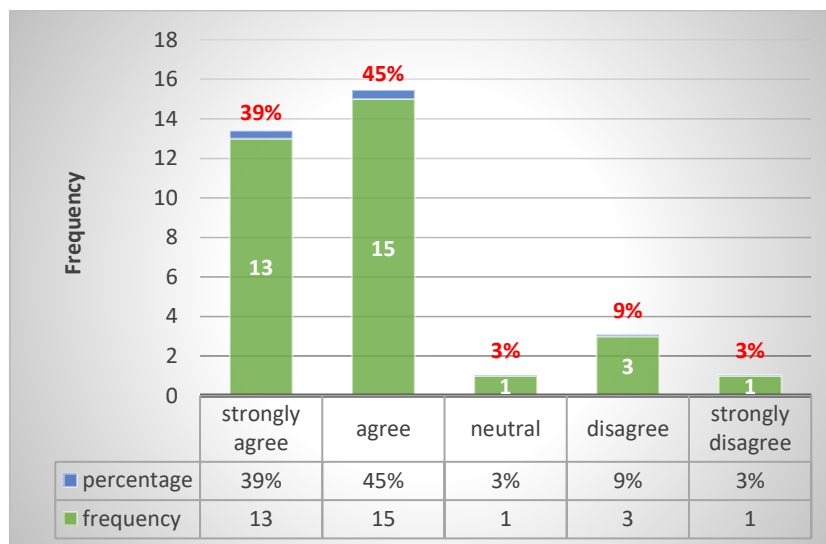
Notice from figure 14 that while 12% of the respondents strongly agree, up to 58% agree that the inadequacy of professionally trained teachers limits the quality of output of METIs, and therefore may not ensure the growth of the maritime industry. Figure 15 presents a similar scenario where 27% of the respondents strongly agree while 36% agree as well that political machinations cannot permit for quality output of METIs that can ensure growth of the industry.

#### 4.2.2 RESQ 2: *what challenges do METIs face in rendering their services as training institutions?*

The figures below express graphically the perceptions of the respondents regarding the challenges METIs sometimes face in rendering their services.

**Figure 16**

*Inadequate and poor use of modern technology tools*



*Note.* Source: Survey results

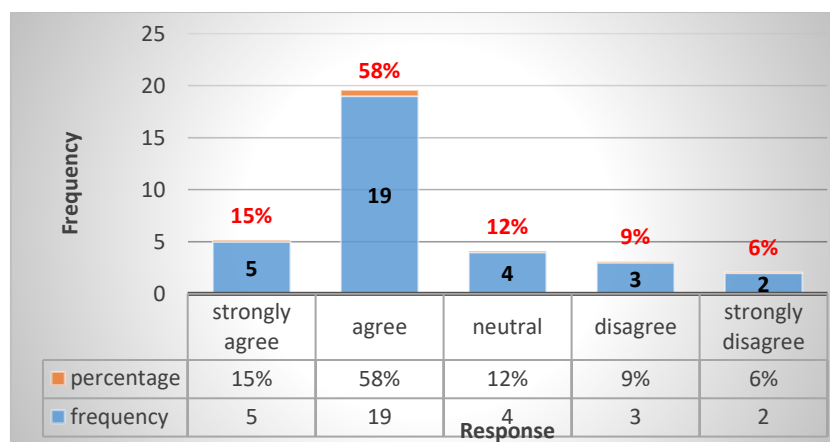
In Figure 16, 39% of the respondents strongly agree as well as 45% who also agree that most METIs tend to find it difficult effecting their responsibilities due to their inability to meet up with the fast changing technology.

In figure 17 below, 15% and 58% of the respondents strongly agree and agree respectively, giving an average percentage of 73% who totally agree to the fact that METIs face the challenge of a good quality control system in the organization. The absence of this limits the efficiency of the METIs.

The views in figure 18 corroborate those of the respondents expressed in figures 16 and 17, as a cumulative 42% (9 +33) respondent agrees that a poorly developed curriculum will negate the performance of METIs. This is against a 24% disagreement of the respondents. However, a high neutrality rate (33%) expressed by the respondents, is an indication of differential reasoning common with a sample population that is multicultural in nature and characterized by different educational strata and does not in any way, nullify the positive view of the majority.

**Figure 17**

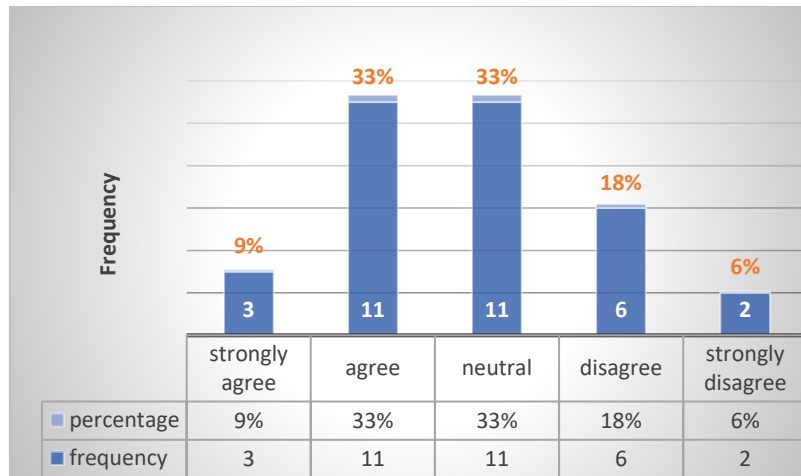
*Poor quality control system in METIs limits efficiency*



*Note.* Source: Survey results

**Figure 18**

*Opinion on poorly developed curriculum*



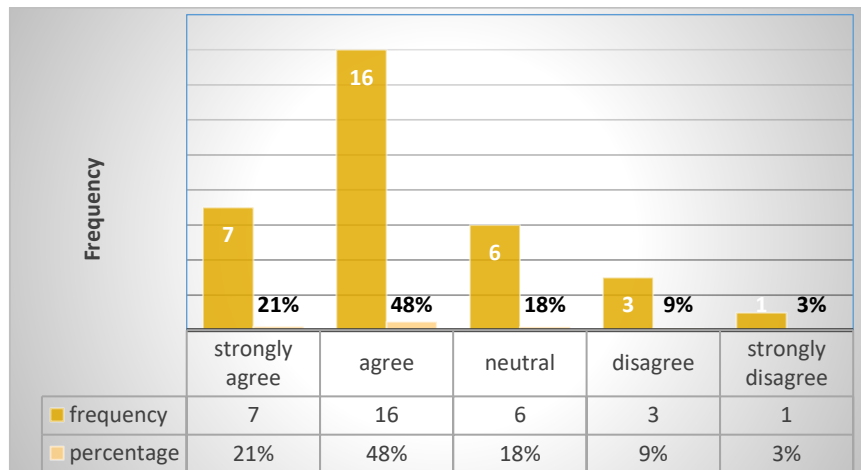
*Note.* Source: Survey results

#### 4.2.3 RESQ 3: How do these hindrances affect the ability of METIs to contribute to the growth of the maritime industry in Cameroon?

The establishment of METIs is not for its own sake but for the stakeholders who need the professionals so trained by them. In this light, whatever difficulties the METIs face will affect their impact on the maritime industry. The paragraphs below show the findings taking cognizance of the perceptions of the respondents in the online survey conducted. Figures 19 - 22, show the graphical representation of the data collected. However, note that to explore the contribution of MET to the growth of the maritime or shipping industry as the case may be, there is need to examine those obstacles to an effective MET, and how the METIs turn around them to be able to influence positively, the growth of the industry.

**Figure 19**

*Limited scope for the training of professionals weakens METIs ability to contribute to the growth of the maritime industry*

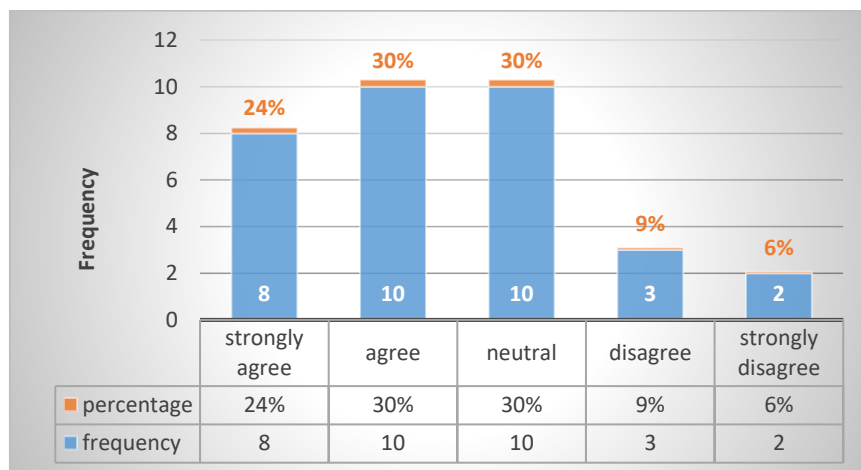


*Note.* Source: Survey results

A weak curriculum document limits METI's scope for the training of more and competent professionals for the industry. Most of the personnel within this sector are thus not with the required professional background. Notice in figure 19 above that while 48% of the respondents agree to this statement, 21% strongly agree making a cumulative percentage of 69%. This implies that for METIs to contribute effectively to the growth of the industry there is need for a review of the poor curriculum document by the concerned educational committee to widen the scope of the training to include portions like engineers, logisticians, managers, agents, shipbrokers, etc...

**Figure 20**

*Corrupt practices at the ports hinder growth of the industry*

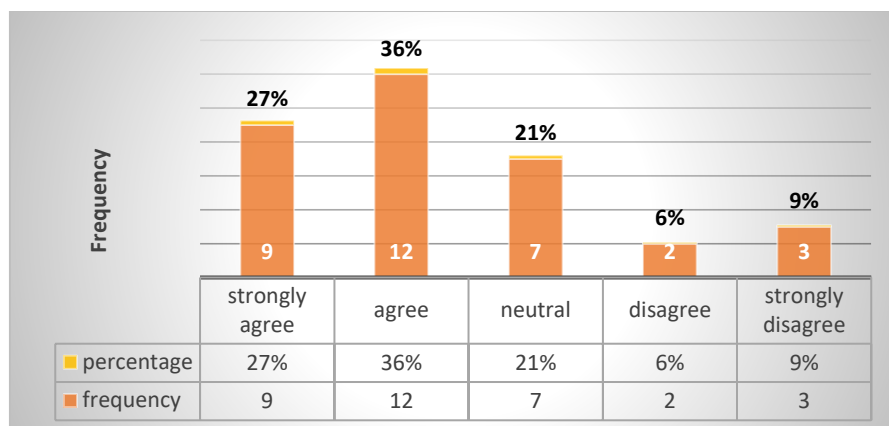


*Note.* Source: Survey results

Corruption is a general phenomenon and therefore commonly seen within the school milieu although to varying degrees in the different establishments. Where this type of a situation is condoned either knowingly or ignorantly, and because of a poor or no proper quality control system in place, the professional trained is not competent enough. Thus, corruption hampers quality training by the METIs as confirmed by the respondents in figure 20 above. Notice that 24% and 30% of the respondents strongly agree and agree respectively, making a total percentage of 54% in the affirmative that corrupt practices hinder growth of the ports. The high rate of neutrality is the consequence of six other nationalities involved in the survey. Its effect on the analysis is thus minimal.

**Figure 21**

*Political gimmicks slow METIs contribution to the growth of the industry*

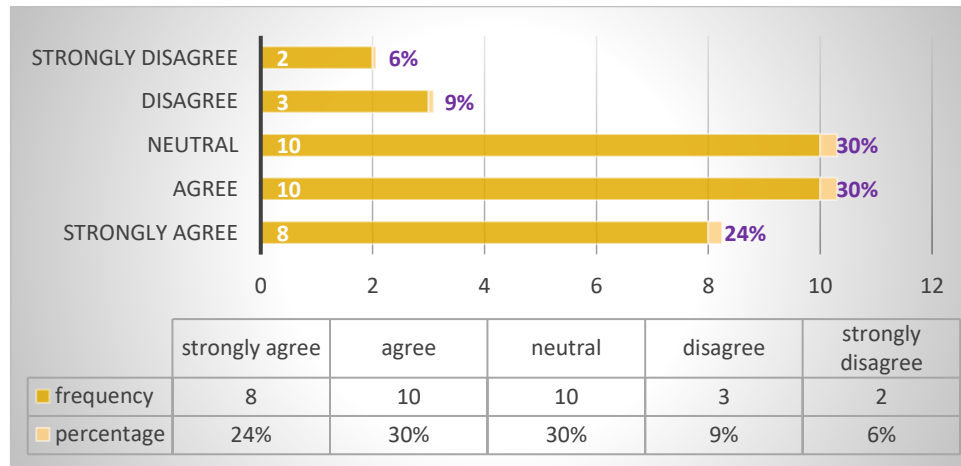


*Note.* Source: Survey results

METIs in Cameroon are classified under the ministry of higher education. It is governed by ministerial texts, orders and decisions of constituted committees. All of these are organs that are highly politicized and so there is the tendency to meddle a lot with the activities of the METIs. Such may range from poor funding, embezzlement of constituted funds, to outright refusal to approve certain lofty MET programs for want of money. These gimmicks as confirmed by the respondents in figure 21 render METIs incapable of training properly, the much-needed maritime personnel. Hence, poor contribution to the growth of the maritime industry.

**Figure 22**

*Cameroonian ports are poorly equipped with modern technology tools*



*Note.* Source: Survey results

Regarding figure 22 above, 54% of the respondents agree to the fact that Cameroonian ports are poorly equipped with modern technology tools. This is likely due to the inadequate training given by the training institutions to the staff. They then become ill adapted to the world of rapidly changing technology. Further worry is that there is the fear of very high expenditures on digitalization and retraining of the port personnel. However, it is just a postponement of the problem to the future because technology has come to stay.

To conclude, we observe that many other factors affect the smooth functioning of the METIs apart from those presented above. Such include inadequate trained professional lecturers, inability of government to ratify international conventions as STCW 78 F; hence, a reduction in their ability to contribute immensely to the growth of the shipping industry.

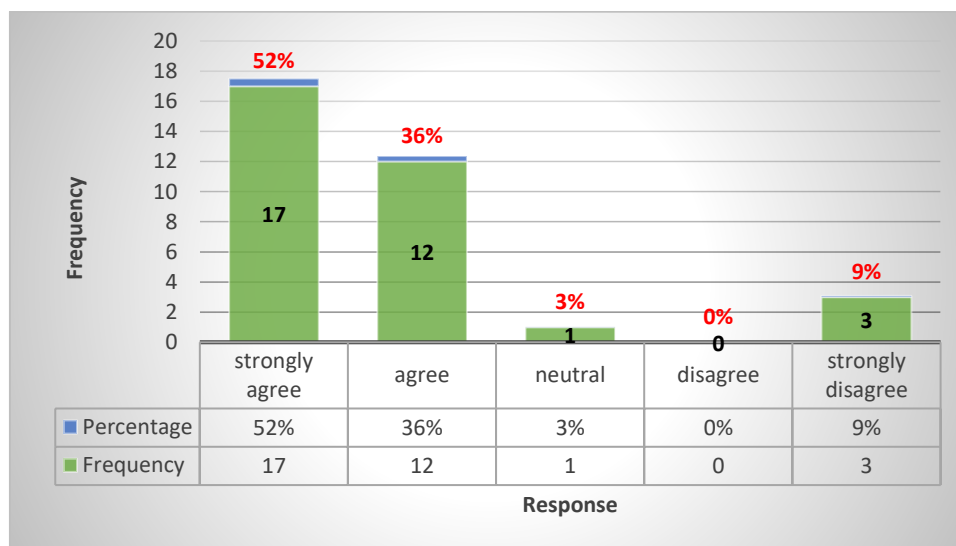


#### 4.2.4 RESQ 4: *Can continuous education and training improve the performance of the existing personnel for a better and future maritime industry in Cameroon?*

Continuous education and training is a good approach to sustaining growth in all its facets. In the course of the exploration, there was a need to know whether continuous education and training can improve staff performance for a better maritime industry of tomorrow. Presented below with the aid of graphs (*Figures 23 and 24*) are the perceptions of the respondents.

**Figure 23**

*Can continuous education and training improve port performance and growth.*

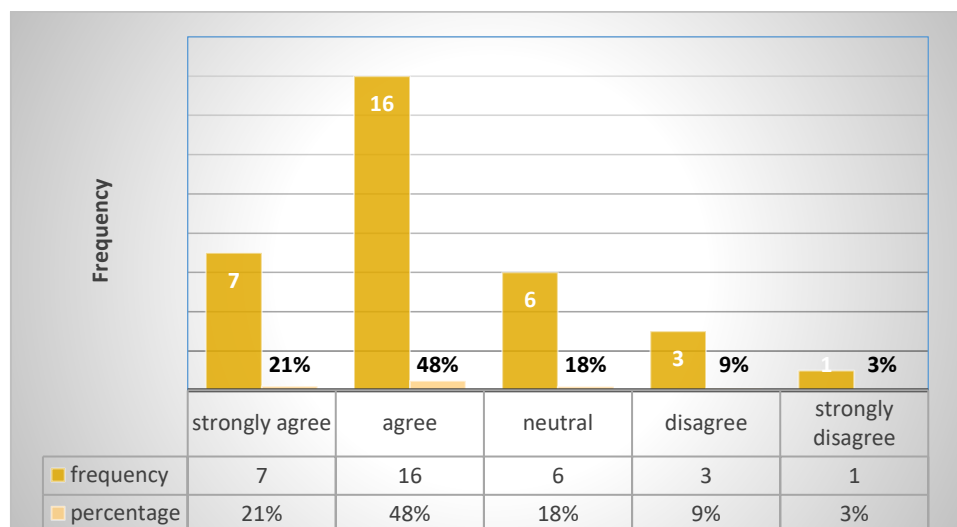


*Note.* Source: Survey results

The opinion poll as seen in figure 23 shows a 52% of the respondents strongly agreeing, while 36% simply agree that continuous education and training will enhance performance and growth of the maritime industry in the country. The overwhelming 88% support to this view shows the likely source of a solution to most of the problems facing the ports.

**Figure 24**

*Limited scope for the training of maritime professionals limit METI's ability to contribute to growth of industry*



*Note.* Source: Survey results

Other concerns dwell on the scope of training given by the METIs that could be of greater help to the industry. Notice from figure 24 that 48% of the respondents and 21% respectively agree and strongly agree that the scope of training maritime professionals is so restricted and therefore expansion is needed. Fourteen percent of the respondents totally disagree to the supposition, while 18% opts for neutrality.

#### 4.2.4 RESQ 5: *what growth prospects via MET and other domains are available for the industry?*

With open-ended questions in an online opinion poll conducted, the researcher was able to gather various opinions from the respondents as summarized in the tables and figures below.

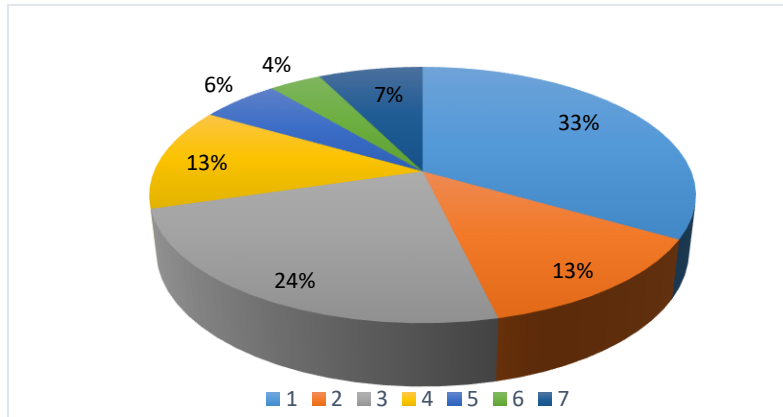
**Table 7**

Opinions on ways to improve port performance

	SUGGESTION	FREQUENCY (%)
1	1-Improve technology	18 (33%)
2	Education and training	7 (13%)
3	Fight corruption	13 (24%)
4	Employment of professionals	7 (13%)
5	Lay time reduction	3 (6%)
6	Collaborate with stakeholders	2 (4%)
7	Improve port facilities	4 (7%)
	<b>Total</b>	<b>54</b>

*Note.* Source: Survey results

**Figure 25** suggestions for improving port performance for growth



*Note.* Source: Survey results

The majority of the responses (18 mentions - 33%) highlighted the importance of improvement of technology. In the second place of importance, 13 mentions (24%), is "fight corruption". These are considered by the respondents as ways to improve port performance". This however tends to align with the results of the survey with closed-ended questions. Drawing from the perceptions of the respondents, some degree of emphasis should be paid to education and training to guarantee the employment of more competent professionals.

**Table 8**

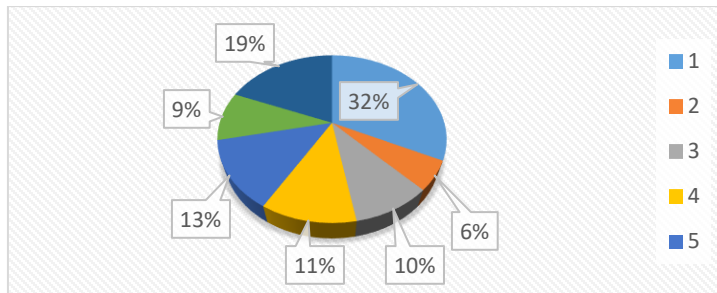
*Perceptions on ways to overcome the challenges to the growth of the maritime industry*

KEY	SUGGESTION	FREQUENCY
1	Use of Information Technology	17 (32%)
2	Improve Port infrastructure	3 (6%)
3	Engage on Education and training	5 (10%)
4	Practice Good governance	6 (11%)
5	Employ qualified professionals	7 (13%)
6	Fight corruption	5 (10%)
7	Improve Personnel welfare	10 (19%)
	<b>Total</b>	<b>53</b>

*Note.* Source: Survey results

**Figure 26**

*Suggestions on how to overcome the challenges to the growth of the maritime industry*



*Note.* Source: Survey results

The opinion poll again as shown by table 8 and figure 26, holds that technology still has a very strong role to play here with 32% followed by improvement in personnel welfare 19%, employment of professionals 13%. Improving governance, education and training as well as fighting corruption is equally commendable.

**Table 9**

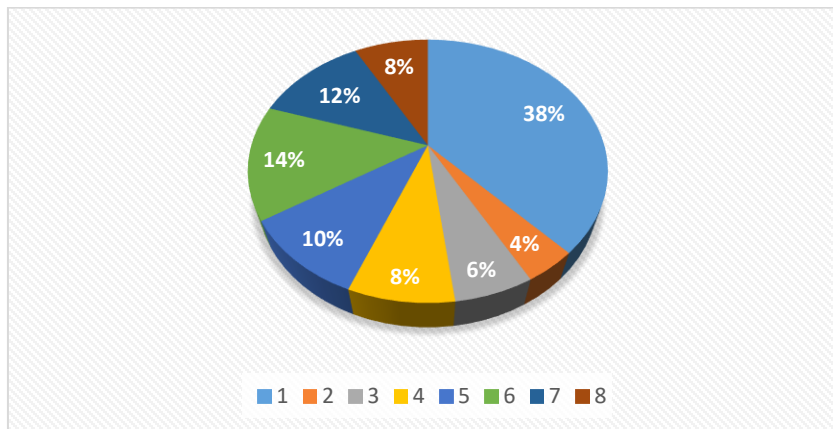
*Perceptions on how to mitigate obstacles to MET and improve on the growth and development of the shipping industry in the country*

KEY	SUGGESTION	FREQUENCY
1	Provide maritime education and training	19 (38%)
2	Need for collaboration with stakeholders	2 (4%)
3	Awareness creation in seafaring	3 (6%)
4	Legislation and ratification	4 (8%)
5	Employment of qualified personnel	5 (10%)
6	Embrace Technological improvement	7 (14%)
7	Minimization of corruption	6 (12%)
8	Improvement of port facilities	4 (8%)
	<b>Total</b>	<b>50</b>

*Note.* Source: Survey results

**Figure 27**

*Suggestions on improving the growth of the maritime industry via MET*



As figure 27 resulting from table 9 shows, the perceptions of the respondents dwell on

- Improving education and training in all its facets as 38% of the suggestions hold,
- Technological improvement 14% of the respondents' answers,
- Twelve percent (12%) of the suggestions hinge on minimizing corruption.

Comparatively, most of the respondents' views in both the closed and open-ended questions tend to agree. This suggests that a uniform action taken by the stakeholders in this sector will most likely improve the growth of the industry. High prospects therefore exist for the shipping industry to grow through the enforcement of MET. For example through education and training, corruption that is a common practice at the ports can be easily addressed, the efficiency of port personnel can be raised through continuous education and training. Judging from the perceptions of the respondents, growth prospects through MET and other aspects like port infrastructural development, and digitalization are therefore enormous.

#### 4.2.5 RESQ 6: *How can we explain MET in Cameroon from the system theory perspective?*

As seen in literature above, MET as an independent unit is vulnerable and therefore needs support.

## CHAPTER 5 DISCUSSION OF FINDINGS

### **Introduction**

The aspiration of sustainable development requires us to resolve common problems and tensions and to recognize new horizons. Education must find ways of responding to such challenges, taking into account multiple worldviews and alternative knowledge systems, as well as new frontiers such as advances in digital technologies.

In this study, the respondents exhibited knowledge of, and the importance of maritime education and training (MET) in the growth and development of the maritime industry. According to the respondents, knowledge is the bedrock of any organizational or societal setup. Therefore, the problems inherent in that organization are easy to solve based on the knowledge within and without the organization. This matches the view of McConnell (2002) that MET provides the avenue for new knowledge and increased professional values that help in coastal development and protection of biodiversity.

About 30% of the respondents are female leaving the male at 70%. This however does not imply any bias in the survey results. In an attempt to explore the contribution of MET to the growth of the shipping industry, a sample population characterized by seven different nationalities, various educational backgrounds, occupations, job positions and work experience was selected as expressed in figures 6 – 12 above. This plays an important role in the quantity and quality of data collected. The respondents unanimously identified the following areas of concern.

On RESQ 1:

Firstly, regarding the respondents' general knowledge on maritime issues as well as the research questions, they acknowledged the importance of the seas and oceans as a source of food and transportation by 64%. This matches the ideology of Rudin (1938) that in



Africa, rivers and ports were used in the German era of 1884 – 1914 for the transportation of people and food items.

Secondly, the perception of the respondents on the statement “technical professional education is poorly developed” presents a 30% strongly agree and 39% agree cases respectively. This overall 69% of the respondents’ view is supported by that of Richards (2018) in the literature. He opines that MET as an element of vocational education and training, is influenced by the global economy, industry and government policy. It is therefore likely to change with time. This is an important concern.

A third concern is that professionally trained teachers for the METIs are rare (a cumulative 70% agreement); consequently, the impact of METI’s contribution to the growth of the industry is minimal. Fei (2018) in the literature explains that the human factor in the shipping industry is so important that the use of trained labor with new knowledge, skills and competences for sustainability is indispensable. This is true because incompetent personnel will mean low efficiency and productivity.

#### **On RESQ 2:**

Questioned to know how technologically equipped the METIs were, a majority of the respondents hold that there is inadequate and poor use of modern technology tools in METIs, reason for their poor contribution to the growth of the maritime industry. According to Luthra & Mangla, (2018).), the fourth industrial revolution is on with wonderful technological mix that will facilitate learning via the use of digital information. However, the problem at this point is how METIs adapt to the new situation with its related difficulties. The researcher supports the use of modern technology tools in METIs saying the desire to work brings about changes in science through discoveries and technology.

A further investigation on the use of a well-designed curriculum and good quality control system by the METIs revealed that there is poor design of curriculum as well as quality control system in place. All these limit the efficiency of METIs. An attempt to know the reason/s points to the fact that political gimmicks, administrative bottlenecks and bad

governance are responsible (Ida, 2019). In each case, a relatively larger proportion of the respondents confirm this (see figures 17 and 18). Saying that governance is really a huge problem. However, Besong (2014) in the literature refers to educational efficiency as proportionate input resulting in proportionate output. The respondents find it different because of the inherent problems as enumerated above. Nonetheless, with corrective measures to these problems, and provision of good funding, educational efficiency is plausible.

**On RESQ 3:** Another interesting discovery from the findings was that the available scope to METIs for training maritime professionals is so limited that it weakens their ability to contribute to the growth of the shipping industry. Political gimmicks, corruption and scarcity of modern technology tools in the ports are a nightmare.

**On RESQ 4:**

Respondents also generalized the perception that Continuous education and training of the active staff of the port would enhance their abilities and performance for growth and sustainability of the industry. This view is however, strongly supported in the literature by Fei (2018) who opines that a sustainable port depends on the knowledge, skills and competences gained by the labor force through training.

On another count, a strong suggestion came up that there should be the introduction of MET right from the secondary school level. The respondents pointed out that in this way, the youthful population of ages 12 -18 years more precisely, will progressively become aware of what the maritime industry is. This is true because from the findings, about 36.4% of the participants agree to it, thus guaranteeing a sustainable shipping for the future.

Cunningham (2015), supported by Kelly (2012), remarked that creating awareness through education and training brings the youths and their peers to understand, and begin to reflect on what the maritime industry holds for them in the future. Through this, the scope of training the maritime professionals is likely to increase.

**On RESQ 5:**

From the perceptions of the respondents, the researcher establishes that there is a need for collaboration between the stakeholders for METIs to be able to overcome their challenges and contribute to the growth of the maritime industry. METI as a system cannot effectively achieve its objectives without collaborating with both the shipping companies and the government as the external environment. This is the view of Katz & Kahn (1966) as explained in the literature. The lack of these affect educational policy, breeds corruption and limits the scope of training maritime professionals.

To conclude, the researcher observes that based on the research questions guiding the survey, the respondents were able to present perceptions that largely correspond to the literature reviewed on the research topic minor discrepancies in some responses notwithstanding.

**On RESQ 6: *How can we explain MET in Cameroon from the system theory perspective?***

Many different theories explain this concept of Maritime education and training (MET). In this particular research, the researcher applies the Systems Theory. MET is thus seen from this perspective as explained in the literature above.

## CHAPTER 6 CONCLUSIONS AND RECOMMENDATIONS

### 6.1 Introduction

This chapter brings out the principal outcomes and how they support or challenge present writings on maritime education and training, and the maritime industry. It begins with the major findings of the study in the form of general conclusions. The premise in this chapter is to elaborate the role of MET in the growth of the maritime or shipping industry in Cameroon. The chapter would sum up with some recommendations for a way forward towards improved efficiency.

### 6.2 Major Findings of the Study

The main research question of this study is to explore the contribution of MET to the growth of the maritime industry with emphasis on Cameroon. That is the reason why the researcher in carrying out this study, sort to know how inadequacies resulting from the way both the maritime industry and METIs function, influence this contribution. To settle on this, the shipping industry, METIs, and the government as stakeholders were at the center of consideration.

Based on this, the researcher summarizes the findings explained in chapter 4 above as follows:

- Inadequate and poor use of modern technology tools hinder growth
- Growth of ports not sustainable because of bad governance
- Corruption is very present and a common practice at the ports
- The cost of training experts in the maritime sector is too high
- Maritime professionals are not continuously trained on new ways of doing port business
- Professionally trained teachers and lecturers for the training institutions are rare
- Students are generally not interested in the seafarer profession
- The curriculum document is poorly developed

- Monitoring and controlling of the effective implementation of the curriculum is poor
- The inclusion of MET in the curriculum at the secondary school level is good for the future of the maritime industry
- Political gimmicks in education slows METIs contribution to the growth of the shipping industry
- Continuous education and training improves port performance and growth
- The limited scope for the training of maritime professionals make METIs unable to contribute much to the growth of the maritime industry
- Poor quality control system in METIs limit their ability to impact positively on the maritime industry
- METIs do not respect the training rules as per the provisions of the IMO conventions
- Private higher educational institutions of learning should be encouraged and supported to train maritime professionals
- MET as a system is not a standalone and so needs collaboration from without to be able to attain its objectives

### 6.3 General conclusions

From the foregoing and findings above, the researcher observes and concludes as stated in paragraphs below.

The aspiration of sustainable development requires us to resolve common problems and tensions and to recognize new horizons. Education must find ways of responding to such challenges, taking into account multiple worldviews and alternative knowledge systems, as well as new frontiers such as advances in digital technologies.

In the maritime industry, education and training alone cannot hope to solve all development challenges, but a holistic approach to education can and should contribute to achieving a new development model. It requires an open and flexible approach to learning that is lifelong and life-wide. This is even more relevant given the rapid development of new digital technologies, which is one of the greatest challenges to the stakeholders in this sector especially companies and the METIs.

Borrowed from UNESCO, 2015, the escalating levels of social and economic complexity present several challenges for education policy-making in today's globalized world. Cameroon is not an exception. The increasing mobility of learners and workers across national borders and the new patterns of knowledge and skills transfer for greater efficiency at workplace require new ways of recognizing, validating, and assessing learning.

In this particular dissertation, the researcher considers MET from the viewpoint of the systems theory. In this approach, note is taken of how it influences the other aspects of the research through barriers to input/output such as corruption, poor use of technology, inadequate trained personnel amongst others. By applying this system approach, MET is scrutinized as an entity where different factors contribute to some kind of output – which is the contribution of MET to the growth of the maritime industry.

The odds notwithstanding, the buzzwords frequently articulated by the survey participants allude to the fact that prospects for the growth of the maritime industry do exist. The contribution of MET to the industry as presented in paragraphs and chapters above, are enormous but still fall short of expectation in the face of this rapidly changing technological world. Further research in this important domain is therefore inevitable.

#### 6.4 Implications of findings

From both the theoretical and practical angles, the researcher expounds the relevance of this study.

- Theoretically, the study will help to provide further scientific information that could enrich the available literature on MET, shipping companies, the government and their challenges and prospects in the quest for encouraging growth in the maritime industry.

Firstly, it provides evidence that no matter how well METIs exercise their functions in their current state, they still fall short of expectations related to the growth of the maritime industry. This is because they constitute a system in a complex environment.

Furthermore, shipping as an international industry with many stakeholders cannot achieve growth only by what METIs do. A holistic approach to the growth concept is therefore necessary.

- On the other hand, practically we are able to observe, examine and partially address challenges faced by METIs in contributing to the growth of the maritime industry.

## 6.5 Recommendations

Based on the researcher's findings presented above, for MET to effectively contribute to the growth of the maritime industry, the stakeholders in the sector (shipping companies, METIs, and the government), have to work in Cinergy. In this connection, the undermentioned policy issues need the attention of the different actors and institutions

### **To the government/policy makers**

- To ensure sustainable growth of the industry, the government as the overseer should eliminate or reduce administrative bottlenecks, which tend to delay decision-making and implementation. Devolution of managerial powers should equally be given to the various maritime districts to facilitate activities.
- The government together with the other stakeholders should establish a curriculum document that meets international norms (IMO Conventions). In this regard, the

country's trained port personnel become more open to international employment. This is most likely to boost local economies and encourage growth.

- Political gimmicks in education slows METIs contribution to the growth of the shipping industry. This owes its origin to the colonial period when discrimination in employment, bribery and corruption, and the voluntary or involuntary high handedness of the state in education came to being.
- Good leadership brings in good performance and results. It is thus highly recommended for the public maritime administrative units –MARADs, DAMVN to be headed by experts in the various domains for better performance.
- Viewing the importance of this industry to the country's economy, the government is hereby encouraged to get into strong macro-policy for growing the human resource capacity at both national and regional levels.
- On another count, Private higher educational institutions of learning should be encouraged and supported by both the government and shipping companies to train maritime professionals. They went further to point out that performance and growth will readily come through the private than the corrupt public sector managers. The researcher therefore highly recommends that the government establishes the guiding principles and provide the necessary funding to ensure that education and training attain the desired goal at the end.

### **To Maritime Education and Training Institutions**

- The use of modern technology tools in both the training of maritime labor force and port operations is primordial. This will not only help to reduce the dwell time within the ports but also cut down on corrupt practices, which the respondents saw as a real threat to growth.
- The cost of training experts in the maritime sector is generally too high. It is therefore highly recommended that the lone major training school for maritime experts in the west and Central African zone should be decentralized to have at



least a faculty in the member states. This will help further reduce training cost and create greater awareness of the scope of the training.

- Furthermore, the researcher suggests the inclusion of MET in the curriculum at the secondary school level. This will help create greater awareness and arouse the interest of the youths in a career and other maritime issues. It is good for the future of the maritime industry. To ensure that the objective is attained, a monitoring and control unit needs to be put in place to ensure an effective implementation of the established curriculum.
- Good leadership brings in good performance and results. It is thus highly recommended that at the helm of METIs.
- Effective monitoring of program execution and quality control systems should be put into use.

#### **To the Shipping Companies**

- There should be emphasis on the training of maritime professionals especially the teachers who constitute the trainers. Still in this light, retraining and training programs should be developed with expert consultants in cases where the local body directly in charge is absent. With continuous education, both performance and growth will likely improve.
- Shipping companies should assist the government in supporting specialized private higher institutions of learning in training maritime professionals.
- Shipping companies should embark on periodic infrastructural development and upgrade of their level of their personnel through continuous education and training, and technology (which is very volatile) to meet current standards.

### **Suggestion for further research**

Considering the limitations to this research as indicated above, the researcher strongly recommends further research into this topic area by investigating into how “The decentralization of the faculties of RMU will impact on the efficiency of METIs in promoting growth of the maritime industry in member countries”. Different methods could be used for data collection, as this researcher was not able to exhaust them to authenticate further his findings.

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## APPENDICES

### Appendix 1

#### *Sample Questionnaire*

#### QUESTIONNAIRES THE CONTRIBUTION OF MET TO THE GROWTH OF THE MARITIME INDUSTRY IN CAMEROON.

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THE WORLD MARITIME UNIVERSITY (MALMO, SWEDEN)

Greetings! Thank you for sharing and dedicating your time to participate in this study. I am Joseph Nopalieh Tiataing, a student of the World Maritime University in Malmo - Sweden studying maritime affairs with specialization in Maritime Education and Training. I am carrying out research on the topic “Exploration of the contribution of maritime education and training to the growth and development of the maritime industry in Cameroon”. The results of this research shall be submitted to the University as a partial fulfillment of the requirements for the award of a Master of Science degree in Maritime Affairs. In this light, I would like to appeal for your assistance in answering this online survey questionnaire.

This survey questionnaire would take not more than 10 minutes of your time. The information you will provide in this form is for academic purpose only and will therefore be treated with maximum confidentiality. Your participation is very much appreciated and will form part of the success and realization of my study.

#### **A (i) *Demography of Respondents***

Please mark an **x** as appropriate, e.g. (x)

1. Gender: Female ( ) Male ( ) Prefer not to indicate ( )

2. Age : under 20 ( ), 20-30years, 31-40years; 41-50years; 51-60years; 60years + ( )
3. Education: Primary ( ), Secondary ( ), Undergraduate ( ), Postgraduate ( ), PhD ( ), Vocational ( ), other ( )
4. Occupation: Civil servant ( ), Trader ( ), Farmer ( ), Artisan ( ), Teacher ( ), Seafarer ( ), others ( )
5. Number of years in the service position : under 5years ( ), 5-10years ( ), 11-15 years ( ), 16-20years ( ), 20 years + ( )
6. Your country of origin .....

**(ii) *Information on Employment***

Please tick as appropriate

**1. I am employed as**

Administrative staff ( ), Technical staff ( ), Support staff ( ), Finance staff ( ), others ( )

**2. Sector: Logistics ( ), Port management ( ), Accounting and finance ( ), MET ( ), Shipping ( ),**

others ( )

Please read the statement below and encircle the letter of your choice that matches your opinion

A – Strongly disagree, B - disagree, C – Neutral, D – Agree, E – Strongly agree

S/N	STATEMENT	A	B	C	D	E
<b>B</b>	<b><u>General questions on the Maritime industry, and growth in Cameroon</u></b>					
<b>1</b>	Seaports are an important source of food and transportation to the population.	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>
<b>2</b>	Cameroon's ports are not equipped with modern technology tools	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>
<b>3</b>	The cost of clearing goods at the ports is very high	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>
<b>4</b>	There is discrimination in the employment of professionals to work at the ports	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>
<b>5</b>	Corruption is prominent in Cameroonian ports	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>
<b>B1</b>	In what two ways can the performance of the ports be improved?..... .....					
<b>C</b>	<b><u>CHALLENGES TO THE GROWTH OF THE MARITIME INDUSTRY</u></b>  <i>The sustained growth of the shipping industry in the country is difficult because</i>					



6	The country does not own ships that operate at the ports	A	B	C	D	E
7	Corrupt practices at the ports hinder growth	A	B	C	D	E
8	Growth of the country’s ports is not sustainable because of bad governance	A	B	C	D	E
9	Inadequate and poor use of modern technology tools hinder growth	A	B	C	D	E
10	The management of the maritime districts is very bad	A	B	C	D	E
11	Port personnel do not have proper and sufficient motivation schemes that foster staff development	A	B	C	D	E
C1	State any three ways by which these challenges can be overcome..... ..... .....					
D	<u>Maritime education and training system, and growth in Cameroon</u>					
12	Technical professional education necessary for the growth of the shipping industry is poorly developed in the country	A	B	C	D	E
13	Other maritime professionals are not continuously trained on new ways of doing port business	A	B	C	D	E
14	Professionally trained teachers and lecturers for the training institutions in the country are rare	A	B	C	D	E

<b>15</b>	Students are generally not interested in the seafarer profession	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>
<b>16</b>	Monitoring and control of the effective implementation of the curriculum is poor	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>
<b>19</b>	The curriculum is poorly developed	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>
<b>18</b>	The cost of training experts in the maritime sector is too high	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>
<b>19</b>	The inclusion of MET in schools curriculum at the secondary school level is good for the future of the maritime industry	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>
<b>20</b>	Political gimmicks in education slows METIs contribution to the growth of the shipping industry in the country	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>
<b>21</b>	Continuous education and training improves port performance and growth	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>
<b>22</b>	The limited scope for the training of professionals makes METIs unable to contribute much to the growth of the maritime industry in the country	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>
<b>23</b>	Poor quality control system in METIs weakens their ability to have impact positively on the maritime industry in the country	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>
<b>24</b>	METIs do not respect the training rules as per the provisions of the IMO conventions such as STCW	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>

<b>25</b>	Private higher educational institutions of learning should be encouraged and supported to train maritime professionals	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>
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**D1** Suggest 3 – 5 things that can be done to improve on the growth and development of the

Shipping industry in the country.

.....

.....


*Note* All of these questions were converted to google forms before being administered to the respondents

## **Appendix 2**



**WMU Research Ethics Committee Protocol**

Name of principal researcher:	Joseph Nopalieh Tiataing
Name(s) of any co-researcher(s):	N/A
If applicable, for which degree is each researcher registered?	MSc in Maritime Affairs Specialisation: Maritime Education and Training
Name of supervisor, if any:	Assistant Professor Inga Bartuseviciene
Title of project:	Exploration of the contribution of maritime education and training to the growth and development of the maritime industry in Cameroon
Is the research funded externally?	No
If so, by which agency?	N/A
Where will the research be carried out?	World Maritime University (WMU) Malmo, Sweden
How will the participants be recruited?	Through electronic mail and social media
How many participants will take part?	At least 30
Will they be paid?	No
If so, please supply details:	N/A
How will the research data be collected (by interview, by questionnaires, etc.)?	Semi structured interview with online survey questionnaire
How will the research data be stored?	Research data will be stored in my laptop and hard disc with a strong password. I will use a reliable and secure password to protect the data collected
How and when will the research data be disposed of?	The data will be deleted from my laptop and other storage devices upon completion of my MSc, degree scheduled to be awarded on the 1st day of November 2021
Is a risk assessment necessary? If so, please attach	No

Signature(s) of Researcher(s): Joseph Nopalieh Tiataing  Date: 28 July 2021

Signature of Supervisor: Inga Bartuseviciene  Date: 28 July 2021

Please attach:

- A copy of the research proposal
- A copy of the consent form to be given to participants
- A copy of the information sheet to be given to participants
- A copy of the online survey questionnaire