

# **MARITIME EDUCATION AND TRAINING IN AFRICA (AFRIMET)**

**FINAL REPORT ON EGYPT, GHANA,  
KENYA, NIGERIA AND SOUTH AFRICA**

**2020**

## World Maritime University

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## List of abbreviations

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AASTMT	Arab Academy for Science, Technology and Maritime Transport
ACP	African, Caribbean and Pacific Group of States
AfCFTA	African Continental Free Trade Area
AfriMET	Maritime Education and Training in Africa
AIM	Africa Integrated Maritime (Strategy)
AMD	Africa’s Maritime Domain
ANC	African National Congress
AU	African Union
BRICS	Brazil, Russia, India, China, South Africa
CAPS	Curriculum Assessment Policy Statement
CoC	Certificate of Competency
COTVET	Council for Technical and Vocational Education and Training
CPP	Convention Peoples’ Party
CPUT	Cape Peninsula University of Technology
CUE	Commission on University Education
DHET	Department of Higher Education and Training
DOT	Department of Transport
DUT	Durban University of Technology
EAC	East African Community
EAMS	Egyptian Authority for Maritime Safety
EANSL	East African National Shipping Line
EBK	Engineers Board of Kenya
ECDIS	Electronic Display and Information System
ECOWAS	Economic Community of West African States
EDH	Efficient Deck Hand
EFA	Education For All
EMSA	European Maritime Safety Agency
ETD	Education, Training and Development
ETF	European Training Foundation
EU	European Union
FCUBE	Free, Compulsory, Universal Basic Education
FDI	Foreign Direct Investment
FET	Further Education and Training
GDP	Gross Domestic Product
GES	Ghana Education Service
GMA	Ghana Maritime Authority
GNC	Ghana Nautical College

GNI	Gross National Income
HDI	Human Development Index
HR	Human Resources
IAMU	International Association of Maritime Universities
IBS	Integrated Bridge Simulator
ICT	Information and Communication Technology
IGAD	Intergovernmental Authority on Development
IMF	International Monetary Fund
IMLI	International Maritime Law Institute
IMO	International Maritime Organization
ISPI	Institute for International Political Studies
ITA	International Trade Administration
JICA	Japan International Cooperation Agency
JKUAT	Jomo Kenyatta University of Agriculture and Technology
JoMaLIC	Joint Maritime Labour Industrial Council
KMA	Kenya Maritime Authority
KNEC	Kenya National Examination Council
KNQA	Kenya National Qualifications Authority
KNSL	Kenya National Shipping Line
KPA	Kenya Port Authority
KPI	Key Performance Indicator
LNG	Liquefied Natural Gas
MAN Oron	Maritime Academy of Nigeria in Oron
MDG	Millennium Development Goals
MEC	Maritime Examination Centre
MET	Maritime Education and Training
MINCONMAR	Ministerial Conference of West and Central African States on Maritime Transport
MMDA	Metropolitan, Municipal and District Assemblies
MoE	Ministry of Education
MOWCA	Maritime Organisation of West and Central Africa
MP	Member of Parliament
MPI	Multidimensional Poverty Index
MSC	Mediterranean Shipping Company
MTP III	Medium Term Plan III
NBTE	National Board for Technical Education
NCE	National Council of Education
NCP	National Cadet Programme
NCV	Near Coastal Voyage
NDC	National Democratic Congress

NIMASA	Nigeria Maritime Administration and Safety Agency
NLNG	Nigeria Liquefied Natural Gas (Company)
NMA	Nigeria Maritime Authority
NMU	Nelson Mandela University
NNSL	Nigeria National Shipping Line
NP	National(ist) Party
NPE	National Policy on Education
NPP	National Patriotic Party
NQF	National Qualifications Framework
NSDP	Nigerian Seafarers Development Programme
NSF	National Skills Fund
NUC	National University Commission
NUL	National Unity Line
OPHI	Oxford Poverty and Human Development Initiative
PAC	Pan-Africanist Congress
PNDC	Provisional National Defence Council
PPP	Purchasing Power Parity
QI	Quality Institute
RMA	Regional Maritime Academy
RMU	Regional Maritime University
SAIMI	South African International Maritime Institute
SAMNA	South African Merchant Navy Academy (General Botha)
SAMSA	South African Maritime Safety Authority
SAMTRA	South African Maritime Training Academy
SANC	South African Nautical College
SAQA	South African Qualifications Authority
SDG	(UN) Sustainable Development Goal(s)
SSP	Sector Skills Plan
SSTG	Sea Safety Training Group
STC	Shipping and Transport College
STCW (Convention)	International Convention on Standards of Training, Certification and Watchkeeping for Seafarers
STCW (Code)	Seafarers Training, Certification and Watchkeeping Code
STEM	Science, Technology, Engineering and Mathematics
TCS	Training Centre for Seamen
TETA	Transport Education Training Authority
TVET	Technical and Vocational Education and Training
TVETA	Technical and Vocational Education and Training Authority
UBE	Universal Basic Education
UGCC	United Gold Coast Convention

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UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNECA	United Nations Commission for Africa
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNESCO-UNEVOC	UNESCO International Centre for Technical and Vocational Education and Training
UNICEF	United Nations Children's Fund
VTS	Vessel Traffic Service
WEF	World Economic Forum
WES	World Education Services
WMU	World Maritime University
WTO	World Trade Organization
ZEvA	Zentrale Evaluations- und Akkreditierungsagentur

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## CHAPTER 1. INTRODUCTION

### 1.1. Introduction

The oceans, ports and inland waterways of Africa are important sources of food, energy, transport and trade for its inhabitants. However, African countries are not typically mentioned among the traditional maritime nations and, today, Africa’s engagement in the maritime sector remains largely under-realized although it has a high dependence on maritime transport. Table 1 shows the Metric Tonne-Nautical Mile figures for the five countries involved in this research project.

Table 1: *Metric tonne-nautical mile figures for research countries*

Country	MT-Nautical Mile			
	Exports		Imports	
	2017	2018	2017	2018
Egypt	48 218 985 047	64 116 559 493	265 882 780 873	281 327 695 120
Ghana	44 228 468 305	58 969 653 750	47 394 765 530	41 347 298 079
Kenya	3 432 584 560	6 376 003 280	65 165 789 973	46 150 864 004
Nigeria	7 506 028 807	5 349 021 919	86 174 798 575	86 794 953 317
South Africa	1 167 541 423 838	1 154 309 556 841	90 845 495 478	93 826 899 350

*Note.* Data from AXS Marine (<https://public.axsmarine.com/>).

In 2017, seven percent of world trade originated in Africa and five percent was destined for Africa (UNCTAD, 2018). However, no African nations appeared on UNCTAD’s (2018) list of top 35 countries in respect of world fleet ownership although the volume of merchandise trade showed a positive growth for the continent (4.5% in 2018 (UNCTAD, 2019)). Moreover, in terms of shipping connectivity, Africa falls below the global average, indicating that integration in shipping activity, including maritime labour, and accessibility of global trade is low for most African countries.

In recent years, many of Africa’s 38 coastal states and five islands, have positioned the blue economy, including shipping and maritime labour, high on their economic development and sustainable growth agendas. In 2012, the African Union (AU) adopted the 2050 Africa’s Integrated Maritime (AIM) Strategy, which aims to be a “key pillar for economic and social development, through enhancing a sustainable ‘blue economy’ initiative...”. One of the Strategy’s main building blocks is capacity building, including training, for maritime professionals. Africa’s potential to expand its maritime economy by exploiting its considerable maritime resources has been highlighted by the IMO<sup>1</sup> and the United National Economic Commission for Africa (UNECA)<sup>2</sup> among others.

<sup>1</sup> See the speech of the then IMO Secretary General to the Kenya’s Blue Economy Conference in 2015

<sup>2</sup> See the UNECA’s policy handbook on “Africa’s Blue Economy”.

Africa could be well-positioned to become a seafaring labour source of the future. As the working-age populations of traditional crew-supplying regions, such as China and Eastern Europe, decline, Africa's youth population continues to grow (Lewis, 2019). In parallel with the AU Strategy, building maritime labour capacity is on the national agendas of many of the countries covered in this report, Egypt, Ghana, Kenya, Nigeria and South Africa (see Figure 1). In this context, Maritime Education and Training (MET) serves an important role.

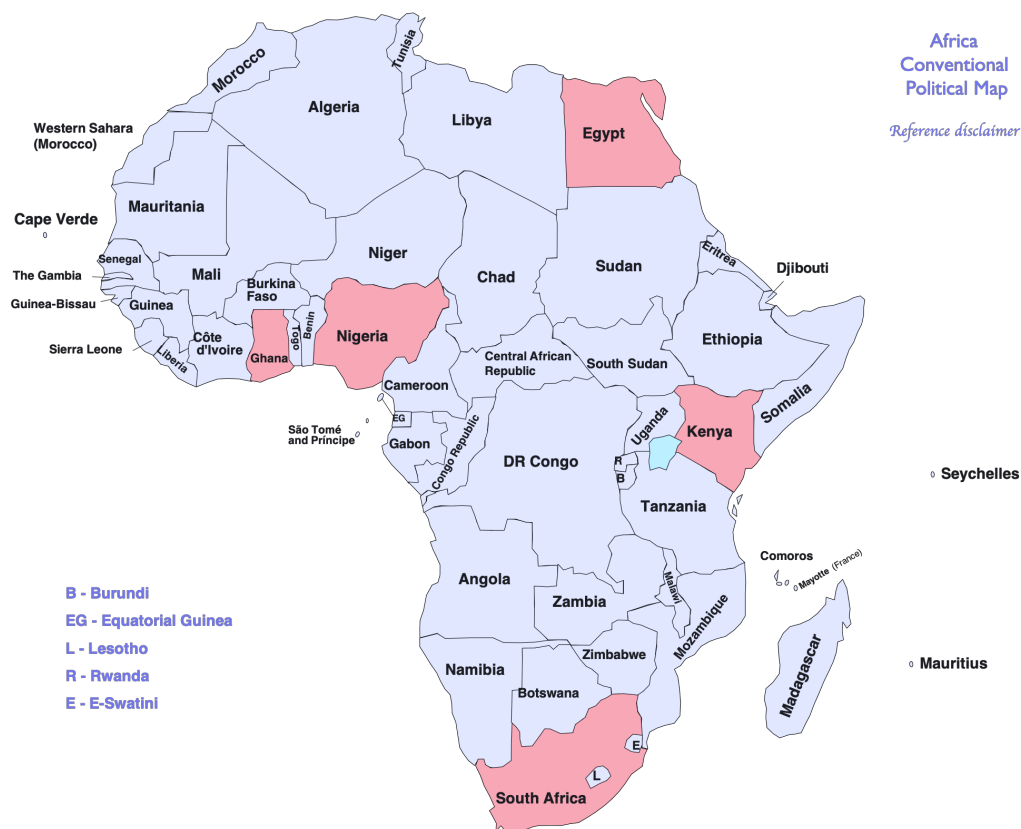


Figure 1: Map of Africa showing the five states under review

Currently, Africa contributes about 39,000 seafarers to the global merchant fleet, accounting for 2.36% of world seafarer supply (BIMCO, 2015). Ratings make up about two-thirds of that number, while officers account for the remaining third. Morocco is both the largest supplier of seafarers overall (8081) and the top supplier of ratings (7012). Egypt contributes the highest number of officers (2093), followed closely by Nigeria (1998) and South Africa (1986). Figure 2 shows the top five seafarer supply countries in Africa.

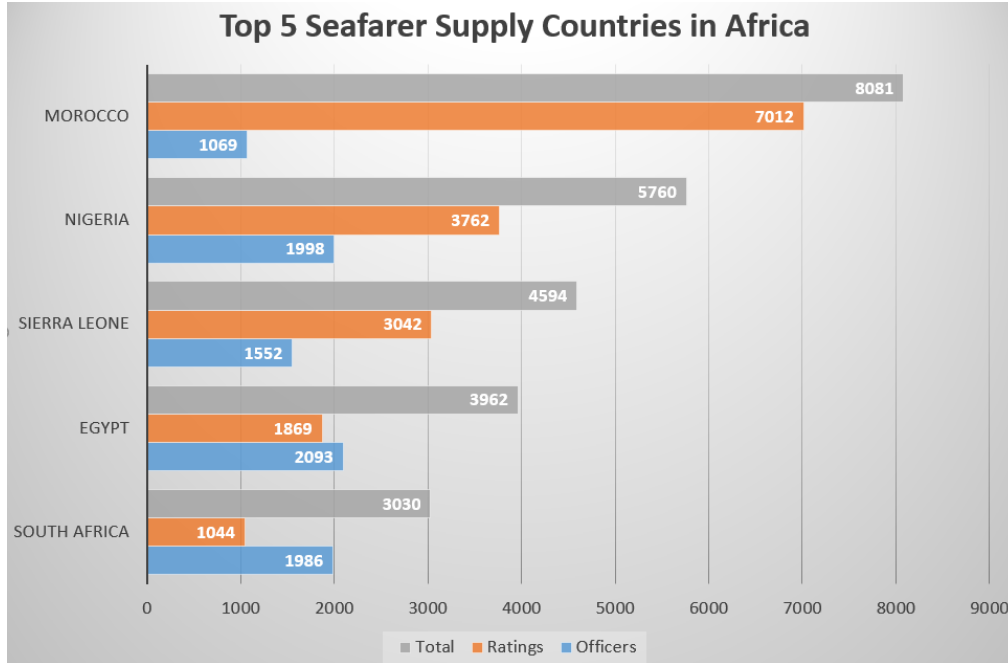


Figure 2: Top five seafarers supply countries in Africa

According to the BIMCO 2015 report, together, Morocco, Nigeria, Sierra Leone, Egypt and South Africa account for 65% of Africa’s seafarers. Ghana and Kenya show, as of 2015, comparatively low participation rates in the seafaring workforce (see Table 2).

Table 2: *Estimated seafarer supply in world merchant fleet, 2015*

	Officers		Ratings		Total	
	No.	%	No.	%	No.	%
World	773 949	100%	873 545	100%	1 647 494	100%
Africa	13 252	1.71%	25 649	2.94%	38 901	2.36%
Sub-Saharan Africa	8 769	1.13%	14 943	1.71%	23 712	1.4%
Egypt	2 093	0.27	1 869	0.21	3 962	0.24
Ghana	139	0.02	136	0.02	275	0.02
Kenya	19	0.0	166	0.02	185	0.01
Morocco	1069	0.14	7012	0.80	8018	0.49
Nigeria	1 998	0.26	3 762	0.43	5 760	0.35
South Africa	1 986	0.26	1 044	0.12	3 030	0.18

Note. Data from BIMCO 2015 Manpower Report: The global supply and demand for seafarers in 2015.

This report on Maritime Education and Training (MET) in Egypt, Ghana, Kenya, Nigeria and South Africa, provides a general overview of the history, governance, economy and education system of each country. These factors have a critical influence on MET systems in their respective

jurisdictions, and should, therefore, not be neglected when considering MET issues, policies and strategies. However, the main focus of the report is on the MET systems of the five countries. It covers MET legislative and administrative frameworks, the operationalization of policy through training institutions, international recognition and challenges, among others.

## 1.2. Methodology

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The approach taken for the research was primarily a qualitative one and included document analysis and interviews. Primary data collection was done via interviews of key personnel across a broad spectrum of maritime expertise in the respective countries. All interviews were intended to yield more in-depth understanding of the conditions under which MET is undertaken in the countries.

Within the logistic and temporal constraints of the research, interviewees were carefully selected. Where possible, interviews were conducted during on-site visits. However, due to constraints, some meetings took place at non-research sites.

Document analyses were targeted at the understanding of the history, geopolitics, governance and economic descriptors of the countries. The documents were sourced mainly from existing literature and data sets. Maritime legislative instruments, policy documents and in some cases audit reports from third parties under the STCW Convention 1978, as amended, were also examined.

The following chapters present the findings of the research for each country in turn (in alphabetical order).

## CHAPTER 2. EGYPT

The Arab Republic of Egypt borders the Mediterranean Sea to the north and the Red Sea to the east, and links North Africa with the Middle East by way of the Sinai Peninsula. It has a population of about 99 million, most heavily concentrated along the Nile River and Nile Delta. It is the most populous country in the Arab world and third in Africa. Egypt has a total area of 1,001,450 km<sup>2</sup>, of which 995,450 is land and 6,000 is water. The country shares borders with Sudan (1276 km), Libya (1115 km), Israel (208 km), and the Gaza Strip (13 km). Cairo is the capital as well as the largest and most populous city. Alexandria, on the north coast, is the second largest city and home to the country's largest port.

### 2.1. History and Geopolitics

Ancient Egyptian civilization was one of the earliest in the world with settlements on the banks of the Nile beginning in 3500 BCE. The first dynasty began in 3150 BCE when Upper and Lower Egypt unified into a single pharaonic kingdom. Egypt was ruled under 30 successive dynasties until it was conquered, first by the Persians in 525 BCE and then by Alexander the Great of Macedonia in 332 BCE. After Alexander's death, Ptolemy assumed power and established the Ptolemaic Dynasty, which ended with the death of Queen Cleopatra and the beginning of the Roman Empire. After six centuries of Roman rule, Egypt was conquered by the Arabs, and eventually absorbed into the Ottoman Empire; however, Egypt maintained administrative autonomy.

In 1854, a French diplomat, Ferdinand de Lesseps, received a concession from the new governor of Egypt, Said Pasha, to build a canal across the Isthmus of Suez to join the Mediterranean and Red Seas and provide a short sailing route from Europe to Asia. Construction of the Suez Canal began in 1859 and was carried out by tens of thousands of workers over 10 years, including disruptions due to labour disputes and a cholera epidemic. The Canal opened officially in 1869 under French control. Britain later became a major shareholder, having bought a 44% share from Said Pasha's successor, and acquired physical control after its invasion of Egypt in 1882.

Amid rising nationalist activities, and concerned with guarding its interests, particularly the Suez Canal, Britain declared Egypt a protectorate in 1914. After the First World War, the demand for Egyptian independence grew under the influential Wafd party. The arrest and deportation of Wafd party leaders by the British gave rise to the Egyptian Revolution of 1919, which subsequently led to the declaration of Egypt's independence in 1922. Sultan Faud I became King of Egypt and Wafd party leader, Saad Zaghloul, its Prime Minister. In spite of this, Britain maintained extensive political control and military occupation of Egypt until a 1952 coup d'état led by Gammal Nasser. The revolution resulted in the abdication of the British-backed king, confirmation of Nasser as Egypt's second president and a treaty for the withdrawal of British troops by 1956. A new constitution establishing a presidential system of government was signed in the same year, and Nasser was formally elected president, serving until his death in 1970.

Nasser established the Republic of Egypt and is one of the founding fathers of the Non-Aligned Movement, an independent bloc of recently decolonized and developing countries, through which

he provided moral and financial support to other African anti-colonialists. Nasser's successor, Anwar Sadat, won the Nobel Prize for negotiating a peace treaty with Israel. Sadat also enhanced Egypt's global economic position by opening the country's economy to foreign trade and investment. Following Sadat's assassination in 1981, Hosni Mubarak assumed the presidency and ruled for the next three decades until a popular uprising forced his resignation in 2011. In 2012, Egypt's first democratic election was held, followed by the signing of a new constitution in 2014. Egypt is a founding and active member of several international organizations, including the United Nations, the Non-Aligned Movement, the African Union and the Organization of Islamic Cooperation. Despite also being the seat of the Arab League, Egypt struggles to maintain its once dominant position in the Arab World and Middle East. However, the country continues to play a vital role in global trade as owner and operator of the Suez Canal.

## 2.2. Governance

Governed under the 2014 Constitution, Egypt is a semi-presidential republic in which executive powers are shared between the President and Prime Minister. The President, who is elected by majority vote and serves a maximum of two four-year terms, is the Chief of State and the Supreme Commander of the Armed Forces. The president appoints the cabinet, including the Prime Minister, who is head of government. The legislative branch of government is a unicameral system with power residing in the House of Representatives. The House is made up of a maximum of 596 representatives, 448 of whom are directly elected, 120 elected through proportional representation and 28 appointed by the President. The judicial branch consists of the Supreme Constitutional Court (11 justices, including the court president), the Court of Cession (550 judges), and the Supreme Administrative Court (appointed by the President through the Supreme Judiciary Council).

In 1960, through the Local Administration Law, governmental administration was decentralized, and a system of local government was established. The 1960 Law provided for three levels of local administration, governorates, districts or counties, and villages. Each level has its own elected council as well as an appointed executive council. Egypt is divided into 27 governorates in which an appointed governor is responsible for administration and policy implementation.

## 2.3. Economy

Egypt has a mixed economic system, with household consumption as the main driver of GDP growth, followed by investments and inventory. In terms of sectoral contribution, services (51.4%) dominate, followed by industry (35.1%) and agriculture (11.3%) (Statista, 2018). The country's main sources of foreign earnings are worker remittances, net Foreign Direct Investment (FDI), tourism and Suez Canal revenue.

The Egyptian economy suffered a number of setbacks over the last decade beginning with the repercussions of the global economic crisis, which saw GDP growth decline to 4.7% in 2009 from 7.2% in 2007. An even more severe downturn followed the 2011 Revolution and related decline in investments and exports, with economic growth averaging 2% from 2011 to 2013. As a

consequence of slow growth, unemployment rose by 33% from 8.94% in 2010 to 11.9% in 2011 and hovered at an average of 12.7% (26% for youth) for the next 6 years. One of the hardest hit sectors was the traditionally lucrative tourism sector. Political instability and insecurity associated with the revolution resulted in a significant decline in tourist numbers and revenue, and the sector's contribution to GDP fell from 16.7% in 2010 to 7.2% in 2016 (Abdou & Zaazou, 2018).

In 2014 the Egyptian government instituted an economic reform programme aimed at “spurring the economy, enhancing the country's business environment and setting the stage for balanced and inclusive economic growth” (World Bank, 2018d). The program focussed on three pillars of growth policy, including removing barriers and improving the investment climate to attract both local and foreign investment, fiscal consolidation, and improving living standards and human capital (ISPI, 2015). In 2016, the government's domestic efforts were boosted by a 12 billion USD loan programme and comprehensive economic reform plan under the International Monetary Fund (IMF). Key features of the plan included fiscal consolidation, structural reforms to create jobs (especially for women and youth) and the introduction of a flexible exchange rate. These measures coupled with returning confidence in the economy yielded positive results. In 2014/15, Foreign Direct Investment (FDI) nearly doubled (ISPI, 2015) and GDP growth reached 4.4%, increasing to 5.3% in 2018. In 2018, unemployment fell to 10%, and Egypt jumped 10 places to 120 of 190 countries on the World Bank's (2019) Ease of Doing Business Report.

Despite those favourable trends, Egypt continues to face socio-economic challenges, key among which are poverty and continuing high unemployment among youth and women. While recent economic reforms included poverty eradication and social protection measures, high population growth and the increasing youth demographic put pressure on the country's resources (Abdou & Zaazou, 2018). Moreover, job creation lags economic growth putting more of the population at risk of unemployment and poverty. Currently the global Multidimensional Poverty Index (MPI) measurement indicates that 5.2% of the population is in poverty, while national measures put the number at 27.8% (OPHI, 2019). Egypt has a relatively low Human Development Index (HDI) ranking compared to other Arab states, placing 115<sup>th</sup> of 189 countries in 2018, but has experienced a 27.4% increase and growth in all indicators since 1990 (UNDP, 2018). The economy is also vulnerable to persistent political tensions that threaten investment and tourism.

#### 2.4. Education System (overall)

Education in Egypt is governed under Article 19 of the 2014 Egyptian Constitution, which “guarantees the right of education to every citizen” and obliges the government to allocate at least 4% of national GDP to education spending. As of 2014, compulsory education is for 12 years. The Ministry of Education is responsible for primary and secondary education by both public and private providers, while tertiary education falls under the purview of the Ministry of Higher Education. Governance of technical and vocational education and training (TVET) is less straight forward. While the Ministry of Education is broadly responsible for TVET, other ministries and public agencies are involved in the operation of technical and vocational institutes and training centres. For example, intermediate health institutes are affiliated to the Ministry of Health.

Table 3 illustrates the structure of the Egyptian education system, including general education and TVET.

Table 3: *Egyptian education system*

Tertiary	University Education (4-7 years)		Non-University Tertiary (Middle and higher technical) (2-4 years)	
Secondary	Secondary General Education (3 Years)	Secondary Technical School (3-5 years)	Secondary Vocational Level (3 Years)	Vocational Training (2 years)
	Preparatory Level (3 Years)		Vocational Preparatory Level (3 Years)	
Primary	Primary Education (5 Years)			

*Note.* Blue indicates general education while green denotes TVET.

Adapted from “World TVET Database: Egypt” by UNESCO-UNEVOC, 2012. © UNESCO

The Egyptian education system is facing challenges at all levels largely due to overpopulation, under-capacity and underfunding. It has been reported that the 4% budgetary allocation to education is not deemed adequate and falls below similar budgets in comparable jurisdictions (WES, 2019). According to the World Economic Forum’s (2018) Global Competitiveness Report, 2017/18, Egypt ranks 133<sup>rd</sup> of 137 countries in quality of primary education, and 130<sup>th</sup> in quality of higher education. The primary sector suffers from underfunding, shortage of trained and qualified teachers, lack of curriculum oversight and absence of efficient data collection, monitoring and evaluation systems (Ministry of Planning, Monitoring and Administrative Reform, 2015). In addition, higher education is challenged by poor or non-existent quality assurance (accreditation) mechanisms, weak capacity and lack of integration with the labour market, as manifested by high rates of unemployment among educated workers compared to those with low or no education (ETF, 2017; Ministry of Planning, Monitoring and Administrative Reform, 2015). Post-secondary TVET has been negatively affected by a number of factors. Key among them is a lack of coordination among the large number of stakeholders involved in its administration and delivery, which has resulted in a fragmented TVET system. Efforts to promote a Ministry devoted to TVET have so far been unsuccessful. Further factors are the incompatibility of the education system with the needs of industry and the labour market, and poor public perception (Álvarez-Galván, 2015).

Recently, domestic and development agency initiatives have been launched to reform education by tackling persistent challenges. Egypt's Sustainable Development Strategy captured in its Vision 2030 addresses education as a key pillar in its sustainable development strategy. It outlines Key Performance Indicators (KPIs) and set targets for 2020 and 2030 at all three levels of education and in line with UN Sustainable Development Goal (SDG) 4 on Quality Education (Ministry of Planning, Monitoring and Administrative Reform, 2015). In support of and in parallel with Egypt's Vision 2030 programme, the World Bank has launched the Supporting Egypt Education Reform Project. The project aims to "improve teaching and learning conditions in schools" by making extensive use of technology, communication, monitoring and evaluation (World Bank, 2018d).

The Sustainable Development Strategy (SDS): Egypt Vision 2030 is captured by the following statement:

By 2030, the new Egypt will achieve a competitive, balanced, diversified and knowledge-based economy, characterized by justice, social integration and participation, with a balanced and diversified ecosystem, benefiting from its strategic location and human capital to achieve sustainable development for a better life to all Egyptians

"Developing the maritime transportation sector" is one item on a list of 77 "Programs and Projects for Economic Development until 2030"

### 2.5. Maritime Labour Market

Egypt has had a fluctuating maritime labour market in modern times. The number of ships operating under the Egyptian flag has decreased over time. A typical example is the privately-owned Pyramids Navigation Company, which started operations in 1978. In the years since then, despite acquiring some new-builds and having owned 22 vessels during its period of operation, it currently operates only three tankers. Cadets need to increasingly find training berth opportunities abroad in order to acquire their first Certificate of Competency (CoC). At the same time, maritime activities connected to the Suez Canal and ports such as Alexandria have seen growth and to some extent offer important employment opportunities - also including specialized MET for its activities. In 2015 the total supply of seafarers from Egypt, as estimated by the BIMCO Manpower report was 3962 of which 2093 were officers. While the report suggests that this supply is enough to meet the demand for operating ships registered in Egypt, this also suggests that Egypt's current maritime capacity-building policy (as for all the other countries studied) does not allow it to take advantage of the global demand for maritime labour.

The Egyptian maritime system labour market is impacted by the challenges facing the Egyptian government and MET administration to dynamically create working conditions required by the modern maritime industry. Table 4 shows figures submitted by Egypt to third parties as the number of CoCs issued from 2011 to 2015.

Table 4: Number of CoC issued (2011-2015)

National title	STCW reference	2015	2014	2013	2012	2011
Master	II/2	391	562	552	658	674
Chief Mate	II/2	169	221	270	267	269
Second Officer	II/1	455	830	670	583	501
Third Officer	II/1	63	85	73	53	97
Chief Engineer	III/2	246	383	35	458	421
Second Engineer	III/2	81	207	192	210	184
Third Engineer	III/1	360	445	457	442	487
Electro-technical Officer	III/1	2	0	0	0	0

Note. Source: Egyptian Authority for Maritime Safety (2016)

## 2.6. MET Administration and System Overview

The Egyptian Authority for Maritime Safety (EAMS) reporting to the Ministry of Transport, is the primary Egyptian maritime administrative agency. The Agency was formally the Ports and Lighthouses Administration with origins from 1830. It was established in its current form by Presidential Decree 399 of 2004, which with its 13 articles (available only in Arabic) grants the Authority the responsibility of “managing and regulating maritime navigation affairs at national level, and to monitor and follow up the performance of maritime safety related establishments and entities”. Among others, EAMS has functions related to maritime education, training, assessment and certification, including to “regulate and manage safety of maritime navigation in accordance with International Conventions and regulations, set tests and issue Certificates of Competency and Marine Passports and also Sea Service Certificates to seafarers, set the professional requirements and provide work permissions for masters, officers, engineers . . . , review the courses of specialized institutes and centres qualifying ships’ crews in accordance with international standards, and provide training programs locally and abroad for the Authority’s personnel to develop their performance in accordance to the internationally applied criteria” (Maritime Transport Sector, 2019). The authority also monitors and seeks to enforce compliance with regulations related to maritime safety, pollution prevention, security standards and search and rescue in waters under Egyptian jurisdiction and in both flag State and port State capacities. With respect to MET, the EAMS works through Departments for Examination (responsible for setting seafarer examinations), Documentation and Review (responsible for approval of MET institutions, programmes and courses), Maritime Labour (responsible for issuing seafarer certificates), Seafarer Complaints and a Medical Department (responsible for seafarer medical fitness examinations and issuing of medical certificates to seafarers).

Operationally and in respect of the actual delivery of seafarer education and training, The Egyptian MET system is dominated by the Arab Academy for Science, Technology and Maritime Transport (AASTMT), which also supports EAMS regarding national compliance with the requirements of the STCW Convention 1978, as amended, and other maritime conventions. AASTMT is the only

MET institution in Egypt authorized by the EAMS to provide education and training programmes and courses for seafarers leading to certificates of competency and academic degrees.

The AASTMT was established as a regional institute for maritime transport in 1970. The following year, the United Nations Development Program (UNDP) and the Arab countries established a five-year co-funding scheme to support the activities of AASTMT and it was decided that AASTMT would be located in Alexandria. From 1972-1979 the AASTMT grew to become an examination centre for qualifying masters, deck officers and marine engineers for the necessary competency certificates to work onboard internationally operating ships. By 1994, a major upgrade of the institution (for example with simulator facilities) started in phases.

Today the Academy is a world-class maritime educational institution operated by the 22-member League of Arab States. It is the de facto MET institution in Egypt authorized by the EAMS to provide education and training programs and courses for seafarers. It is also the most recognizable expression of Egyptian maritime education and training to the global community.

The educational programmes at AASTMT are structured in a college and institute system. Among other colleges, the ones most relevant to MET are as indicated below:

- The College of Maritime Transport and Technology:
  - Offering a phased educational approach that ultimately leads to bachelor-level degrees in Nautical Studies and in Marine Engineering Technology
- College of Fisheries & Aquaculture Technology
- Maritime Upgrading Studies Institute
  - Qualifying and training deck officers and marine engineers to obtain Certificates of Competency (CoC) which qualify them to work onboard ships with nautical and engineering upgrading programmes (Master, Chief Mate, Second Mate, Third Mate, Chief Engineer; Second Engineer, Third Engineer)
- Maritime Postgraduate Studies Institute
  - Offering postgraduate-level degrees; MBA in Shipping and Maritime Management and Doctorate in Business
- Maritime Research and Consultation Centre
  - Carrying out projects (currently including engineering, transport and logistics, and information technology) and arranging conferences and workshops

The campus/premises of the AASTMT also houses a Quality Institute (QI) which monitors the quality management and assurance actions of the AASTMT colleges/Institutes and the Maritime Examination Centre (MEC) which administers on behalf of the EAMS, assessments for seafarer certification.

The College of Maritime Transport and Technology at AASTMT offers two overall programmes for competency certification in three departments: Basic Nautical Studies; Maritime Transport and Technology; Marine Engineering Technology.

The four-semester, two-year Basic Nautical Studies programme is a preparatory programme for work at sea. The third year of study is a training period at sea. During the fourth year (7th and 8th semesters), students take courses in areas such as marine transport & management, business and

law, marine surveys, hydrographic survey, programming & data structures, marine information systems and IMO Conventions.

The full Maritime Transport and Technology programme is, therefore, comprised of eight semesters and leads to a Bachelor of Science (Technology) in Nautical Science degree. The first four academic semesters are in the Basic Nautical Studies Department, followed by two Guided Sea-Training Semesters (third year), followed by two semesters (7th and 8th) in the Maritime Transport and Technology Department. This is aimed at compliance with the STCW convention 1978, as amended, and the relevant IMO Model Courses and leads to qualification as a deck officer. Figure 3 shows the programme structure of the College of Maritime Transport and Technology.

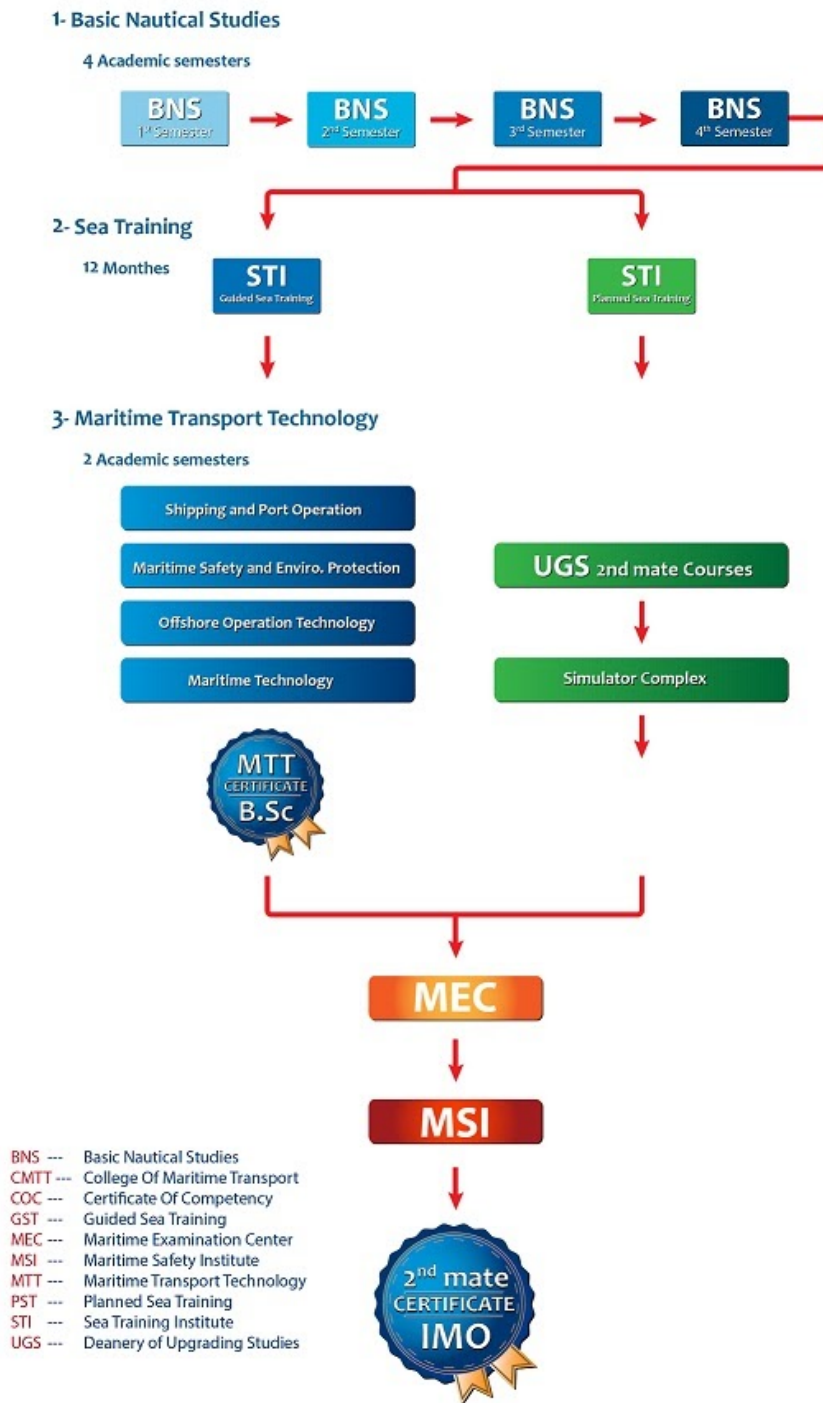


Figure 3: Programme structure - College of Maritime Transport and Technology - Nautical

The Marine Engineering Technology department offers the following programmes (as shown in figure 4):

- A four-year program leading to Bachelor of Science (Technology) in Marine Engineering in conjunction with a Third Marine Engineer Certificate of Competency

- A three-year program leading to the completion of basic studies and qualifying for attending the Third Marine Engineer Course
- Mandatory and preparatory courses for sea-going engineers enabling them to pass the theoretical part of study covered and assessed by the department

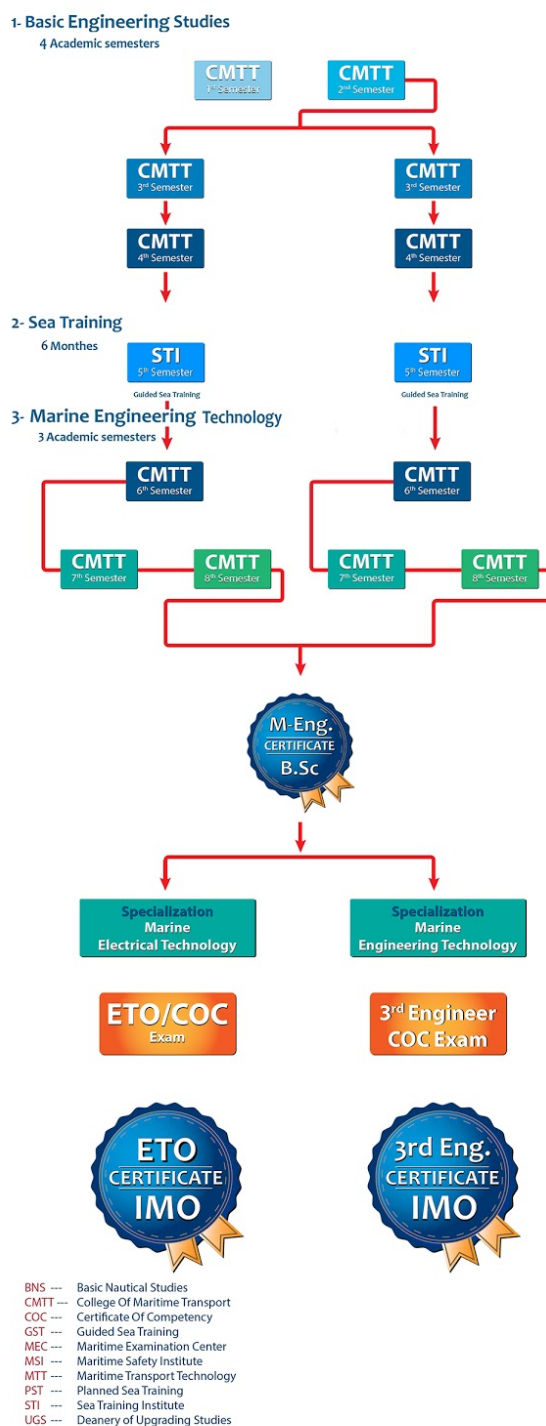


Figure 4: Programme structure - College of Transport and Technology - Marine Engineering

Following the completion of study for a Bachelor of Science in the College of Transport and Technology, the student can continue with further and higher studies to obtain a higher COC and/or academic degree respectively at the AASTMT Maritime Upgrade Studies Institute and/or the Maritime Postgraduate Studies Institute, respectively.

Several other specialized training programmes are offered by AASTMT in a Sea Training Institute, Maritime Safety Institute, Integrated Simulators Complex, Regional Maritime Security Institute, Port Training Institute, and Marine & Offshore Training Centre.

The Institution is relatively well equipped with facilities including Full Mission Ship Handling Simulator, Integrated Bridge System (IBS), Tugboat Simulator, Small Fast Ship Simulator, Vessel Traffic Service Simulator (VTS), ECDIS Labs and Mini Bridge Simulator. Of particular note is the presence of a training ship, the MV Aida IV, the fourth in a series of vessels that have been used for training. The current MV Aida IV was a donation from the Japan International Cooperation Agency (JICA) to Egypt. The vessel, now 29 years old, is limited in its ability to handle the required training for cadets graduating from AASTMT. Onboard training is therefore sought from third-party shipping companies both by the institution and by students themselves.

Uniquely among the countries and institutions studied, the AASTMT offers a number of educational programmes that may be argued to situate the education in a context of evolving and future industry needs. Such programmes include those in management & technology, computing and information technology, international transport & logistics, language and communication, law, and artificial intelligence. The University has historically attracted students to its maritime programmes from many and diverse countries including from the Arab League states and from Africa (Ghana, Kenya, Nigeria being notable examples). With eight campuses primarily in Egypt but also in Syria and the United Arab Emirates, the University has evidenced significant growth in the last decade.

The Decree of the Ministry of Transport No. 221/2013 is the main legal instrument that governs MET in Egypt particularly with respect to compliance with the STCW Convention 1978, as amended. Its articles lay down the regulatory mechanisms for a quality standards system, programme and course design, review and approval, monitoring and evaluation of training and assessment, qualification and training of instructors, assessors and supervisors, onboard training, certification and endorsements, revalidation of certificates, medical standards, and training facilities among others. The Ministry of Transport Decree 221/2013 is supported by a number of EAMS procedures (e.g. EAMS Procedure No. M/44 for approving/authorising maritime institutions). Regulations for fraud prevention fall under the National Law 167 of 1960.

Egypt is on the so-called White List of the IMO. It is also recognized at EU level under Regulation I/10 of the STCW Convention 1978, as amended, pursuant to visits by the European Maritime Safety Agency (EMSA) in 2016. The AASTMT has international accreditation of its different programmes with institutions such as Zentrale Evaluations- und Akkreditierungsagentur (ZEvA - an evaluation and accreditation agency based in Germany) . The University is also a founding member of the International Association of Maritime Universities and maintains a very high profile

and engagement in that Association. In addition, it has several international collaborative agreements with other institutions through a significant number of agreements.

### 2.7. Challenges to MET

The primary challenge to Egypt's MET system is the issue of cadet berths. The country's current supply of maritime labour, while appearing to meet its own flag requirements (and even exceed them), does not appear to be enough to make a significant impact on international labour supply. Like many other countries, national policy in the maritime sector is focused on ports and in the case of Egypt even more so on the Suez Canal.

Comparatively, beyond the prioritization of capacity building in terms of seafaring supply, Egypt has fewer challenges to the sustained growth of maritime education and training. This is mainly because of the rigour and diligence with which the Arab Academy of Science, Technology and Maritime Transport has addressed MET issues. Arguably, institutional leadership has been key to this development.

## CHAPTER 3. GHANA

The Republic of Ghana is one of several countries bordering the Gulf of Guinea in the Atlantic Ocean. The country has a coastline of 539 km. It has population of almost 30 million, a quarter of which is concentrated on the coastline. Ghana has a total area of 238,533 km<sup>2</sup>, of which 227,533 is land and 11,000 is water. The country shares borders with Cote D'Ivoire (720 km) to the west, Togo (1089 km) to the east and Burkina Faso (602 km) to the north. Accra is the capital as well as the largest and most populous city. The country's two major ports are the Takoradi Port (the construction of which was completed in 1928) and the newer Tema Port (commissioned for operations in 1962).

### 3.1. History and Geopolitics

The current Republic of Ghana took its name from the early medieval Kingdom of Ghana, which inhabited an area of West Africa that is now southeast Mauritania and western Mali. By the 13<sup>th</sup> century, Akan people had migrated south, and kingdoms had begun to emerge in what is today Ghana, notably the Mole-Dagbani and Mossi states.

In 1471, Portuguese traders in search of gold and ivory, and later slaves, arrived in Ghana and established a permanent trading post on the western coast, which they named the Gold Coast due to the relatively high volumes of gold. From the mid-16<sup>th</sup> century, as the Atlantic slave trade flourished, other Europeans began to arrive in Ghana, creating Dutch, British, Danish and Swedish settlements. Trade with the Europeans was largely dominated by the Denkyira state, among competition from other kingdoms. In 1701, the Ashanti Kingdom, through a series of military operations, defeated the Denkyira and established a centralized state with a capital in Kumasi, from which they assumed control of trade routes. At the same time, the European powers fought to dominate trade on the Gold Coast. Eventually, the British prevailed and a series of four Anglo-Ashanti wars began in 1823 between the British and the Ashanti Kingdom. After the fourth war, the British captured Kumasi and, in 1902, the Ashanti territory became a British Protectorate. It was incorporated with other kingdoms and tribes under British control, establishing the British Gold Coast colony. The British governed the Gold Coast through a system of indirect rule, with administrative control resting with local chiefs.

In the following decades, the country's economy grew, driven by its abundance of natural resources, which, aside from gold, included kola nuts, cocoa and timber. Revenue from exports financed infrastructure development, social services and education. Together with socio-economic growth came growing pro-independence sentiments that fuelled nationalist movements such as the United Gold Coast Convention (UGCC) and the Convention People's Party (CPP), formed in 1947 and 1949, respectively. These movements spurred a gradual shift of political control back to Ghanaians, until Ghana became fully independent on 6 March 1957, the first country in Sub-Saharan Africa to do so. In 1960, the country became a republic with CPP leader, Kwame Nkrumah, as Ghana's first president.

In 1964, facing criticism for a failing economy, Nkrumah suspended the constitution, declaring Ghana a one-party state. Two years later, in 1966, he was removed from power by a military coup

d'état and replaced by a military government. This would be the first of four coups, setting off a decades long period of alternating military and civilian governments until, in 1992, a new constitution was signed ushering in Ghana's fourth republic. This constitution and the fourth republic it established has seen Ghana go through 28 years of political stability with two dominant parties (the National Patriotic Party (NPP) and the National Democratic Congress (NDC)) exchanging power relatively smoothly over the period in a multi-party system.

Today Ghana plays a significant role in regional and sub-regional affairs as a leading member of the Economic Community of West African States (ECOWAS) and the African Union (AU). On the global scale, Ghana is active in the United Nations and many of its specialized agencies, including the International Maritime Organization (IMO).

### 3.2. Governance

Ghana is a presidential republic governed under the 1992 Constitution, which provides for a separation of powers among three branches. In the executive branch, the elected president (serving a maximum of two four-year terms) heads the Council of Ministers (cabinet), made up of no fewer than 10 and no more than 19 appointed ministers. The President is both the Chief of State and the Head of Government and is elected directly by absolute majority. He/she is also the Commander-in-Chief of the Ghana Armed Forces. The legislative branch is a unicameral parliament made up of one elected Member from each of the country's 275 constituencies. The judicial branch consists of the Supreme Court (12 members appointed by the president), Courts of Appeal, and High Courts of Justice. Lower courts include circuit courts, district courts and regional tribunals. The judicial system is based on British common law and customary law.

Ghana's 1992 Constitution together with the Governance Act of 2016 provide for devolution of powers through a system of local government. The local government consists of regional coordinating councils, each having a number of metropolitan, municipal and district assemblies, together known as MMDAs, responsible for implementing national policies, programmes and projects at the local level. MMDAs are also tasked with creating and implementing medium-term development plans in their respective districts.

### 3.3. Economics

Ghana is a middle-income country with a market-based economy. GDP is driven by services (56.5%), with information and communication, and health and social work being the fastest growing sectors. In 2018, industry contributed 25.5% to GDP and agriculture 18.3% (down from 30% in 2010). However, agriculture was the second largest employer after services, providing work for 40.5% of the nation's 13.6 million strong labour force. The GNI per capita for 2017 was 4,096 PPP USD, one of the highest in West Africa (UNDP, 2018). The national unemployment rate declined from a high of 10.4% in 2000 to 4.6% in 2006. From 2012 to 2019, it has remained fairly steady, with minor fluctuations between 6 and 6.8%. Youth unemployment has followed the same pattern, but tends to be about 6% higher than the general rate (Macrotrends, 2020).

Ghana's abundance of valuable natural resources has made its economy relatively resilient. It is the world's second largest producer of both gold and cocoa, and those products along with oil make up the country's most valuable exports and largest foreign exchange earners. Oil production (primarily offshore) in Ghana began in late 2010, resulting in a 14% increase in GDP, making Ghana one of the six fastest growing economies in the world in 2011 and positioning it as a middle-income country. However, falling oil, gold and cocoa prices along with rising inflation, a growing fiscal deficit and high debt burden caused a marked slowdown in economic growth in the five years following (Blampied et al, 2018). In 2017, production from two new oil fields expanded Ghana's oil industry again and contributed to an 8.5% growth in GDP, lifting the country out of its economic slump (World Bank 2018b).

Current economic concerns include over-reliance on natural extraction, a high debt burden and lack of reliable and affordable electricity, as well as infrastructure constraints in poverty endemic areas. Ghana's HDI value for 2017 placed it in 140<sup>th</sup> position among 189 countries (UNDP, 2018). It is in the medium development category and above average for countries in Sub-Saharan Africa. Ghana's HDI value increased by 30.1% from 1990 to 2017 and its poverty rate was halved between 1991 and 2012. Nevertheless, the country continues to face several socioeconomic challenges, including high rates of maternal mortality and malaria-related deaths along with significant north-south health care and educational disparities. Under the Oxford Poverty and Human Development Initiative (OPHI)'s (2019) Multidimensional Poverty Index (MPI), 28.9% of Ghanaians are living in poverty, with 9.6% experiencing severe poverty. A significant urban-rural divide exists, with 44.7% of the rural population in poverty compared to 12.8% of the urban population (OPHI, 2019). The most impoverished regions are found in the North of the country, which "... has historically been the most marginalized area" (UNDP, 2018b).

The Ghanaian government has recently launched a medium term (2017-2024) programme for economic and social development. The programme focuses on addressing current socio-economic concerns through five key pillars of growth and development: "i) revitalizing the economy; ii) transforming agriculture and industry; strengthening social protection and inclusion; iv) revamping economic and social infrastructure; and v) reforming public service and delivery institutions" (Republic of Ghana, 2017). The plan provides specific strategies and measurable goals through 2024 for reducing barriers to doing business, expanding access to health care and education, and providing reliable and affordable electricity.

### 3.4. Education System (overall)

Ghana's Ministry of Education (MoE) has overall responsibility for education policy, coordination, administration and monitoring, with multiple agencies handling implementation in cooperation with regional and local authorities. In line with the Directive Principles of State Policy in the 1992 Constitution (Article 38), the State shall, among other things provide access to Free Compulsory Universal Basic Education (FCUBE), and depending on resource availability, provide equal and balanced access to secondary and other appropriate pre-university education, equal access to university or equivalent education, with emphasis on science and technology, a free adult

literacy programme, and free vocational training, rehabilitation and resettlement of disabled persons as well as life-long education. Education, in general, is regulated under the Education Act of 2008 (Act 778). The Act provides for 11 years of free and compulsory universal basic education: two years of kindergarten, six years of primary school and three years of junior high school. The Ghana Education Service (GES) oversees the implementation of policies at pre-tertiary levels, while the Council for Technical and Vocational Education and Training (COTVET) coordinates all aspects of TVET. The overall structure of the education system is presented in Table 5.

Table 5: *Ghanaian education system*

Tertiary	Doctorate			
	Master's Degree, Postgraduate Diploma (1-2 years)			
	University Bachelor's Degree (4 years)		Professional Diploma (1.5 years)	
			Higher National Diploma (2 years)	
Post-secondary (non-tertiary)	College of Education (3 years)	Advanced Technical Certificate (1 year)	National Diploma / National Innovation Diploma (2 years)	
Upper Secondary	Senior High School (3 years)	Technical Institutes (3 years)	Vocational Institutes (3 years)	
Lower secondary (UBE)	Junior High School (3 years)			
Primary (UBE)	Primary Education (6 years)			
Pre-primary (UBE)	Kindergarten (2 years)			

*Note.* Blue indicates general education while green denotes TVET. Adapted from “World TVET Database: Ghana” by UNESCO-UNEVOC, 2016. © UNESCO.

Ghana has made significant strides in delivery and quality of primary education, successfully reaching the Millennium Development Goal (MDG) of universal primary education in 2015. Key policy measures contributing to the country's progress were improving existing school infrastructure and increasing the number of schools, strengthening grants, and providing in-service training for teachers. In spite of this, the education system continues to face challenges of over-

crowding, inadequate infrastructure and resources, teacher absenteeism and rural-urban and gender disparities (Republic of Ghana, 2015; 2017). Progression rates from primary to secondary school are low, with less than 70% of students advancing past primary school in 2014 and 2015 (Republic of Ghana, 2017). Since 2017 Ghana has embarked on a free secondary (senior high school) policy which has seen a significant increase in enrolment in second cycle schools. The results of this policy change are yet to be seen. At the post-secondary level, science, technology, engineering and mathematics (STEM) subjects are under-represented, resulting in a skills gap that limits the country's potential for socio-economic growth. In particular, the TVET system is challenged by having too few providers and ineffective coordination and supervision of existing institutes. Moreover, despite growing importance given to the sector, technical and vocational education is still perceived as an inferior option to general academic education (Ansah & Kissi, 2013).

To address current challenges and future needs, Ghana's education development plan under the Coordinated Programme for Economic and Social Development Policies, 2017-2024 aims to build on the progress made in respect of the MDGs. It includes initiatives to strengthen and coordinate TVET institutions under the Ministry of Education and promote teaching and learning of STEM subjects as well as ICT at both secondary and tertiary levels with the aim for Ghana to "develop and be globally competitive" (Republic of Ghana, 2017).

### 3.5. Maritime Labour Market

Amongst the African countries that lie on the Atlantic coast of West Africa, Ghana happens to be one of the most prominent in terms of maritime related activities. The country has no national fleet owned by the Government of Ghana engaged in the maritime sector. In the immediate post-independence era, the Ghanaian Government owned and operated a national shipping line - the Black Star Line - as much for economic purposes as for nationalistic reasons. Initially co-owned by Ghana (60%) and Israel (40%), the line passed to exclusive Ghanaian ownership in 1960. This State Shipping Corporation was made defunct in the mid-1990s with the sale of its last 4 ships.

Today, Ghanaian seafarers operate largely on foreign flagged vessels on the international market and the vessels serving Ghana's offshore oil industry. Currently the Ghana Ship Registry has a total of 247 vessels listed, almost all of which are fishing vessels. The responsible national authority (the Ghana Maritime Authority (GMA)) is in the process of cleaning this list. The number of seafarers at national level in 2020 (as reported by the GMA) is 3264, vastly different from the figure of 275 estimated by the BIMCO Survey of 2015. It is noteworthy that in BIMCO's 2005 Survey, Ghana was ranked second after Egypt as the most significant labour supplying country in Africa.

### 3.6. MET Administration and System Overview

With the decision to start a national shipping line immediately after independence came the establishment of a college, primarily intended to supply the required ratings and cadets to the national line. The Ghana Nautical College had its inception in 1958 and continued operations to fulfil this role till 1982. Most of its trainees continued their qualifications for certificates of

competency in the British MET System. The college operated under the Ministry of Transport of which the national shipping line was a part. When the shipping line was terminated, the school received less and less support and its graduates had to find jobs on the international market, a scenario that led to an increasing number of Ghanaian seafarers serving on ships not flagged by Ghana. Subsequently, Ghana, through the Ministerial Conference of West and Central African States on Maritime Transport (MINCONMAR), now the Maritime Organisation of West and Central Africa (MOWCA), and with help from the UNDP, invited other West and Central African nations to join in the establishment of a regional academy to serve the needs of the member countries regarding maritime labour capacity building and promote regional cooperation in the maritime industry and to foster regional growth in this respect. The Convention on the Regionalisation of Ghana Nautical College in 1977 was the legal basis for this endeavour. In October 1982, the Regional Maritime Academy Law (PNDC Law 33) was promulgated and an instrument of transfer completed with MINCONMAR in May 1983. The Ghana Nautical College (GNC) thence became the Regional Maritime Academy (RMA) and commenced operations in 1983 with governing State membership including Cameroon, Gambia, Ghana, Liberia and Sierra-Leone. Initially, Egypt was invited to send several maritime experts from the Arab Academy to lead the University for a period of about a decade. Since then the management team has seen broad representation from the five member states. In 2007, the RMA was granted a presidential charter as a university and became the Regional Maritime University (RMU). RMU is now the main/only MET institution in Ghana. It is perceived as providing quality and internationally competitive MET. It has a student profile drawn from the member states, but also from many other African States, in particular Ethiopia and Nigeria.

With respect to maritime education and training, the Ghana Maritime Authority (GMA) and the Regional Maritime University (RMU) play the most significant roles in the country with GMA acting as the primary entity responsible for MET administration. The MET system as a whole is simplified by the fact that it is characterised by a minimum number of public entities which coordinate all activities related to MET.

The GMA was established through the Ghana Maritime Authority Act 630 of 2002. It took over the functions and responsibilities of the erstwhile Shipping and Navigation Division of the Ministry of Roads and Transport (at the time). It has the objective of regulating, monitoring and coordinating “activities in the maritime industry”. Included in its current functions as articulated by the founding Act 630 are:

- implement the provisions of the Ghana Shipping Act, 2003 (Act 645);
- ensure the safety of navigation;
- oversee matters pertaining to the training, recruitment and welfare of Ghanaian seafarers;
- plan, monitor and evaluate training programmes of seafarers to ensure conformity with standards laid down by international maritime conventions;
- assess the manpower needs of the maritime sector for national planning purposes;

- liaise effectively with the Government agencies and institutions that deal with maritime transport and related transport matters for the purpose of achieving harmony in the maritime industry;
- initiate research into national maritime transport development for effective planning and co-ordination;
- initiate action for the promotion, establishment and development of private shipping lines;
- advise the Government on maritime matters generally.

The functions listed above are selected/highlighted as being relevant to the current study. Other functions relate to other parts of the maritime industry such as prevention of pollution, regulation of the activities of shipping agents, and freight forwarders.

The Regional Maritime University is accredited by the Ministry of Education through the National Accreditation Board. With respect to compliance with the STCW Convention 1978, as amended, the University functions structurally under the Ghana Ministry of Transport, though it retains diplomatic status as a regional body. The governments of the five member states recognise the University's accreditations from the Ghana government in their own jurisdictions.

The University currently has 2 faculties (out of a total of 3) which offer four-year BSc programmes in Nautical Sciences and Marine Engineering leading to the issuance of CoCs by the Ghana Maritime Authority under Chapters II and III of the STCW Convention 1978, as amended. Furthermore, there are one-year upgrading courses leading to competency certification at different levels of the STCW. Several short and ancillary courses, including those required under Chapters IV, V and VI of the Convention are also conducted. Table 6 shows the main STCW (officer) courses offered by the RMU. The two faculties dealing directly with STCW-related course are the Faculty of Engineering and Applied Sciences and the Faculty of Maritime Studies.

Table 6: *RMU maritime (STCW) programmes and qualifications*

Faculty	Programme	Duration	Remarks
Faculty of Maritime Studies	BSc Nautical Science	4 years (8 semesters)	Addresses STCW requirements under Chapter II
Faculty of Engineering and Applied Sciences	BSc Marine Electrical and Electronic Engineering	4 years (8 semesters)	Addresses STCW requirements under Chapter III (regulation III/6)
	BSc Marine Engineering	4 years (8 semesters)	Addresses STCW requirements under Chapter III

*Note.* Source: Regional Maritime University (2020).

In addition to the programmes indicated in Table 6, RMU offers other Bachelor level programmes in logistics management, ports and shipping administration, computer engineering and accounting.

At the post graduate level, it offers a Master of Arts programme in ports and shipping administration and Master of Science programmes in bioprocessing engineering and environmental engineering. There is, in addition, a Higher Diploma programme in port and shipping management.

The Ghana MET system has limited control over the gaining of training berths for sea time for first certificate of competency. When the country owned a national fleet there was a dedicated training ship, the MV Nakwa River, which offered training berths to 100% of the cadets graduating from the then Ghana Nautical College. With the sale of that ship, training berths were provided on all the ships in the fleet owned by the national company. Following the termination of services by the national fleet and sale of all its ships, cadet berths have been sought in the wider industry by the Regional Maritime University and by students individually with varying degrees of success.

Ghana was one of the first countries to be put on the IMO's so called White List. Its MET system is recognized at EU Commission level through a visit from the European Maritime Safety Administration (EMSA). Its seafarers continue to be employed in diverse international shipping companies, some of which have specific employment arrangements with the University.

Through its de facto status as a regional educational institution, the RMU enjoys significant international recognition. On the African continent, the University is one of only two maritime higher education institutions to be members of the International Association of Maritime Universities (IAMU), the other being the Arab Academy of Science, Technology and Maritime Transport (AASTMT) based in Egypt.

### 3.7. Challenges to MET

While Ghana has demonstrated, for its size and population, a consistent developmental track in MET, it has been challenged by the absence of a vigorous macro-policy for growing human resource capacity at national and regional levels. Major challenges include funding, wider maritime awareness and appreciation and human resource constraints. Leadership at the institutional level also appears to be limited in some cases. The absence of easy access to training berths at sea remains a major challenge to seafarer education and training.

## CHAPTER 4. KENYA

The Republic of Kenya is located in East Africa on the Indian Ocean (536 km coastline). It has a population of about 52 million, most heavily concentrated on the shore of Lake Victoria in the West of the country. Kenya has a total area of 580,367 km<sup>2</sup>, of which 569,140 is land and 11,227 is water. The country shares borders with Ethiopia (867 km), Somalia (684 km), South Sudan (317 km), Uganda (814 km) and Tanzania (775 km). Nairobi is the capital as well as the largest and most populous city. The oldest and second largest city, Mombasa, is home to East Africa's largest and most important deep-water seaport, Kilindini Harbour and Mombasa serves as a centre of a lot of the country's maritime activity.

### 4.1. History

Kenya is widely thought to be the birthplace of the human race, with evidence of human habitation purportedly as early as 3.3 million years ago. From 2000 BCE, Kenya began to be populated by a variety of ethnolinguistic groups, beginning with Cushitic people from North Africa, followed by the Bantu from Central Africa, and later the Nilotic people from the east Nile Valley.

From the 7<sup>th</sup> century, the Arabs and Portuguese were influential in Kenyan history. Arab merchants trading and settling along the coast contributed to the development of the Swahili language and culture. Looking to control trade within the Indian Ocean, the Portuguese arrived in 1498 and established the port of Mombasa as an important hub between Europe and the Far East. The Portuguese were ousted in 1730 by the Omani Arabs, who controlled the coast for the next century. European interest in East Africa re-emerged in the mid-1800's, when several countries began to conduct shipping business from Zanzibar, which became a base for inland exploration. In 1885, the Berlin Conference designated the area as a British sphere of influence and in 1895 the British declared the area of Kenya and Uganda the East Africa Protectorate. From 1895 to 1901, thousands of Indian labourers were brought to Kenya to work on the railway line, with many subsequently settling there. In 1920, the East African Protectorate was transformed into the Colony and Protectorate of Kenya. Early in the colonial period, white settlers occupied the Kenyan highlands, displacing much of the African population.

By the early 1940's nationalist movements had begun to emerge in reaction to the prevailing territorial, economic and political exclusion of African people. In 1944, the Kenya African Union (KAU) was established and gained representation in Kenya's legislative council. In 1947, the Mau Mau, or Land Freedom Army movement was established to fight for freedom from British rule. In response to escalating uprisings, the British placed Kenya under a state of emergency from 1952 to 1960, and detained tens of thousands of Kenyans in detention camps. African participation in the political process increased rapidly during this period, and in 1962, Jomo Kenyatta, a leader of the KAU, became Prime Minister. The following year, Kenya gained full independence and on December 12, 1964 became a republic, with Kenyatta as the first president. Kenyatta remained president until his death in 1978. The subsequent president amended Kenya's constitution, making the country a one-party state with power concentrated in the presidency. A coup attempt in 1982 failed but in 1991, parliament restored the multi-party system through a constitutional amendment.

However, subsequent elections were criticized for being fraudulent and at times marred by ethnic and political violence. In 2010, a new constitution was adopted, limiting presidential powers and decentralizing control.

Today, Kenya plays a significant role in sub-regional activities as a member of the East African Community (EAC), the African, Caribbean and Pacific Group of States (ACP) and the Intergovernmental Authority on Development (IGAD) and holds memberships in numerous UN agencies, including the International Maritime Organization (IMO).

#### 4.2. Governance

Kenya is a presidential republic governed under the 2010 Constitution, which provides for a separation of powers among three branches. In the executive branch, the elected President (serving a maximum of two five-year terms) heads the Cabinet, made up of the Deputy President, Attorney General and a maximum of 22 presidentially appointed Cabinet Secretaries. The President is the Head of State, Head of Government and Commander-in-Chief of the defence forces. He or she is elected directly by popular majority vote and must, in addition, receive no less than 25% of votes in at least half of the country's 47 counties. The legislative branch is a bicameral parliament, consisting of a senate and national assembly. The national assembly, or lower house, controls national expenditure and revenue allocation. It has a total of 349 seats, including one elected member from each constituency (290), one women's representative member of parliament (MP) from each county (47) and 12 nominated representatives. The senate consists of 47 senators, who represent and serve the interests of their electing counties. The judiciary, headed by the presidentially appointed Chief Justice, consists of three superior courts - the Supreme Court, Court of Appeal, and High Court - and three subordinate courts - the Magistrates courts, Kadhis' courts and the Courts Martial. The judicial system is based on British common law and customary law.

The 2010 Kenya constitution provided for the devolution of government to “promote democratic and accountable exercise of power and...enhance checks and balances and the separation of powers” (Art. 174). The constitution transferred power from the national government in Nairobi to the 47 counties, each with its own elected Governor, Assembly and Executive. County government responsibilities include agriculture, health care and county planning and development.

#### 4.3. Economics

Kenya is considered East Africa's leading commercial and financial centre and logistics hub. The country's GDP growth has averaged 5% per year over the last 10 years. In that period, the economy has been boosted by “a stable macro-economic environment, low oil prices, rebound in tourism, strong remittance inflows and government led infrastructure development initiatives” (World Bank, 2018c). The strongest driver of GDP, with a 45% share in 2017, is the service sector, which is dominated by tourism. Agriculture contributes 31.5% to GDP and is the country's largest employer, with over 70% of Kenyan's employed at least part time in the sector (ITA, 2017). Foreign exchange earnings are led by diaspora remittances, followed by tea and horticulture

exports. Recently Kenya has made gains in its “Ease of Doing Business” ranking, achieving 80<sup>th</sup> position among 190 countries (World Bank, 2019) and attracting increased foreign investment, particularly in the telecommunications sector, banking and tourism.

Despite positive trends, Kenya’s economy continues to face socio-economic challenges brought on by inadequate infrastructure, vulnerability to climate change and price shocks, corruption and security concerns. These factors hamper efforts to sustain growth rates and to translate growth to poverty and unemployment reduction, particularly among the country’s large youth population. Kenya’s overall unemployment rate has averaged around 9.5% since 2010, while youth employment is considerably higher at 19% (Statista, 2019). According to the Multidimensional Poverty Index (MPI) 40% of Kenyans are facing poverty, while 14.5% are experiencing severe poverty (OPHI, 2019). On the Human Development Index (HDI), Kenya ranks 142 out of 189 countries. Its GNI per capita of 2,961 PPP USD in 2017 (UNDP, 2018) places it at the top of the East African Community (EAC).

Kenya has a long-term development plan to foster economic development through its Vision 2030 agenda. The initiative aims to “transform Kenya into a newly industrializing, middle-income country providing a high quality of life to all its citizens by 2030” (Vision 2030 Delivery Secretariat, n.d.). In addition, 2017 saw the launch, by Kenya’s President, of the “Big Four” economic plan, with key pillars of agriculture and food security, affordable housing, expansion of manufacturing and universal health coverage. The plan aims to address the country’s socio-economic challenges by reducing poverty and increasing employment opportunities.

#### 4.4. Education System (overall)

Kenya’s education system is the responsibility of the Ministry of Education. The Ministry’s mandate is derived from the Constitution of Kenya 2010 and the Education Act, 2012. Under the Constitution, functions of education and training are shared between the national and devolved county governments. As per Schedule 4, the national government is responsible for educational policy, standards, curricula, examinations, and granting of charters as they pertain to universities, tertiary educational institutions, primary schools, secondary schools and special education institutions. County governments, meanwhile, have control over education delivery and management, pre-primary education, village polytechnics, homecraft centres and childcare facilities. Technical and Vocational Education and Training falls under the purview of the State Department of Vocational and Technical Training, with coordination, development and certification functions carried out by the TVET Authority (TVETA) and the Curriculum Development, Assessment and Certification Council in line with the TVET Act, 2013 [UNESCO-UNEVOC, 2018b].

In 2015, the Kenya National Qualifications Authority (KNQA) was established to “coordinate and harmonize education, training, assessment and quality assurance of all qualifications awarded in the country; with the view to improving quality and international comparability” (KNQA, n.d.). The KNQA has developed level descriptors specifying learning outcomes in terms of knowledge, skills and competence at each of 10 levels (Table 7) of education. The current 8-4-4 education

system entails 8 years of free and compulsory primary school, 4 years of secondary school and 4 years of higher education.

Table 7: Kenyan education system

KNQF Level		
10	Doctorate Degree	
9	Master's Degree	
8	Post-Graduate Diploma	Professional Bachelor's Degree
7	Bachelor's Degree	
6	(4 years)	National Diploma
5		National Craft Certificate National Vocational Certificate IV
4		National Vocational Certificate III Artisan Certificate
3		National Vocational Certificate II
2		Secondary Certificate (4 Years)
1	Primary Certificate (8 Years)	

*Note.* Blue indicates general education while green denotes TVET. Adapted from KNQF Structure by Kenya National Qualifications Authority.

Despite significant progress over recent decades, including improved net primary and secondary enrolment and literacy rates (World Bank, 2018c), Kenya is still facing challenges in achieving widespread quality education and preparing young Kenyans for the employment market. Access to post-secondary education in Kenya is limited, primarily due to its prohibitive costs, and, consequently, enrolment is very low. Only 4.7% of Kenyan men and 3.3% of women are enrolled in higher education, compared with 6% in sub-Saharan Africa and 26% globally (Samuel Hall, 2017). Despite being more affordable, TVET Institutions are similarly poorly attended. They are often considered a less prestigious “last resort” option compared to academic programmes. Moreover, since many TVET programmes are informal, funding is scarce, resulting in outdated curricula that is a poor match for labour market demands (Samuel Hall, 2017).

Through Kenya's Vision 2030 agenda, the government has set goals for the education and training sector. Its medium-term policy objectives aim to close the skills gap by expanding equitable access to university education, rebranding TVET to attract top students and reforming TVET curricula to ensure that courses are "competency based, market-driven and address the needs of the workplace as well as promote employability" (Republic of Kenya, 2013).

#### 4.5. Maritime Labour Market

At the time of writing this report, Kenya's maritime labour market is severely limited. It is reported that there are approximately 2300 seafarers on board ships (both local and foreign). Once employed, Kenyan seafarers are reported to have a low attrition rate, meaning they tend to stay at sea for relatively long periods. Intensive efforts to expand the Kenyan maritime labour market are at a nascent stage and have not yet borne significant fruit. The lack of a relatively well-established MET system in terms of the delivery of curriculum, has meant that the country has had no substantive mechanism to produce seafarers. Kenyan officers, for the most part, have had to train for and receive their certificates of competency in other countries. While Kenya has ambitions to be a substantive labour supply source for the maritime industry, current labour supply is relatively low. Locally, the current flagged fleet comprising one commercial cargo ship and 26 non-conventional vessels does not represent a significant operational market for the labour supply.

#### 4.6. MET Administration and System Overview

Kenya's maritime industry today has its roots in the practices of pre-colonization and ancient African practices of using dug-out canoes to navigate the coastal waters and traditional dhows for sailing further afield. In the immediate post-independence era, a few institutions were established incorporating a cadet training scheme aided by the British Government. This cadet training scheme collapsed in 1960 and for about four decades there was little progress in the development of maritime education and training, specifically, and maritime capacity building in general. The MET system was largely unstructured. The administration of the sector as a whole was the responsibility of the Merchant Shipping Superintendent, a department of the Kenya Port Authority (KPA) under the then Ministry of Transport. Bandari College, conceived under the defunct East African Harbours Corporation, remained the training arm of the Kenya Port Authority.

A ship-owning and operating entity, the Eastern African National Shipping Line (EANSL), was founded in 1966 and was jointly owned by the governments of Tanzania, Kenya, Uganda and Zambia and a private company incorporated in Kenya (Southern Line). EANSL owned four ships and operated one chartered ship (Mahalu, 1977).

Among the objectives for the setting up of the shipping line was "To provide diversified employment opportunities for nationals of the participating countries". For a number of reasons beyond the scope of this report, this and the other objectives were not met. The EANSL ceased operations in 1980. During the period of its existence, cadets were trained on the ships owned by the company and labour for the ship operations were 100% drawn from the co-owning countries.

In 1988, a national shipping line – the Kenya National Shipping Line – was set up. It was not as successful as was intended and went into an extended period of dormancy. Currently, there are ongoing efforts to revive the KNSL with collaboration from Mediterranean Shipping Company (MSC), a partnership which is expected to create 2000 seafarer jobs and 1500 sea time training opportunities annually (Further Africa, 2019; KNSL, 2018).

The popularity and attractiveness of a maritime career – particularly one of a seagoing nature – has historically been less than optimal for sustained growth. Up to the early 2000s, Kenya had not ratified the STCW Convention 1978, as amended, and it was generally recognized by stakeholders in and outside Kenya that the existing MET system features, taken in totality, neither satisfied existing needs nor anticipated future developments. There was neither a real expression of seafarer education and training nor a wider maritime education and training policy agenda. Since then, there has been a consistent drive to better administer the maritime industry and the nation’s capacity building efforts in that respect. An administrative mechanism, the Kenya Maritime Authority (KMA) was set up and subsequently, in 2009, a Merchant Shipping Act was enacted into Kenyan law. The country ratified the STCW Convention in 2010 and was placed on the IMO’s so-called White List in 2011. Distinct educational entities were recognised as being positioned to improve the maritime human capacity and curricula were agreed for such MET institutions. Recent work by KMA is helping to redirect Kenya’s focus on the maritime industry and is increasing the awareness and appeal of the industry.

In 2017, the government recognized the Blue Economy Sector as critical sector for national economic growth. Focus has since been on the Blue Economy Sector as the 8th Sector under the Economic pillar of the Kenya Vision 2030. The Vision is currently unfolding under the third Medium Term Plan (MTP III).

The Kenya Maritime Authority under the Ministry responsible for transport, remains the main administrative body regulating MET in Kenya. An initial Authority was set up earlier via The Kenya Maritime Authority Order (Legal Notice Number 79) of 2004. The Kenya Maritime Authority Act (No. 5 of 2006; revised in 2012) re-established the Authority in its current form with the same objective of regulating, co-ordinating and overseeing maritime affairs. Its officers (designated as such by the Director-General) are also “authorised officers” in relation to any provision of the Kenya Merchant Shipping Act of 2009 which makes provision for:

... the registration and licensing of Kenyan ships, to regulate proprietary interests in ships, the training and the terms of engagement of masters and seafarers and matters ancillary thereto; to provide for the prevention of collisions, the safety of navigation, the safety of cargoes, carriage of bulk and dangerous cargoes, the prevention of pollution, maritime security, the liability of ship-owners and others, inquiries and investigations into marine casualties; to make provision for the control, regulation and orderly development of merchant shipping and related services; generally to consolidate the law relating to shipping and for connected purposes.

Other public entities related to the MET system include the Technical and Vocational Education and Training Authority (TVETA), the Kenya Institute of Curriculum Development (KIDC) and the Kenya National Examination Council (KNEC).

The Kenya Maritime Authority has taken significant actions to change Kenya’s maritime capacity trajectory. Specific strategies have included ongoing maritime awareness campaigns, seeking for training berths for Kenyan cadets and a flagship project called “Training the Kenyan Seafarer for the International Job Market”.

Qualifications for a seafaring career are offered at the certificate, diploma and degree levels covering professional ratings and officer training. Certificates of competency and proficiency are issued by the KMA. A number of institutions currently purportedly offer some form of maritime education and training (broadly speaking) at secondary and tertiary levels. They include Bandari Maritime Academy, Kisumu Maritime Centre, Indian Ocean Maritime Training Centre, Technical University of Mombasa, Kenya Coast National Polytechnic, Jomo Kenyatta University of Agriculture and Technology, Mombasa Technical Training Institute, Moi University, Zonal Training Institute, and East Africa Center for Maritime Affairs. Table 8 indicates several institutions and the level of qualifications offered.

Table 8: *Kenyan MET institutions and qualifications recognized by KMA*

	Institution	Level			
		Proficiency courses (including IMO)	Certificate	Diploma	Degree
1	Bandari Maritime Academy	8	6	5	0
2	Jomo Kenyatta University Agriculture and Technology	0	0	0	1 (BSc. Marine Engineering)
3	Technical University of Mombasa (in the process of approval)	0	2	2 (Nautical and Engineering)	0
4	Kisumu Maritime Centre		Coxswain		
5	Indian Ocean Maritime Training Centre	15	0	0	0
6	Kenya Coast National Polytechnic		Coxswains and Craft courses		

*Note.* Adapted from “Maritime education and training in East Africa Region: Current status” by R. Kiplimo & B.W. Ikua, 2017, *Procedia Engineering*, 194, p. 354.

In terms of the legal framework for MET, the Constitution of Kenya places “marine navigation” under “transport and communication” as part of the functions of the National Government (as opposed to County Governments). The MET system is supported by the Kenya Merchant Shipping

Act of 2009 as the foundational legal instrument. The Act is linked to several subsidiary legal instruments which address the core matters of key international conventions. It is this instrument which operationalises the STCW 1978 Convention in the Kenyan context. Subordinate legislation specific for maritime training and certification is indicated in the following:

1. The Merchant Shipping (Training and Certification) Regulations of 2016 which are in essence the transposition of elements of the STCW Convention 1978, as amended, into national law. It refers to a “Code of Seafarer Qualifications” (in essence the STCW Code) which specifies the standards and other requirements relevant to the training and certification of seafarers;
2. The Merchant Shipping Seafarers Medical Examination and Certification Regulations, 2016.

Accreditation for higher education and vocational education is carried out by the Commission of University Education (CUE) for University degrees, the Technical Vocational Education and Training Authority (TVETA) respectively. Professional bodies such as the Engineers Board of Kenya (EBK) carry out accreditation for specific professional training. As indicated earlier, the Kenya National Qualifications Authority (KNQA) is responsible for establishing a qualifications framework. The Kenya National Examinations Council (KNEC) responsible for overseeing national examinations is also involved.

Apart from above, a number of maritime labour laws and policies are at the draft stage. They include draft regulations on maritime labour, on wage standards for seafarers and a repatriation policy for seafarers.

Despite the country’s efforts since 2010, its MET presence is limited on the international stage. No institution is a member of the International Association of Maritime Universities and the presence of seafarers trained under the Kenyan MET system is not significant in the international market. Over the last almost four decades, a number of Kenyan students have been through the IMO’s World Maritime University (WMU) and the International Maritime Law Institute (IMLI) and their actions and strategic mindsets may explain the recent drive to change this situation.

The institutions delivering seafarer training at different levels do not have significant engagement with international collaborators. The Jomo Kenyatta University of Agriculture and Technology (JKUAT), exceptionally and laudably, has collaborations of different kinds with the Korea Institute of Maritime and Fisheries Technology, Shanghai Maritime University, Dalian Maritime University, Maritime Institute Willem Barentsz, Bangladesh University of Engineering and Technology and Newcastle University.

A recent engagement with the International Association of Maritime Universities (IAMU), on the invitation of the Principal Secretary for the State Department of Shipping and Maritime, has started Kenya’s MET stakeholders on the development of a Roadmap Document for improving MET in Kenya. Kenya is also currently seeking to develop a significant relationship with the World Maritime University for capacity building related to MET policy and human resource development.

#### 4.7. Challenges to MET

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As indicated earlier, the country has recently embarked on an ambitious plan to develop MET in the context of a Blue Economy and the so-called Big Four Agenda. There has recently been significant public policy activity geared toward building capacity for the growth of maritime education and training (broadly speaking), the creation of decent jobs and career paths for seafarers, the improvement of productivity in shipping and its safety and security in Kenyan waters and an environment that facilitates and optimises maritime trade and creates a business environment that drives investments in the maritime industry.

Ongoing challenges are related to funding, policy implementation at the grassroots level, human resource capacity and general maritime awareness.

## CHAPTER 5. NIGERIA

Nigeria is located on the Gulf of Guinea (853 km coastline) in the Atlantic Ocean. With a population of about 190 million, the country is Africa's most populous. Nigeria has a total area of 923,768 km<sup>2</sup>, of which 910,768 is land and 13,000 is water. It is bordered by Benin to the west (809 km), Cameroon to the east (1975 km), Chad to the north-east (85 km) and Niger to the north (1608 km). While Abuja is the national capital, Lagos is the commercial and industrial centre and the hub of maritime activity.

### 5.1. History and Geopolitics

Nigeria has a long history of various ancient civilizations, kingdoms and empires, the earliest of which can be traced back to the Jos Plateau in Nigeria's middle belt. From about 1500 BCE to 500 CE, the plateau was home to the Nok, an agriculturist culture well-known for producing terracotta sculptures. State systems, most notably the Hausa Kingdom and later the Kanem-Bornu Empire, evolved in the north, where trade was flourishing between West and North Africa.

In the late 15<sup>th</sup> century, several European countries, beginning with Portugal, landed in Nigeria and began trading in slaves. Millions of Nigerians were forcibly taken to the Americas during the era of the Atlantic slave trade, which continued until the early 19<sup>th</sup> century. Subsequently, legitimate trade with Europe continued, and Nigeria became an important exporter of cocoa, groundnuts, palm oil and kernels, cotton, and leather. In 1861, The British annexed Lagos through a military campaign, initiating the colonization of Nigeria. Further control was established through the British Chartered Royal Niger Company when, in 1900, the southern territory under its control was passed to the British Empire and soon after amalgamated with the Northern British Protectorate to become the Colony and Protectorate of Nigeria. With this event, the borders of the modern-day state of Nigeria were established.

Nigeria was administered under existing political institutions through a system of "indirect rule" for several decades. In 1951, under a new constitution, the balance of political power began to return to Nigerians. In 1954, the country became a federation, and on 1<sup>st</sup> October 1960, Nigeria achieved full independence. A new constitution signed in 1963 declared Nigeria a federal republic, and the country's first independent elections were held in 1965. The decades following the first election were characterized by a series of alternating coups, military juntas and periods of civilian rule, with each intervention ushering in a new republic/constitution. Following the Nigerian Civil War, which ended in 1970, the country experienced an economic boom as a result of joining OPEC and benefiting from an upsurge in oil prices. Oil had been discovered in Nigeria in the mid-1950s and progressively became significant in its contribution to the national economy. In May of 1999, democracy was restored with the signing of the 1999 Constitution, ending the cycle of military rule. The 1999 constitution also permitted Sharia law, which has been adopted by some northern states. The move, coupled with fraught historical divisions along ethnic and religious lines, has led to eruptions of conflicts and escalating terror attacks throughout the past two decades, most notably by Boko Haram in the northern parts of the country. The south has not been without its challenges

primary among which is the scourge of piracy emanating from the Niger Delta and which has affected trade and ship movement in the wider Gulf of Guinea.

### 5.2. Governance

Nigeria is a federal presidential republic governed under the 1999 Constitution, which provides for a separation of powers among three branches. In the executive branch, the elected President (serving a maximum of two four-year terms) heads the Federal Executive Council (cabinet), made up of appointed representatives from all 36 states. The President is both the Chief of State, the Head of Government and Commander-in-Chief of the Armed Forces. The legislative branch is a bicameral National Assembly made up of the Senate (360 elected members) and House of Representatives (109 elected members). The judicial branch consists of the Supreme Court (15 members appointed by the president), Court of Appeal and the Federal High Court, and, at the state level, high courts, custom courts and sharia courts. The legal system is primarily a common law system but also allows customary law and sharia law in some northern states.

### 5.3. Economics

As Africa's largest economy, Nigeria's GDP is driven by services (52%), with information communication and technology (ICT) the fastest growing sector. Agriculture contributes about 21% to GDP, and industry and construction, 16%. Oil accounts for only 11% of GDP but is by far the largest foreign exchange earner at 90%, making government revenues and economic growth vulnerable to oil price fluctuations (World Bank, 2018a; Federal Republic of Nigeria, 2017). In 2016, Nigeria entered a recession following weak output and an almost 50% drop in global oil prices (Kyarem & Ademola, 2018). GDP growth rate declined from 6.3% in 2014 to -1.6% in 2016 (World Bank, 2018a), and the unemployment rate grew from 6.4% in 2014 to 23% in 2018, with the youth population accounting for most of the unemployed (Federal Republic of Nigeria, 2017). Today, Nigeria is slowly emerging from its recession. However, in addition to the country's over-reliance on a single commodity (oil), growth is constrained by a number of factors including ongoing insurgencies and conflicts, inadequate fuel and power supply, lack of infrastructure and facilities, and under-investment in human capital development (Federal Republic of Nigeria, 2017). A further barrier is Nigeria's difficult business environment. In 2019, the nation was ranked 146<sup>th</sup> out of 190 countries in the World Bank's Ease of Doing Business Index (World Bank, 2019), and 104<sup>th</sup> (12<sup>th</sup> in Sub-Saharan Africa) in the Heritage Foundation's (2018) Index of Economic Freedom. One significant obstacle to business growth is government interference and corruption, with Nigeria scoring 2<sup>nd</sup> lowest in the world in government integrity (The Heritage foundation, 2018). Further obstacles include an inefficient property registration system, restricted access to trade, an inconsistent regulatory environment, and judicial ineffectiveness.

The majority of Nigerian's live under the burden of poverty, lacking food security, adequate housing and sanitation. Under the Oxford Poverty and Human Development Initiative (OPHI)'s (2018) Multidimensional Poverty Index (MPI), 52% of Nigerians are living in poverty, with 32.7% experiencing severe poverty. A significant urban-rural divide exists, with 66.1% of the rural

population in poverty compared to 23.9% of the urban population. The most impoverished regions are found in the Northeast and Northwest (OPHI, 2018). Nigeria also ranks poorly in major socio-economic indicators. It has the 4<sup>th</sup> highest (137 out of 140 countries) infant mortality rate in the world and was ranked 194<sup>th</sup> of 201 countries in life expectancy (53.9 years) in 2017. Nevertheless, the nation's Human Development Index has shown steady progress in all components since 2005 (UNDP, 2018).

In 2017, in response to the recession, the Nigerian Federal Government initiated the Economic Recovery and Growth Plan, 2017-2020. The medium-term development plan addresses economic, social and environmental sustainability issues and is in line with the United Nations' Sustainable Development Goals (SDGs). The Plan has three main objectives: restoring growth, investing in human capital, and building a globally competitive economy (Federal Republic of Nigeria, 2017). It is expected to tackle constraints to economic development and put the country back on a path of sustainable growth by 2020.

#### 5.4. Education System (overall)

Nigeria's Federal Ministry of Education is responsible for education policy and oversight at all levels. The Minister of Education chairs the National Council of Education (NCE), which is the highest decision-making body in educational matters. State and local governments are responsible for administering secondary and primary as well as adult and non-formal education, while the federal government manages tertiary education. The legal framework for all three levels of government is provided by the National Policy on Education (NPE), first published in 1977 and most recently revised in 2013.

The Universal Basic Education (UBE) Act was established in 1999 and legislated in 2004 under the NPE in response to UNESCO's Education for All (EFA) campaign and the UN's Millennium Development Goals (MDGs). The UBE Act 2004 requires the government to "provide free compulsory and universal basic education for every child of primary and junior secondary age", which translates into 6 years of primary school and 6 years of junior secondary school.

Technical and Vocational Education and Training (TVET) in Nigeria is coordinated by the National Board for Technical Education (NBTE). Within TVET, technical and vocational education represent two distinct sub-sectors. The overall structure of the education system is indicated in Table 9.

Table 9: Nigerian education system

Tertiary	Doctorate			
	Master's Degree, Postgraduate Diploma (1-2 years)			
	Bachelor's Degree (4-6 years)		Professional Diploma (1.5 years)	
			Higher National Diploma (2 years)	
Post-secondary (non-tertiary)	College of Education (3 years)	Advanced National Technical Certificate (1 year)	National Diploma / National Innovation Diploma (2 years)	
Upper Secondary	Upper secondary education (3 years)	National Technical Certificate / National Business Certificate (3 years)	National Vocational Certificate (1-3 years)	
Lower secondary (UBE)	Lower Secondary education (3 years)		Lower secondary vocational (3 years)	
Primary (UBE)	Primary Education (6 years)			

*Note.* Blue indicates general education while green denotes TVET. Adapted from TVET Country Profile: Nigeria by UNESCO-UNEVOC, 2018. © UNESCO.

Despite progress made since the inception of the UBE Act, Nigeria faces challenges at all levels of education. At the primary and lower secondary level, Nigeria has 8.7 million out of school children – the highest number in the world. Out of school rates are particularly high in the North of the country and among girls (World Bank, 2018a). Underlying issues include rapid population growth coupled with inadequate infrastructure and capacity, underfunding of the education system (exacerbated by the current recession), and disruptive militant insurgencies (World Bank, 2018a; WES, 2017a). In 2018, the World Bank advised that “completing the unfinished agenda of universal basic education is essential but being in school alone is not enough”. Quality education, essential to effective learning, requires investment in skilled and qualified teachers and up-to-date educational materials and methods (World Bank, 2018; Federal Republic of Nigeria, 2017).

At the tertiary level, learning institutions are overburdened, with two-thirds of qualified applicants in 2015 failing to secure places at Nigerian universities (WES, 2017a). Universities, technical colleges and colleges of education face similar constraints to those encountered in the basic

education system, most notably the rapid growth of the youth population. Limited access to education, in particular STEM education, means that the workforce lacks the necessary skills to develop the economy (Federal Republic of Nigeria, 2017). The Government's Economic Recovery and Growth Plan, 2017-2020 targets education with an objective to "increase the number of youth and adults with skills required to secure employment and/or become entrepreneurs" (Federal Republic of Nigeria, 2017).

### 5.5. Maritime Labour Market

The BIMCO report of 2015 indicates that Nigeria has a seafarer supply of 5760. No (dis)confirming figures were obtained from Nigeria in this study. Much of Nigeria's maritime labour demand and supply today is in the context of the country's offshore oil industry with many seafarers employed on offshore (oil platform supply) vessels. In 1959, before independence, a Nigerian National Shipping Line (NNSL) was established and for many years provided an employment outlet for Nigerian seafarers in foreign-going shipping. Initially, two UK shipping companies - the defunct Elder Dempster Line and Palm Line – together held a 49% share in NNSL, with the Nigerian government holding the remaining 51%. In 1962, the Nigerian government took over 100% ownership (Damachi & Zhaosheng, 2005). The NNSL stopped operations in 1995 with its assets/liabilities transferred to a new line – the National Unity Line (NUL). This second national line was fully owned by the erstwhile Nigerian Maritime Authority (NMA) and began shipping services in 1996 with one ship – the MV Abuja – as Nigeria's national carrier. The MV Abuja was sold in 2003. In 2005 the NUL, then with no vessels was put up for sale based on its possession of a shipping licence and the status of national carrier (Akinola, 2012). It does not appear that this sale was successful. The successor to the NMA, the Nigerian Maritime Administration and Safety Agency (NIMASA) has since tried to revive a national line.

Additionally, Nigeria LNG Company (NLNG) is a limited liability company with 49% shareholding by the Government of Nigeria. NLNG has a subsidiary – NLNG Ship Management Limited – which is involved in ship operations and crewing particularly for another subsidiary of NLNG, Bonny Gas Transport. 11 Liquefied Natural Gas (LNG) vessels are managed and operated by NLNG Ship Management for Bonny Gas Transport. These ships provide a Nigerian government-driven demand for maritime labour.

The number of seafarers reported by NIMASA for the purposes of this research as at 2016 is as indicated in Table 10.

Table 10: Number of seafarers in Nigeria (2016)

	Qualification	STCW	Number
DECK	Master >3000 GT NCV	Regulation II/2	14
	Master <3000 GT NCV	Regulation II/2	313
	Master <500 GT NCV	Regulation II/3	179
	Chief Mate >3000 GT NCV	Regulation II/2	28
	Chief Mate <3000 GT NCV	Regulation II/2	149
	Chief Mate <500 GT NCV	Regulation II/3	46
	OOW Deck Unlimited	Regulation II/1	260
	OOW <3000 GT NCV	Regulation II/1	398
	OOW <500 GT NCV	Regulation II/3	52
ENGINE	Chief Engineer >3000 KW NCV	Regulation III/2	139
	Chief Engineer <3000 KW NCV	Regulation III/3	28
	2 <sup>nd</sup> Engineer >3000 GT NCV	Regulation III/2	101
	2 <sup>nd</sup> Engineer <3000 GT NCV	Regulation III/3	445
	OOW Engineer Unlimited	Regulation III/1	658
	OOW <3000 GT NCV	Regulation III/1	530
SUPPORT	Ratings Forming Part of a Watch	Regulations II/4 & III/4	7114
	Able Seafarers	Regulations II/5 & III/5	18
LOCAL	River Master		1450
	Quarter Master		2400
	Efficient Deck Hand		124
	Marine Engineering Assistant		3370
	Motorman		115

Note. Source: NIMASA (personal communication).

The numbers indicated in Table 10 bring the total number of seafarers as recorded by NIMASA in 2016 to 17,931.

### 5.6. MET Administration and System Overview

The MET System in Nigeria is administered by the Nigerian Maritime Administration and Safety Agency (NIMASA) which was set up by the Nigerian Maritime Administration and Safety Agency Act of 2007. NIMASA is the successor to the former National Maritime Authority (NMA) and the Joint Maritime Labour Industrial Council (JoMaLIC) whose assets, liabilities, rights and obligations NIMASA took over when the Act came into effect. The Agency has the mandate to execute the National Shipping Policy, the Nigerian Maritime Labour Policy, the Cabotage Law, the Nigerian Merchant Shipping Act and other relevant legal instruments.

Under the NIMASA Act, the Agency is required to provide “not less than 25% of its revenue to the Maritime Fund” and “not less than 5% of its revenue for the Maritime Academy of Nigeria”. The “Maritime Fund” is established by the Act and monies in the fund are to be applied “only for the purposes of furthering the objectives and functions of the Agency” under the Act. These functions, among others, include those listed below that are related to maritime education and training:

- to pursue the development of shipping and regulate matters relating to merchant shipping and seafarers;
- to administer the registration and licensing of ships;
- to regulate and administer the certification of seafarers;
- to establish maritime training and safety standards;
- to provide direction on qualification, certification, employment and welfare of maritime labour;
- to develop and implement policies and programmes which will facilitate the growth of local capacity in ownership, manning and construction of ships and other maritime infrastructure;
- to enforce and administer the provisions of the Cabotage Act 2003;
- to establish the procedure for the implementation of conventions of the International Maritime Organisation and the International Maritime Labour Organisation (*sic*) and other international conventions to which the Federal Republic of Nigeria is a party on Maritime Safety and Security, Maritime Labour, Commercial Shipping and for the implementation of codes, resolutions and circulars arising therefrom;
- to establish and manage maritime institutions for the training of officers of the Agency;
- to register and maintain a register of every dock worker, seafarer, stevedoring company and seafarer employer, jetty, terminal operators and offshore platforms or terminals;
- to provide training, conduct examinations and regulate the certification of seafarers and the conditions of service of dock workers and seafarers;
- to that dock workers and seafarer employers comply with existing regulations and standards in relation to crewing, wages, safety, welfare and training of dock workers and seafarers at ports and on-board vessels.

The Nigerian government through NIMASA, has in expression of some of the above, initiated the Nigerian Seafarers Development Programme (NSDP) in 2009 and is driving the establishment of the Nigerian Maritime University as part of this programme. It is reported that in 2018 the National University Commission (NUC) approved the commencement of degree programmes in the university, including marine engineering and nautical science. The NSDP itself has seen a number of students sent outside Nigeria to train in the MET institutions in other countries including the UK, India, the Philippines and Egypt.

Nigeria’s Coastal and Inland Shipping (Cabotage) Act of 2003 is, in the language of the Act, intended to “restrict the use of foreign vessels in domestic coastal trade” and thus “to promote the

development of indigenous tonnage and to establish a cabotage vessel financing fund and for related matters”.

Currently, the Maritime Academy of Nigeria based in Oron (MAN Oron) is the primary (and highest level) seafarer training institution in Nigeria; the only one training to the level of Officer of the Watch (navigation and engineering under Regulation II/1 and III/1 respectively). The Maritime Academy trains to Master and Chief Engineer level only for Near Coastal Voyages (NCV). All other institutions train at the IMO Proficiency (Short) Course level with other courses for non-convention vessels. As has been indicated there is a new Nigeria Maritime University but it is yet to make an impact on the maritime education and training landscape. Table 11 indicates the institutions approved by NIMASA at the time of completion of this report.

Table 11: NIMASA approved MET institutions and educational offerings

	<b>Institution</b>	<b>Programme</b>	<b>Level</b>	<b>Status</b>
1	Maritime Academy of Nigeria (MAN Oron)	Nautical Sciences	Higher National Diploma	Full approval/certification
			National Diploma	
		Marine Engineering	Higher National Diploma	
			National Diploma	
		Boat & Ship Building Technology	National Diploma	
		Marine Electrical/ Electronics	National Diploma	
		Nautical Science	Associate course (1-year bridging course)	
		Marine Engineering	Associate (1-year bridging course)	
		IMO Short Courses	Certificates of Proficiency under STCW (Chapter IV, V, VI)	
		Ratings Forming Part of a Navigational Watch	Certificate of Proficiency under STCW (Reg. II/4)	
		Able Seafarer Deck	Certificate of Proficiency under STCW (Reg. II/5)	
		River Master	Non-Convention Vessel Course (Local)	
		Quarter Master		
	Marine Engineer Assistant			
	Coxswain			
2	Federal College of Fisheries and Marine Technology	Nautical Sciences	National Diploma	Provisional approval
		Marine Engineering	National Diploma	
		Coxswain	Non-Convention Vessel Course (Local)	
		Marine Engineering Assistant		
3	Charkin Maritime Safety Centre	IMO Short Courses	Certificates of Proficiency under STCW (Chapter IV, V, VI)	Full approval/certification
		Power Driven Small Craft	Non-Convention Vessel Course	

		Coxswain		
		Efficient Deck Hand (EDH)	-	
		Able Seafarer Deck	Certificate of Proficiency under STCW (Reg. II/5)	
4	Elkins Marine International	IMO Short Courses	Certificates of Proficiency under STCW (Chapter IV, V, VI)	Full approval/certification
5	Joe Marine Institute of Nautical Studies	IMO Short Courses	Certificates of Proficiency under STCW (Chapter IV, V, VI)	Full approval/certification with provisional elements for new courses
		Ratings Forming Part of a Navigational Watch	Certificate of Proficiency under STCW (Reg. II/4)	
		River Master	Non-Convention Vessel Course (Local)	
		Quarter Master		
		Marine Engineer Assistant		
		Coxswain		
		Power Driven Small Craft		
		Efficient Deck Hand (EDH)		
		Ships Cook Training		
	Steward/Messman Training			
6	Coastal Maritime Academy	Ratings Forming Part of a Navigational Watch	Certificate of Proficiency under STCW (Reg. II/4)	Provisional approval
		Able Seafarer Deck	Certificate of Proficiency under STCW (Reg. II/5)	
		IMO Short Courses	Certificates of Proficiency under STCW (Chapter IV, V, VI)	
		Marine Engineer Assistant	Non-Convention Vessel Course (Local)	
		Marine Catering		
7	Tolmann Allied Services Co. Ltd.	IMO Short Courses	Certificates of Proficiency under STCW (Chapter VI)	Provisional approval
8	Matral Maritime Training Center	Ratings Forming Part of a Navigational Watch	Certificate of Proficiency under STCW (Reg. II/4)	Provisional approval

		IMO Short Courses	Certificates of Proficiency under STCW (Chapter V, VI)	
9	Izisco Obosco Institute of Marine Studies and Technology	IMO Short Courses	Certificates of Proficiency under STCW (Chapter VI)	Provisional approval
10	Falck Prime Atlantic	IMO Short Courses	Certificates of Proficiency under STCW (Chapter VI)	Provisional approval
11	PEM Offshore Simulation and Innovative Centre (POSAIC)	Ancillary Courses	Certificate (DP, ASD Tractor, ECDIS)	Provisional approval
12	Hudson Trident Training Centre	Ancillary Courses	Certificate (OSV Manoeuvring, ISM, DP)	Provisional approval
13	Conarina School of Maritime Transport Technology & Management Studies.	IMO Short Courses	Certificates of Proficiency under STCW (Chapter VI)	Provisional approval
14	Kaygrill Services Limited	IMO Short Courses	Certificates of Proficiency under STCW (Chapter VI)	Provisional approval
15	DAC Maritime Training Institute	IMO Short Courses	Certificates of Proficiency under STCW (Chapter VI)	Provisional approval
16	Generic College Limited Federal University of Petroleum Resources	IMO Short Courses	Certificates of Proficiency under STCW (Chapter VI)	Provisional approval

Note: Source: NIMASA.

With respect to the legislative framework for maritime education and training, the primary legal instrument is the Nigeria Merchant Shipping Act of 2007 and the Merchant Shipping (Training and Certification of Seafarers) Regulations (2001). The schedules of the latter cover the requirements of the STCW Convention 1978, as amended. A number of NIMASA procedures exist to administer the MET System within this legal framework.

While Nigeria is on the IMO so-called White List, international recognition of its maritime education and training system is not in tandem with its population, maritime dependence or geopolitical presence. It has minimal representation in international fora for maritime education and training and, for its size and maritime history, little contribution to the global supply of maritime labour.

Nigeria has no vessel dedicated to training cadets. During the period of existence of the NNSL cadets were offered training berths on the company's vessels. Currently, NLNG Ship Management Limited conducts selection tests for MAN Oron and other cadets. Successful cadets are sponsored by the NLNG for their sea training and are eventually employed. Furthermore, under the Coastal and Inland shipping (Cabotage) Act of 2003, it is mandatory for ships registered as participants in the cabotage regime to accept cadets for training.

### 5.7. Challenges to MET

The greatest challenge that appears to confront Nigeria is the inconsistency of policies over the years and the lack of sustainability in policy direction even when it is acknowledged that there are relevant laws that empower specific agencies to build the necessary capacity. As the Minister of Transport is reported to have indicated (Safety4Sea, 2019), institutions in Ghana and Egypt started at about the same time as the Maritime Academy of Nigeria, Oron, but these other institutions have seen substantial growth and international acknowledgement, while Nigeria has seen little improvement.

Despite the perception that funding is not a primary problem, government bureaucracy and stakeholder interests and lobbying, interfere with the country's ability to reach the necessary levels of policy prioritisation, formulation and implementation that can be owned and upheld by all stakeholders.

Nigeria is also affected by the global problem of a lack of training berths for cadets in order to proceed to acquiring the first Certificate of Competence. The NSDP has produced a significant number of trainees for whom berths have not been found, leading to significant frustration on the part of the trainees and a growth in unemployment.

## CHAPTER 6. SOUTH AFRICA

The Republic of South Africa occupies the southernmost tip of the African continent. The country's 2,798 km coastline extends from its border with Namibia on the Atlantic side to Mozambique on the Indian Ocean. To the North, South Africa borders Namibia (1005 km), Botswana (1969 km), Zimbabwe (230 km), Mozambique (496 km) and Eswatini (438 km). It also encompasses Lesotho, with a 1106 km internal border. It has a population of about 58 million living in a total area of 1,219,090 km<sup>2</sup>, of which 1,214,470 is land and 4,620 is water. South Africa has three capital cities. Pretoria is the administrative capital, Cape Town the legislative capital and Bloemfontein the judicial capital. Durban, on the east coast, is the country's third largest city and home to sub-Saharan Africa's largest and busiest port.

### 6.1. History and Geopolitics

South Africa's history stretches back over 100,000 years when tribes of hunters and gatherers, known as the Khoisan, inhabited the southern tip of the continent. In the early Iron Age, they were joined by a migration of Bantu people from West Africa, and the Limpopo Valley was settled by the Mapungubwe, who traded with Arabia, China and India.

The first European contact with South Africa took place in 1652 when a sailing party from the Netherlands landed at the Cape of Good Hope, looking to establish a base to supply ships along the Dutch East India Company's trade route between Europe and Asia. In the 200 years that followed, Dutch, British and French settlers fought to control the Cape Colony, with resistance from the Khoisan, whose numbers had been largely decimated by European introduced diseases. The British prevailed over the Dutch in 1806, and officially took control in 1815 when the Congress of Vienna recognized British sovereignty over the nation. The Dutch, meanwhile, moved north to occupy the Transvaal (South African Republic) and the Orange Free State. This period coincided with the expansion of the Zulu Kingdom over a significant area of southeast Africa.

Significant mineral discoveries in the late 19th century had a major impact on South Africa's infrastructure development and trade economy and led to annexation of further territories by the British. After defeating the Zulus in the Anglo-Zulu War of 1879 and the Dutch in the second of two Anglo-Boer wars, Britain established the Union of South Africa in 1910 as a self-governing dominion of the British Empire. It comprised the territories of the Cape and Natal colonies, the Transvaal and the Orange Free State. Under the Union, black South Africans were geographically segregated and increasingly deprived of rights of citizenship, including voting and land ownership rights.

In 1948, the newly elected National(ist) Party (NP) extended and legalized the existing system of apartheid (separateness). Against a background of growing resistance, increasingly repressive policies by successive NP governments targeted virtually every sphere of life, including education, housing and healthcare, reinforcing the marginalization of non-white South Africans. To quote Thompson (2000, p. 188),

The National party used its control of the government to fulfill Afrikaner ethnic goals as well as white racial goals. It achieved a major ethnic objective in 1961 when, after

obtaining a narrow majority in a referendum of the white electorate, the government transformed South Africa into a republic, thereby completing the process of disengagement from Great Britain. The government had intended to follow the precedent whereby India remained a member of the British Commonwealth when it became a republic. At a conference of Commonwealth countries, however, the African members, supported by Canada as well as India, sharply criticized apartheid, and South Africa then withdrew from that loose association.

Decades of widespread and intensifying resistance movements ensued, led by liberation organizations such as the African National Congress (ANC). In 1964, Nelson Mandela and other ANC and PAC (Pan-Africanist Congress) leaders were sentenced to life imprisonment. The resisting organizations were initially met with intensified repression and militarization by the government. Eventually, with the support of the international community and after a long negotiation process, apartheid was brought to an end and South Africa's first fully democratic elections were held 1994. A new South African Constitution, with a robust and comprehensive bill of rights, was developed through significant public engagement and input and adopted in 1996. Since the end of apartheid, strong focus has been placed on rebuilding the nation to provide for the basic needs of the whole population through development programmes aimed at redressing inequality, reducing poverty and rebuilding the economy, while simultaneously building political and economic links with other countries in the region and globally. Evidence of success occurred in 2010 when South Africa joined Brazil, Russia, India and China in BRICS, a group of emerging economies widely acknowledged to be influential in their respective regions. South Africa is also a member of the African Union, the African Caribbean and Pacific Group of States, the World Trade Organization and the G20 among other international organizations.

## 6.2. Governance

South Africa is a parliamentary republic with a three-tier system, governed under the Constitution of 1996 (as amended). The President, who serves a maximum of two five-year terms, is the Head of State, Head of Government and Commander-in-Chief of the South African National Defence Forces. The executive branch consists of the president, deputy president, and presidentially appointed cabinet ministers. The legislative branch is a bicameral parliament made up of the National Assembly and National Council of Provinces. The National Assembly, which has 350 to 400 members, elected by proportional representation, elects the president and passes legislation. The National Council consists of 10 appointed members from each of 9 provincial legislatures and serves to represent and protect provincial interests, including language, culture and ethnic minorities. The legal system of South Africa is based on a combination of English common law and Roman-Dutch law. The independent judiciary is subject only to the 1996 Constitution, which provides for the Constitutional Court and Supreme Court of Appeal and High Courts along with the subordinate lower, military and specialist courts.

Under Constitutional mandate, each of the nine South African provinces has its own government, including a 30 to 80 member elected legislature and an executive council headed by a presidentially

appointed premier. Provincial governments have control (concurrent with national powers) over several spheres, including agriculture, environment, health services and education. At the third tier of government are metropolitan (8), district (44) and local (226) municipalities, each of which is governed by a municipal council.

### 6.3. Economy

South Africa is the continent's second largest economy, after Nigeria. Its GDP is driven by the services sector (65%), to which finance is a major contributor (World Bank, 2017e). South Africa's stock exchange is the largest in Africa and among the top 20 in the world. Mining is another important contributor to GDP, accounting for 8% in 2017. The country is abundant in mineral resources, including gold, chrome and manganese, and is the world's largest producer and exporter of platinum. The tourism sector contributes about 3% to GDP and provides employment for 1.5 million South Africans (World Bank, 2018f). Top exports for South Africa are gems and precious metals (17.5%), ores, slag and ash (14.5%) and vehicles (12.7%) and its principle trading partners are China, Germany, US and UK (Workman, 2020).

Key economic challenges facing South Africa are slow economic growth, high unemployment, poverty and inequality. After falling steadily from 3.3% in 2011 to 0.6% in 2016, GDP growth reached 2.2% in 2018. Unemployment remains high, particularly for the youth population. General unemployment increased from 24.8% in 2011 to 27.5% in 2017 (IMF, 2018), while youth unemployment reached 54.7% in 2019 (Trading Economics, 2019). Unemployment and education (access and quality) are considered the most significant factors contributing to the country's poverty rate (World Bank, 2018e), which, while declining, is high compared to similarly ranked upper-middle income economies. In 2015, the poverty rate at the US\$1.90 per day index was 18.8%, down from 33.8% in 1996. Exclusion from economic participation and inequitable income distribution are seen to be persistent challenges contributing to poverty for many South Africans. A 2015 Living Conditions Survey (World Bank, 2018e) measuring degree of financial inequality ranked South Africa the most unequal country in the world, with the income share of the top quintile 40 times higher than that of the lowest. Poverty rates are highest among black South Africans, women, people in rural areas and those with low or no education. Key constraints to tackling poverty, unemployment and inequality include skills shortages, access to quality education, high levels of crime and corruption, and inadequate infrastructure (National Planning Commission, n.d.).

Since the launch of the 1993 Reconstruction and Development Program, various policies and initiatives have been introduced with the aim of reducing poverty and inequality. Post-apartheid spending on social wage, including health, education and housing, child support grants and social assistance has grown progressively (National Treasury, 2013), reaching close to 60% in 2018 (World Bank, 2018e). Social assistance alone has provided a safety net for close to 17 million South Africans and reduced the poverty gap by 29.5% in 2015 (World Bank, 2018e). As a result, notable progress has been made in reducing multidimensional poverty by increasing access to electricity, clean water and adequate sanitation. Between 2006 and 2015, nearly 2.3 million South

Africans escaped from poverty, and most indices on the Human Opportunity Index have improved (World Bank, 2018f). The National Development Plan 2030 continues the effort with a goal of “eradicating poverty, reducing inequality, growing the economy by an average of 5.4 percent, and cutting the unemployment rate to 6 percent by 2030” (National Planning Commission, n.d.). In 2018, the government announced an economic and stimulus recovery plan aimed at creating jobs, stimulating investment and growing the economy. In November of the same year, the Minimum Wage Act was signed into law with the objective of reducing wage inequality (Global Legal Monitor, 2018).

#### 6.4. Education System (overall)

Education in South Africa is governed under Section 29 of the Constitution, which states that “Everyone has a right to a basic education, including adult basic education, which the state, through reasonable measures, must make progressively accessible and available.” The Department of Basic Education is responsible for elementary and secondary education, while post-secondary education, including technical training, is overseen by the Department of Higher Education and Training. Education is compulsory up to Grade 9 (lower secondary school). The National Qualifications Framework (NQF) Authority is tasked, under the National Qualifications Framework Act No. 67 of 2008, with creating “a single integrated national framework for learning achievements”. The NQF provides level descriptors for 10 levels of learning achievement. Level one corresponds with the first phase of primary education (up to grade 3) and level 10 corresponds with a Doctorate degree. The structure of the South African education system along with associated NQF levels is shown in Table 12.

Table 12: *South African education system*

Tertiary	University (PhD) (L10)	
	University (Master) (L9)	
	University (Bachelor Honours) (L8)	National Diploma (L6)
	University (Bachelor) (L7) (3 – 4 years)	National Higher Certificate (L5)
		National Certificate
Secondary (Further Education and Training)	Senior Secondary Education (L4) (3 years)	Secondary Technical and Vocational Education (L4)
Secondary (Senior Phase)	Lower Secondary (L3) (3 Years)	
Primary	Primary Education (L1) (L2) (6 Years)	

*Note.* Blue indicates general education while green denotes TVET. Adapted from “World TVET Database: South Africa” by UNESCO-UNEVOC, 2014, and “Education in South Africa” by WES, 2017.

The government of South Africa has, since 1994, invested close to 20% of its annual budget in education, which has resulted in improved enrolment and completion rates, especially among black youth, enhanced infrastructure, and wider access to financial assistance. In the tertiary sector, nine South African universities feature in the QS World University Rankings, 2019. However, key shortcomings persist at all levels of the education system. On the Global Competitiveness Index, South Africa ranked 116<sup>th</sup> of 137 countries for quality of primary education and 114<sup>th</sup> for quality of higher education and training (WEF, 2018). Outcomes for students after six years of basic education are low compared to other African countries such as Tanzania and Zimbabwe, and the gap in test scores between schools in the top quintile and all other schools is one of the widest in the world. Disparities in educational attainment, resources and infrastructure persist along rural and urban as well as racial divides (WES, 2017b). Moreover, overly ambitious attempts at curricular reform have largely failed to acknowledge these disparities or overcome persistent structural challenges such as high teacher-student ratios and poorly trained/qualified teachers (UNICEF, 2018). Similar inequalities can be found in the tertiary sector, where participation, although increasing, is still too low to produce the skilled workforce required to build capacity, achieve

economic growth and reduce inequality. In 2014, over 3 million young South Africans were not engaged in education or in the workforce (Field, Musset & Alvarez-Galvan, 2014).

South Africa's National Development Plan 2030 sets quantitative goals for all levels of education. The Plan is aligned with the Department of Education's Action Plan to 2019 and Vision for Schooling 2025, and draws on the Ministry of Higher Education's policy framework as set out in the Green (2012) and White (2013) Papers for Post-School Education and Training. Key goals at the primary level include increasing the grade 12 completion rate to 80-90%; improving literacy, numeracy and math and science outcomes so that 90% of grade 3, 6 and 9 students master minimum competencies; ensuring that all schools have minimum infrastructure needs met and increase access to high speed broadband to extend the use of technology in education. At the post-school level, goals include increasing the university participation rate by a minimum of 70% by 2030, with a focus on producing graduates in STEM fields. Additionally, goals for the TVET sector include expanding capacity; building partnerships with industry to better match labour market needs; strengthening professional development for teachers and achieving 2.5 million enrolments by 2030 (National Planning Commission, n.d.).

### 6.5. Maritime Labour Market

South Africa's maritime labour market has experienced fluctuations under several global and domestic influences. The country enjoyed a flourishing maritime industry for 50 years, beginning in 1946 when SafMarine was founded, establishing the national fleet and opening up the maritime labour market for seafarers. At the height of the market, around 6,000 South African seafarers were employed, largely by Safmarine (Ruggunan, 2016). Numbers began to decline in the 1970's in line with the global restructuring of the labour market for seafarers. South African seafarers began to be replaced by less expensive, mainly south-east Asian crew (Ruggunan, 2016). In 1999, the South African flagged Safmarine fleet was sold to AP Moller/Maersk, effectively decimating the country's national commercial fleet and leading to a decline in the domestic labour market for seafarers as well as a reduction in sea-training opportunities for South African cadets. According to the latest manning reports (BIMCO, 2015), the number of South African seafarers employed in the global merchant shipping industry is 3030, representing 0.18% of the global supply. The number represents both officers (1986) and ratings (1044).

The absence of a national merchant fleet and very few locally registered ships impacts both the demand for and supply of qualified seafarers. However, labour market opportunities exist in local maritime sectors, including coastal shipping, fishing, port operations and marine tourism. In particular, the fishing sector continues to create demand and has the infrastructure needed to ensure a steady supply of qualified workers, given the relative ease of placing trainees on fishing vessels compared to merchant ships. In addition, increasing employment opportunities are arising in the superyacht and offshore sectors.

In the last 5 years, after the relaxation of taxation on international shipping and shipping-derived income along with a push from Operation Phakisa, an upturn in South African registered ships has occurred, with currently five ships registered under the South African flag. Operation Phakisa is a

South African Government initiative to address, through a fast-track approach, several issues highlighted by the National Development Plan 2030, including poverty, unemployment and inequality. With specific regards to maritime labour supply, Operation Phakisa aims to develop the national capacity to enable skills acquisition for about 1200 ratings and 720 officers per year (Operation Phakisa, n.d.).

### 6.6. MET Administration and System Overview

Maritime education and training in South Africa can trace its roots back to 1920, when Captain T.B. Davis donated a ship to the South African Government to be used as a training vessel. The vessel was moored in Simon's Town Bay and named South African Training Ship (SATS) General Botha. The first intake of 75 cadets, known as Bothie Boys, trained for two years onboard and graduated with a Junior or Senior Certificate of Education and one year toward the four years of sea time needed to sit for a Certificate of Competency (CoC). When the ship was decommissioned in 1948, the training establishment moved to Gordon's Bay under the name South African Nautical College (SANC) General Botha and fell under government control. In 1963, it moved again to Granger Bay near Cape Town where it became the South African Merchant Navy Academy (SAMNA) General Botha and CoC training was added to the curriculum. In the political context of the time, training at the General Botha academies was limited to white officers, cadets and fishermen. Ratings training was established in 1963 for so-called "coloured" seafarers at the Training Centre for Seamen (TCS) in Cape Town by the then "Department of Coloured Affairs". In 1990, SAMNA merged with Cape Technikon, which merged with Peninsula Technikon in 2005 to become the Cape Peninsula University of Technology (CPUT).

Today, maritime education and training is delivered by a number of educational entities and - as far as meeting South Africa's obligations under the STCW Convention 1978, as amended, is concerned - under the overall supervision of the South African Maritime Safety Authority (SAMSA). SAMSA is a governmental agency that reports to the Department of Transport. It was set up by the South African Maritime Safety Authority Act of 1998 with its primary objectives being "to ensure safety of life and property at sea, to prevent and combat pollution of the marine environment by ships, and to promote the Republic's maritime interests". The Merchant Shipping Act (No. 57) of 1951, as amended, is the primary instrument regulating the training and certification of seafarers. The administration of this Act is the responsibility of SAMSA, subject to the amendments indicated in the Schedule of the SAMSA Act. The Merchant Shipping Act addresses the relevant matters under several of IMO instruments including the requirements of the STCW Convention, 1978, as amended. The Act is supported by a number of subordinate legislative instruments – regulations – the most important of which (for the purposes of this report) is the Merchant Shipping (Safe Manning, Training and Certification) Regulations of 2013, as amended in 2015. The International Convention on STCW is the most important convention in the maritime education and training context. The South African Maritime Safety Authority (SAMSA) is required by the Merchant Shipping (Safe Manning, Training and Certification) Regulations, 2013, as amended to publish the South African Maritime Qualifications Code (SAMSA Code), which

gives effect to the provisions of the STCW Convention and Code . The SAMSA Code is currently undergoing a major review by SAMSA’s Syllabus Committee as necessitated by the 2010 amendments to STCW and 2013 Merchant Shipping Regulations.

As regards its activities pertaining to training and competency of seafarers, SAMSA’s Centre for Seafarers oversees the entire value chain of seafarer training, assessment and certification as well as the verification of certificates. SAMSA is also responsible for audits and accreditation of maritime education and training institutions, including their respective programmes, curricula and lecturers in accordance with the Merchant Shipping (Safe Manning, Training and Certification) Regulations, 2013, as amended and with Regulation I/6 and Section A-I/6 of the STCW Convention and Code.

The South African International Maritime Institute (SAIMI) is a body responsible for, among other things, managing South Africa’s National Cadet Programme (NCP), which it inherited from SAMSA. SAIMI was established in 2014 through a partnership between SAMSA and Nelson Mandela University (its hosting institution) along with key stakeholders in the government and maritime industry to play an active advocacy role in the promotion of South Africa’s maritime education and training sector. The organization’s objectives include to co-ordinate, promote and support the education, skills and research needs of the maritime sector; increase the quality of teaching, learning and research in the maritime sector; support professional development in the maritime sector; facilitate international and African continental co-operation and broaden the range of education options to meet industry needs (SAIMI, n.d.). The Institute is positioned to play a key role in securing the sea-time training required by cadets to complete their qualifications, addressing one of the main challenges of seafarer training in South Africa and to support education and research through collaborative actions by all relevant stakeholders.

Another public entity associated with maritime education and training in South Africa is the Transport Education Training Authority (TETA), under the Department of Higher Education and Training (DHET). TETA is the education and training authority for South Africa’s transport sector. TETA’s mission is to provide a quality assurance and skills development framework for the transport sector, including the maritime sub-sector, through the development and implementation of a Sector Skills Plan (SSP), approval of learnerships and workplace skills plans, allocation and disbursement of levy grants, and monitoring and quality assurance of Education, Training and Development (ETD) activities and the accreditation of MET institutions and programmes in line with the National Qualifications Framework (NQF). TETA’s maritime chamber works closely with SAMSA, SAIMI, the Department of Transport (DOT) and Transnet (a State-Owned Company in the freight and logistics sector with ownership of and responsibility for national ports and terminals, rail and pipeline systems in South Africa).

With respect to the delivery of curriculum for seafarer education and training in South Africa, there are three categories of institutions:

1. Basic maritime-focused subjects offered at high school level in a select number of schools;

2. Maritime training institutions, often private companies which offer STCW short courses. A couple of institutions offer education and training for pre-sea cadets toward their first certificates of competency (specific STCW focus).
3. Maritime higher education institutions, which include universities offering National diploma, undergraduate and postgraduate programmes, and TVET (formerly FET) colleges;

### Maritime Basic Education

Maritime focus high schools provide maritime subjects to students in grades 10 to 12 as an add-on to the core curriculum according to the National Curriculum Assessment Policy Statement (CAPS). The main aim is to get young people, particularly those who would not otherwise have exposure to the industry, interested in maritime subjects and prepare them for careers at sea. At the same time, the South African maritime economy is provided with a steady flow of potential recruits to meet future demand and sustain the sector. A well-established example of a maritime focus school is Lawhill Maritime Centre, which is the Maritime Department of Simon's Town High School. Lawhill was launched in 1995 with funding from Safmarine and is accredited through South Africa's National Qualifications Framework (NQF). The school provides three maritime focused subjects to its grade 10-12 students: Maritime Economics, Nautical Science and Marine Science.

Recently, spurred by Operation Phakisa's Oceans Economy Initiative, several other national high schools have been designated as maritime focus schools, with even more in the pipeline. The establishment of these schools has been widely supported by provincial education departments (SAIMI, 2020).

### Maritime Training Academies

Maritime training academies include private colleges and companies offering primarily short IMO proficiency courses as required by the STCW Convention.

Two institutions are accredited by SAMSAs to provide STCW training for Able Seafarer Deck qualification. They also offer some form of pre-sea education and training towards certification as officers of the watch per STCW requirements:

1. South African Maritime Training Academy (SAMTRA) in Cape Town
2. Sea Safety Training Group (SSTG) with campuses in Cape Town, Mossel Bay, Port Elizabeth and Saldanha Bay.

Four institutions are accredited to provide STCW training for Able Seafarer Engine qualification:

1. South African Maritime Training Academy (SAMTRA)
2. Sea Safety Training Group (SSTG)
3. Shipping & Transport College (STC)
4. Grindrod Shipping Training Academy

### Maritime Higher Education

Maritime higher education in South Africa is represented by Universities and TVET institutions. Currently, three universities offer MET at the higher education level.

Cape Peninsula University of Technology (CPUT) holds dual accreditation through SAMSA and the National Qualifications Framework (NQF). The university is in the process of phasing out its National Diploma in Maritime Studies to be replaced by three-year bachelor's degree programmes (from 2020) in Nautical Science and Marine Engineering. The National Diploma in Maritime Studies (leading to SAMSA Certificate of Competency) will be phased out over five years. CPUT also offers STCW short courses through its Survival Centre.

Durban University of Technology (DUT) offers 3-year (6 semester) Diplomas in Nautical Studies (Navigation) and Shipping and Logistics. It also offers a 2-semester Advanced Diploma in Nautical Studies for sea-going personnel who wish to transition to shore-based jobs and Advanced Diploma in Shipping and Logistics offered to diploma graduates in maritime studies and shipping and logistics who wish to advance their qualification and attain higher management positions in the shipping and logistics industry. DUT has also implemented a new Advanced Diploma in Marine Engineering (NQF Level 7) and Postgraduate Diploma in International Shipping (NQF Level 8) in 2020. The minimum admission requirement for the Advanced Diploma in Mechanical Engineering is a Diploma in Mechanical Engineering or a recognized equivalent and for the Postgraduate Diploma in International Shipping a Diploma in Nautical Studies, Maritime Studies and Shipping and Logistics. Like CPUT, DUT discontinued its National Diploma in Maritime Studies, with the last intake in 2015. DUT also offers STCW short courses in ECDIS and ENS at the operational and management levels and Maritime Communications.

Both CPUT's degree programme and DUT's diploma programme represent the academic component of the operational and management level CoCs. Candidates are, themselves, responsible for arranging the required sea-time training, usually through SAIMI.

Nelson Mandela University (NMU) offers a 3-year Bachelor of Technology in Marine Engineering (B. Eng Tech) for which it holds accreditation with SAMSA, the Engineering Council of South Africa (ECSA) and the NQF. This degree is designed to meet the STCW academic requirements for CoC up to Chief Engineer (unlimited). It is intended to lay a foundation for the design, modification and maintenance to support ship design, construction and operations. A further 4<sup>th</sup> year engineering honours (currently submitted for NQF approval) develops the qualification towards the Naval Architecture and Marine Engineer design sector. This is to support the South African Maritime industry with design and modification, which is currently primarily sourced outside of South Africa. The University also offers STCW short courses at the STC-SA Training Centre in Port Elizabeth.

Technical and Vocational Education and Training (TVET) colleges also fall under maritime higher education. Currently, maritime foundation subjects are only offered by Umfolozi TVET College in Richards Bay which launched its Maritime Academy in August of 2019, enrolling 68 learners into a pilot programme that will eventually qualify them to enter cadet programmes. College of Cape Town offers only practical workshop training (required for engineering cadets).

All courses that lead to STCW relevant qualifications and certification are supposed to meet the approval of SAMSA. Maritime higher education institutions and programmes are also accredited under the National Qualifications Framework (NQF) by the South African Qualifications Authority (SAQA).

Table 13 shows a list of the institutions approved by SAMSA to deliver programmes for seafarer training.

Table 13: *South Africa accredited institutions list*

Name of Institution	Course Accredited
African Marine Solutions	Accelerated Training - Officer in Charge of Engineering Watch
	Accelerated Training - Officer in Charge of Navigational Watch
Anchors Away Sea School	Coastal Skipper < 9 metres
	Day Skipper Cat B < 9 metres
	Day Skipper Cat C < 9 metres
	Day Skippers Cat E <9 metres
	Day Skippers Local Waters (Restricted) < 9 metres
	Skipper Inland Waters
	Skipper Inland Waters (Restricted)
Autshumato Maritime Centre (Pty) Ltd	Radio Operator - Short Range Certificate
Blue Horizon Marine Academy	Small Vessels < 9 metres - Day Skipper Cat B
	Small Vessels < 9 metres - Day Skipper Cat C
	Small Vessels < 9 metres - Day Skipper Cat E
	Small Vessels < 9 metres - Day Skipper Cat R
C-Doc Academy of Diving and Offshore Medicine cc	Familiarisation - Small Vessels
Cape Town Hospitality School	Efficient Cook
College of Cape Town	Practical Workshop Training
CPUT - Survival Centre	Proficiency in Fast Rescue Boats
	Safety Familiarisation
	Survival craft and rescue boats other than fast rescue boats - Refresher
Data Matrix Education and Training	Medical First Aid - Refresher
Dawson's Skipper Training	Radio Operator - Short Range Certificate

De Beers Technical Training Campus	Workshop Skills Training - excluding Refrigeration Module 1
Durnacol Skills Innovations Hub	Engineering Workshop training skills
Grindrod Shipping Training Academy	Able Seafarer Deck
	Accelerated Training - Officer in Charge of Engineering Watch
	Accelerated Training for Able Seafarer Engine
	Accelerated Training for Deck Ratings
	Accelerated Training for Officers in Charge of a Navigational Watch
	Basic Training for Oil and Chemical Tanker
	Designated Security Duties
	Elementary First Aid
	Fire Prevention and Fire Fighting
	GMDSS General Operator's Certificate
	GMDSS General Operator's Certificate - Refresher
	Medical Care
	Medical First Aid
	Security Awareness Training
Head to Head Boating Services	Familiarisation - Small Vessels (commercial)
HTJ Training (PTY) LTD	Radio Operator - Short Range Certificate
Irvin & Johnson (Trawling Division)	Safety Familiarisation
ISPS Africa CC	Crowd Management & Passenger Safety
	Designated Security Duties
Leading Light Academy	Day Skipper - Category R to B <9m and Surf Launching
Limadi Industrial Projects	Familiarisation - (pre-sea safety induction for small vessels)
	Medical First Aid (Including Elementary First Aid)
	Safety Familiarisation
	Safety Officer - Fishing
Limpopo Training Facility	Radio Operator - Short Range Certificate
Mandrie Maritime Service	Coastal Skipper <9m
	Day Skipper - Category B <9m
	Day Skipper - Category B ≥9m

	Day Skipper - Category C <9m
	Day Skipper - Category E < 9M
	Short Range Certificate
	Skipper Inland Waters
Marine Crew Services - Atlantic Lloyd Ship Management, GMBH & Co, Hamburg	Accelerated Training - Officer in Charge of Engineering Watch
	Accelerated Training - Officer in Charge of Navigational Watch
	Accelerated Training for Deck Ratings
	Accelerated Training for Engine Ratings
Marine Crew Services - Bourbon Offshore Ltd	Accelerated Training - Officer in Charge of Engineering Watch
	Accelerated Training - Officer in Charge of Navigational Watch
Marine Crew Services - Bourbon Offshore Sas	Accelerated Training for Deck Ratings
	Accelerated Training for Engine Ratings
Marine Crew Services - Greatship Global Offshore Services Pte Ltd	Accelerated Training - Officer in Charge of Engineering Watch
	Accelerated Training - Officer in Charge of Navigational Watch
	Accelerated Training for Deck Ratings
	Accelerated Training for Engine Ratings
Marine Crew Services - Hellespont Ship Management Gmbh & Co	Accelerated Training - Officer in Charge of Engineering Watch
	Accelerated Training - Officer in Charge of Navigational Watch
	Accelerated Training for Deck Ratings
	Accelerated Training for Engine Ratings
Marine Crew Services - Herm. Dauelsberg	Accelerated Training - Officer in Charge of Engineering Watch
	Accelerated Training - Officer in Charge of Navigational Watch
	Accelerated Training for Deck Ratings
	Accelerated Training for Engine Ratings
Marine Crew Services - Mediterranean Shipping Company (MSC)	Accelerated Training - Officer in Charge of Engineering Watch
	Accelerated Training - Officer in Charge of Navigational Watch

	Accelerated Training for Deck Ratings
	Accelerated Training for Engine Ratings
Marine Crew Services - RK offshore Ship Management Pte Ltd	Accelerated Training - Officer in Charge of Engineering Watch
	Accelerated Training - Officer in Charge of Navigational Watch
	Accelerated Training for Deck Ratings
	Accelerated Training for Engine Ratings
Maritime Digital Communication	Coastal Skipper
	Day Skipper - Category B <9m
	Day Skipper - Category C <9m
	Day Skipper - Category E <9m
	Day Skipper - Local Waters (Restricted) <9m
	Skipper Inland Waters
	Skipper Inland Waters (Restricted)
Maritime Emergency Care Training Satellite	Medical Care
Maritime Safety Training and Development	Designated Security Duties
	Elementary First Aid
	Medical First Aid
	Personal Safety and Social Responsibility
	Personal Survival Techniques
	Safety Familiarisation
	Security Awareness Training
	Ship Security Officer
Marsec Training Specialists	Crisis Management & Human Behaviour Training
	Crowd Management & Passenger Safety
	Designated Security Duties
	Ship Security Officer
Mechano Tech Training CC	Engineering Workshop training- Diesel Module 1
National Sea Rescue Institute Training Centre	Electronic Navigation System (Non STCW) for in house Training of NSRI Staff

Nautic Maritime Training Academy	Coastal Skipper
	Day Skipper - Category B <9m
	Day Skipper - Category C <9m
	Day Skipper - Category E <9m
	Day Skipper - Local Waters (Restricted) <9m
	Skipper Inland Waters
	Skipper Inland Waters (Restricted)
Nelson Mandela Metropolitan University & GiaMet	High Voltage Training
Nov Oil & Gas Services SA (PTY) LTD	Safety Familiarisation
Ocean Sailing Academy - Cape Town	Radio Operator - Short Range Certificate
Ocean Star Sailing Academy	Radio Operator - Short Range Certificate
OralPreps	High Voltage Training
Pezula Cruises Skippers and Maritime Training	Radio Operator - Short Range Certificate
Portship Maritime Training Solutions	Advanced Fire Fighting
	Fire Prevention and Fire Fighting
Power Systems Training	High Voltage Training
Professional Emergency Care	Elementary First Aid
	Medical Care
	Medical Care - Refresher
	Medical First Aid
Project Maritime Training	Advanced Fire Fighting - Refresher (including Fire Prevention and Fire Fighting - Refresher)
	Advanced Fire Fighting (including Fire Prevention and Fire Fighting)
	Designated Security Duties
	Elementary First Aid
	GMDSS General Operator Certificate (GOC)
	Medical Care
	Medical Care - Refresher
	Medical First Aid (Including Elementary First Aid)
	Proficiency in Fast Rescue Boats

	Radio Operator - Long Range Certificate
	Safety Familiarisation
	Safety Officer - Fishing
	Ship Security Officer
	Survival craft and rescue boats other than fast rescue boats - Refresher
Protea Maritime	Seafarer Recruitment and Placement
Pulse Training cc	Advanced Fire Fighting (including Fire Prevention and Fire Fighting) - Refresher
Redwatch Fire Service	Advanced Fire Fighting - Refresher (Including Fire Prevention and Fire Fighting - Refresher)
	Advanced Fire Fighting (including Fire Prevention and Fire Fighting - Refresher)
	Fire Fighting- Small Vessel
	Fire Prevention and Fire Fighting
River Port Training Academy	Advanced Fire Fighting
	Crowd Management & Passenger Safety
	Fire Prevention and Fire Fighting
	Medical First Aid
	Personal Safety and Social Responsibility
	Personal Survival Techniques
	Security Awareness
SAFMA - Ottery	Advanced Fire Fighting - Refresher (Including Fire Prevention and Fire Fighting Refresher)
	Advanced Fire Fighting (Including Fire Prevention and Fire Fighting Refresher)
	Fire Prevention and Fire Fighting
	Safety Familiarisation
	Safety Officer - Fishing
SAFMA - Port of Cape Town	Fire Prevention and Fire Fighting
Sail Due South	Radio Operator - Short Range Certificate

SAMTRA	Able Seafarer Deck
	Able Seafarer Engine
	Crowd Management & Passenger Safety
	Designated Security Duties
	High Voltage Training
	Officer in Charge of Engineering Watch - Naval Architecture (Module 1-6)
	Officer in Charge of Engineering Watch - Engineering Knowledge (Module1)
	Officer in Charge of Engineering Watch - Personnel Management and Ship Master Business (Module 1-4)
	Radio Operator - Short Range Certificate
	Security Awareness Training
SAMTRA- (NPC)	Accelerated Training - Officer in Charge of Engineering Watch
	Accelerated Training - Officer in Charge of Navigational Watch
	Advanced Training for Liquefied Gas tanker cargo operations
	Basic Training for Oil and Chemical Tanker Cargo Operations
	Debmarine Accelerated Training - Deck Ratings
	Debmarine Accelerated Training - Engine Ratings
	Debmarine Accelerated Training - Officer in Charge of Engineering Watch
	Debmarine Accelerated Training - Officer in Charge of Navigational Watch
	Electronic Navigation Systems - Operational Level
	Personal Safety and Social Responsibility
	Personal Survival Techniques
Save a Life Training Institution	Day Skipper - Category E <9m
	Day Skipper - Local Waters (Restricted) <9m
	Skipper Inland Waters
	Skipper Inland Waters (Restricted)
Sea Harvest Corporation (Pty) Limited	Safety Familiarisation

Sea Safety Training Group - Cape Town	Able Seafarer Deck
	Able Seafarer Engine
	Accelerated Training - Deck Officer (Fishing) <24m
	Coastal Skipper
	Communication
	Crowd Management & Passenger Safety
	Day Skipper - Category B <9m
	Day Skipper - Category C <9m
	Day Skipper - Category E < 9M
	Day Skipper - Local Waters (Restricted) <9m
	Deck Officer (Fishing)
	Designated Security Duties
	ECDIS Generic Course
	Electronic Navigation System (Non STCW)
	Electronic Navigation Systems - Operational Level
	Electronic Navigation Systems - Operational Level (Fishing)
	Marine Motorman Grade 1
	Marine Motorman Grade 2
	Master (<200GT & <200GT Near Coastal)
	Master (<500GT Near Coastal)
	Master (Port Operations)
	Mate (<500GT & <500GT Near Coastal)
	Medical Care
	Medical Care - Refresher
	Medical First Aid
	Officer in Charge of a Navigational Watch - Academic Programme
	Officer in Charge of Engineering Watch - Naval Architecture (Module 1-6)
	Officer in Charge of Engineering Watch - Engineering Knowledge (Module1)

	Officer in Charge of Engineering Watch- Personnel Management and Ship Master Business (Module 1-4)
	Ordinary Seafarer Deck - Accelerated Training
	Personal Safety and Social Responsibility
	Safety Officer - Fishing
	Seafarer Recruitment and Placement
	Security Awareness Training
	Skipper (<200GT Port Operations)
	Skipper (Fishing - Limited Waters)
	Skipper (Fishing - Unlimited Waters)
	Skipper Inland Waters
	Skipper Inland Waters (Restricted)
Sea Safety Training Group - Nelson Mandela Bay	Able Seafarer Deck
	Able Seafarer Engine
	Advanced Fire Fighting
	Communication
	Deck Officer (Fishing)
	Designated Security Duties
	Electronic Navigation System (Non STCW)
	Electronic Navigation Systems - Operational Level
	Electronic Navigation Systems - Operational Level (Fishing)
	Familiarisation - Small Vessels
	Marine Motorman Grade 1
	Marine Motorman Grade 2
	Master (<200GT & <200GT Near Coastal)
	Master (<500GT Near Coastal)
	Master (Port Operations)
	Mate (<500GT & <500GT Near Coastal)
	Medical Care - Refresher
	Officer in Charge of a Navigational Watch - Academic Programme

	Personal Safety and Social Responsibility
	Safety Officer - Fishing
	Security Awareness Training
	Skipper (<200GT Port Operations)
	Skipper (Fishing - Limited Waters)
	Skipper (Fishing - Unlimited Waters)
Sea Safety Training Group - Nelson Mandela Bay (Mossel Bay Division)	Able Seafarer Deck
	Advanced Fire Fighting
	Designated Security Duties
	Familiarisation - Small Vessels
	Medical Care - Refresher
	Personal Safety and Social Responsibility
	Personal Survival Techniques
Sea Safety Training Group - Split Courses	Officer in Charge of a Navigational Watch - Academic Programme
Sea Safety Training Group - St. Helena Bay	Able Seafarer Deck
	Able Seafarer Engine
	Advanced Fire Fighting
	Coastal Skipper
	Communication
	Day Skipper - Category B <9m
	Day Skipper - Category C <9m
	Day Skipper - Category E < 9M
	Day Skipper - Inland Waters
	Day Skipper - Local Water (Restricted)
	Day Skipper - Local Waters (Restricted) <9m
	Deck Officer (Fishing)
	Designated Security Duties
	Efficient Cook
	Electronic Navigation System (Non STCW)

	Electronic Navigation Systems - Operational Level
	Electronic Navigation Systems - Operational Level (Fishing)
	Familiarisation - Small Vessels
	Marine Motorman Grade 2
	Master (<200GT & <200GT Near Coastal)
	Master (<500GT Near Coastal)
	Master (Port Operations)
	Mate (<500GT & <500GT Near Coastal)
	Medical Care
	Medical Care - Refresher
	Personal Safety and Social Responsibility
	Proficiency in Survival craft and rescue boats other than fast rescue boats - Refresher
	Safety Officer - Fishing
	Security Awareness Training
	Skipper (<200GT Port Operations)
	Skipper (Fishing - Limited Waters)
	Skipper (Fishing - Unlimited Waters)
Seatrain Consulting (Pty) Ltd - NYK Shipmanagement (PTE) Ltd	Accelerated Training for Deck Ratings
	Accelerated Training for Officer in Charge of a Navigational Watch
	Accelerated Training for Officers in Charge of an Engineering Watch
Sectre (Pty) Ltd	Seafarer Recruitment and Placement
Siyaloba Training Academy	Personal Safety and Social Responsibility
	Personal Survival Techniques
	Safety Officer - Fishing
Skipper Training SA	Short Range Certificate
South African Maritime Training Academy (NPC)	Personal Safety and Social Responsibility
STC-SA (Pty) Ltd	Crowd Management & Passenger Safety
	Designated Security Duties

	High Voltage Training
	Medical First Aid (Including Elementary First Aid)
	Personal Safety and Social Responsibility
	Security Awareness Training
	Ship Security Officer
Techniskills	Workshop Skills Training - Refrigeration
The Order of St John	Medical First Aid
Transnet School of Engineering	Engineering Workshop Skills Training
	Marine Engineer Combined Workshop Skills Training
Umfoloji TVET College	Marine Engineer Combined Workshop Skills Training
VHF SRC School Kzn	Radio Operator - Short Range Certificate
Waitre d' Recruitment (PTY) Ltd	Seafarer Recruitment and Placement

*Note.* Source: SAMSA, 2020

With respect to international recognition and collaboration, three South African Universities, DUT, CPUT and NMU are participating in an Erasmus+ capacity building project for MET along with partners from Finland (Satakunta University of Applied Sciences), Germany (Hochschule Wismar) and the UK (Solent University). The primary goal of the project is to develop systems processes to aid the development of Maritime Education and Training.

The aims of the project are to foster dialog in order to enhance/develop the following within the various institutions:

1. MET curricula
2. Pedagogical processes
3. Facilities and resources to deliver quality education.

The objective is to develop a clear mapping of the focus areas that each institution needs to modify in order to have a curriculum recognised in the context of the six institutions. The institutions agreed to collaborate on the development of curricula so that students from South African maritime universities could gain access to further education with the participating partners, and to equate the standards between South Africa and the European partners.

It is the view of stakeholders in South Africa that because of the novelty of maritime programmes in the three institutions such relationships will help these programmes and the institutions offering them a platform to gain international recognition and acceptability and to facilitate further studies by South African students in European contexts. It is also expected that South Africa will gain from student and lecturer exchange between the partners.

In respect of training ship availability, unlike the other countries studied (with the exception of Egypt), South Africa has in recent years tried to make available for cadet training berths, a dedicated training ship. South Africa's S. A. Agulhas, previously used as a polar research support vessel, was retired from that role in 2012 and subsequently repurposed as a cadet training ship to be operated by SAMSA. In what may be seen as an unprecedented and laudable move, the ship's first voyage as a training ship (in 2012) saw it welcome on-board – in a Pan-African approach - cadets from other African countries. The vessel is able to carry about 80 cadets per voyage and provide three to four months of sea experience for each cadet. Onboard training costs are funded by the South African National Skills Fund and it is envisaged that ship operation costs will be covered by the commercial use of the ship to support scientific expeditions. Training opportunities is offered to cadets in this context under the auspices of SAMTRA which has been designated the training provider on board the ship. Obviously, the sustainability of such a programme depends to a large extent on the ability to maintain the charter business model to support the vessel's operation. Such a chartering agreement was previously concluded with a UK polar expedition and also with the Indian Government. The vessel remains in operation and in late 2019 saw the embarking of an all-female cadet group for a training journey to Antarctica.

### 6.7. Challenges to MET

Like the other jurisdictions studied, sustainable funding is a challenge. South Africa does appear to be in a better position, however, particularly when one considers the espoused intention to inject significant funding support through Operation Phakisa. Even so there is a perceived lack of funding for important learning resources and facilities (e.g. simulators) and there is a long delay between application for funding - from e.g. TETA, SAIMI and the Government's National Skills Fund (NSF) - and funding coming through (up to 2 years) resulting in loss of opportunity for candidates with offers of employment yet unable to qualify themselves.

Perhaps a more significant and immediate issue for South Africa – similar to challenges faced in all the other jurisdictions (when considering supplying maritime labour to the international maritime industry) is the lack of berths for sea time associated with onboard training. The S. A. Agulhas, at current capacity, cannot provide all cadets with the total STCW sea time requirements for obtaining their first Certificate of Competency and cadets still have to find berths of international trading vessels to complete their sea time. This ongoing lack-of-berths issue was exacerbated in 2019 when Maersk Line cut back on taking South African cadets, resulting in the loss of approximately 250 cadet berths. Apparently, discussions with Maersk Line are ongoing about this, but for the moment that door of opportunity remains closed. The up to three-year wait for sea time also results in attrition from the industry when candidates are attracted away by competing interests. Funding agencies then wonder why they fund cadets when there is no placement for them.

Another challenge is the attraction and retention of qualified (with the requisite levels of certification and industry experience) instructors and assessors. The difficulties of attraction and retention of the requisite human resource is exacerbated by the disparity between seafaring salaries and those offered in the local South African context for jobs that such trainers can take ashore in education.

The number and diversity of accreditation bodies is also perceived to be a problem. This is underpinned by the perceived incompatibility of SAMSA requirements (under STCW and per the relevant national laws) and those of the National Qualifications Framework in which seafarer certificates of competencies are not optimally reflected.

One other challenge is the number of institutions purporting to offer maritime education and training and what comes across as a fragmented maritime education and training landscape. There are many institutions offering different parts or phases of what should be a coherent and holistic training approach. For example, De Beers Technical Training Campus offers Workshop Skills Training but excludes one module in refrigeration, meaning engineering cadets complete academic components of their education in one institutions, workshop training at De Beers, and still Refrigeration Module 1 in yet another institutions. In contrast to this, the performance of MET institutions in Ghana and Egypt and the relative ease with which the respective Administrations can control for quality, show the benefits in having a limited numbers of institutions with comprehensive offerings across the whole of the education and training phases/areas of STCW. Situation as pertain in South Africa (perhaps arising from history of the country, and socio-

economic factors), while not insurmountable, presents quality oversight challenges for Administrations as has been witnessed elsewhere in the world and needs a very pervasive quality paradigm in all relevant institutions to optimise outcomes in all areas of operations. In such contexts, there is a high and continuing need for comprehensive databases, effective central reporting systems and central points for stakeholder engagement/involvement and sharing of information.

One challenge for South Africa, in our view, is how long it takes to carry out needed change. This is in part due to the number and diversity of stakeholders and perhaps the lack of a mechanism for engaging them and crafting a coherent, responsive policy. An example of this is in the development of the South African Maritime Qualifications Code (SAMSA Code) required by the Merchant Shipping (Safe Manning, Training and Certification) Regulations, 2013, as amended. It was found that the Code is being reviewed to meet the STCW amendments of 2010 and the amendments of the 2013 Merchant Shipping Regulations. In 2020, this begs the question of why it has taken so long and what happens if immediately after the review of the code is finalised, the STCW is again amended as it is scheduled to be relatively soon. Perhaps a different legislative and administrative structure can lead to more speedy development processes. Examples from Australia's use of Marine Orders as subordinate legislation to a parent act (in the Australian case the Navigation Act of 2012) may be worthy of consideration in this regard. The Marine Orders (70, 71, 72 and 73) by directly referring to the STCW Code obviate the need to virtually develop another code at the national level. That being said, any benefits of the extra detailed approach taken in the SAMSA Code can only be realised if it is supported by a speedy development and amendment process that responds in a timely manner to changes in the international instrument.

## CHAPTER 7. GAPS AND GENERAL CHALLENGES

The African landscape of maritime education and training, as indicated by the five countries studied, has significant potential on the one hand but also serious challenges on the other hand. Collectively the maritime zones under the jurisdiction of Africa’s 38 coastal states and 5 small island states (the continent’s “sea space”) cover an estimated 13 million km<sup>2</sup> potentially hosting a maritime industry estimated at \$1 trillion per year. By any benchmark this is an area of significant potential. This potential is recognised in the 2050 Africa’s Integrated Maritime Strategy (2050 AIMS) which, among other things, observes that Africa’s Maritime Domain (AMD) “has vast potential for wealth creation”. However, several serious challenges confront the continent and as the AIMS 2050 indicates “common maritime challenges and opportunities, and indeed, significant responsibilities for generating the desirable political will for implementing the strategy” exist. With specific reference to the development of maritime capacity through the education and training of seafarers and related labour supply, a number of constraints continue to challenge the achievement of Africa’s full potential. The 2050 AIMS “strategic end state” of ...

Increased wealth creation from AMD that positively contributes to socio-economic development, as well as increased national, regional and continental stability, through **collaborative, concerted, cooperative, coordinated, coherent and trust-building** multi-layered efforts to build blocks of maritime sector activities in concert with improving elements of maritime governance (*emphasis added*) ...

may be said to be one shared in principle by all the jurisdictions studied. However, each has significant jurisdiction specific issues and often evidence of collaboration etc. as indicated by the strategy is not as apparent as may be deemed desirable. The work of the Association of African Maritime Administrations is acknowledged and lauded in this respect. It is hoped that the many decisions and resolutions of that body, will in time be manifested in substantial collaborations in specific projects that advance the goals clearly articulated in the relevant decisions and resolutions. In addition to the jurisdiction-specific challenges, there are some common challenges which are briefly discussed below.

### 7.1. Broad Challenges

Broadly speaking, challenges to the countries studied include:

#### 1. Policy challenges

A crowded policy space makes the consistent prioritization of maritime capacity building on the national agenda less than optimal. A key issue in many of the countries studied and relating to educational policy was the absence of a consideration of seafarer education and training (outside the context of an academic degree) in national qualification frameworks. The most fundamental challenge to all the jurisdictions remains the divorcing of the policies of capacity building from the need to prioritize the primary demand for shipping services. The maritime industry (shipping as such) is a derived demand. It rises and falls on the primary demand of trade. Policy agendas in the countries studied have been focused on the placement of seafaring labour in an international shipping context in which African

countries have very little control. It assumes a sustained demand for these services and of demand for maritime labour. It may be argued that most countries that wish to be labour supplying countries in the international market, do so on the basis that they will be positioned to bring competent crew at competitive wage demand levels to this market, making them attractive for international labour supply thus increasing employment and economic gain in their own jurisdiction (see Bottini, Ernst & Luebker, 2007). While this dynamic is evident in many international labour contexts, international shipping in its current manifestation has not substantively validated this view with respect to crew supply from Africa; high supply of maritime labour remains firmly located in the near and far east. The reasons for this are complex and beyond the scope of this research, but may be said to include many factors which are based on perception and history. In short, quite apart from anecdotal suggestions of prejudice (see e.g. Bagoulla & Guillotreau, 2016, p. 20), it appears that international firms in general, are “not just interested in lower factor costs, but seek to balance the lowest wages with quality, productivity level and good infrastructure” (Bottini, Ernst & Luebker, 2007, p. 6). In the context of the maritime industry this may be linked to assurances of high quality of maritime education and training systems, a consistent and sustainable supply of high-quality seafarers, national history, culture and traditions deemed to be compatible with merchant shipping and seafaring, as well as in some cases perceived cultural and language compatibility with other nationals employed on ships Bagoulla & Guillotreau, 2016).

2. *Legislative challenges with respect to implementation*

In general, all the countries appear to have adequate legal frameworks in place at a high level by virtue mainly of merchant shipping acts and broad educational policies. The challenge appears to be in the nature of subordinate legislation (particularly in how they are adaptable to quick amendments in international legal instruments) and the active use of resources to implement policy at the ground level. These lead to the administrative and operational challenges discussed next.

3. *Administrative and operational challenges*

Generally speaking, the primary challenge facing administrations and institutions in the countries studied, has to do with resource. These resources range from human, through technical to knowledge resources. There is evidence in all the countries of a lack of world class human resource particularly as it relates to the education and training of seafarers. There is a challenge with the age profile of most instructors, and many do not have the 21st century pedagogical skills for instruction and assessment of seafarers. Quickly advancing technology is exacerbating this. There is a general dearth of infrastructure and technical tools for training maritime labour including such necessary tools as top-grade simulators, and training ships. One constant challenge is the ability to generate training opportunities on board ship (in particular for first Certificates of Competence). While this is a global problem, it can be said that it is an acute one for Africa given the continent’s relatively high dependence on external sources for such opportunities.

#### 4. *Socio-cultural challenges*

Most of the countries studied do not have a long historical link to the use of the oceans for maritime transport. The maritime industry has only recently (relative to other countries) been put on the national agenda and often not associated with a long-term social valuing system, but as a quick way to improve economic fortunes. This means that a culture of working with the sea is relatively new and is not ingrained in the wider society. The result is that there is a general lack of knowledge about the potential of the sea and significant efforts are required for education in this regard at all levels of society. Apart from this, other socio-economic challenges take away from the focus/prioritization at a high policy level that could have benefitted maritime education and training.

The less-than-optimal state of primary and secondary education in many jurisdictions also means that maritime education at the tertiary level has to contend with the quality of entrants and needs substantial work to bring such entrants to the level of global competition.

#### 5. *Fragmentation of duties across public educational agencies (lack of coherence)*

In some cases, there is evidence of a lack of coordination and coherence between public agencies purporting to have roles relating to maritime labour and education and training. While it is important that all stakeholders are involved in all processes related to maritime labour supply as well as maritime education and training, when decision-making is ambiguous, it leads to a fragmented policy space and uncertainty among all the actors.

In summary, ongoing challenges (in general) relate to:

1. the prioritization of maritime capacity building on the national policy agenda;
2. the sustainable development of the requisite human resource at the appropriate level
3. the development of infrastructural capacity including the acquisition of technologically advanced learning aids (optimally equipped workshops, labs, training ships, simulators reliable power supply etc.);
4. the ability to learn from and apply international best practice in a local context;
5. the identification of stakeholders (noting the multiplicity of national agencies with vested interests and degrees of control in MET), the establishment of their roles and the engendering of a collaborative national perspective that does not place individual stakeholder interests above the national interest;
6. the creation of world-class and substantive programmes that can be deemed to be delivered by world class institutions in this domain;
7. access to training berths for first certificates of competence;
8. recognition by the international maritime community of African countries as a potential source of sustained maritime labour supply, based on actual high-level competence of the labour supply;
9. international collaboration with world class international entities;

10. public awareness of the potential of maritime capacity building in economic, employment and reputational measures as well as the perception evident in some quarters that “seafaring can be learnt through apprenticeship and that there is no need for academic qualifications” (Mabuti, 2013);
11. the encouragement of female interest in seafaring and the alignment of systems and facilities to this end;
12. financing of MET.

## 7.2. Recommendations:

The following are brief recommendations for alleviating the situation

### 1. *Awareness creation about the benefits of sustainable use of the marine environment*

There is a need in every one of the countries studied for increased awareness campaigns at all levels of education and society focused on both the potential of the ocean and the need for optimum national stewardship of its assets. As part of this effort to increase awareness, it is recommended that elements of maritime education and training (as appropriate for the level) be introduced at all levels of education in the countries studied. South Africa appears to be ahead with this relative to the other countries. Seafaring, in and of itself, should not be the only career option in view when “maritime education and training” is mentioned. MET, as differentiated from “seafarer education and training”, should aim at a diversity of skillsets that lead to new employment opportunities and human capital development at all levels - from policy setting to operational work. For this to happen optimally, the aforementioned awareness of the potential of an ocean economy should be created at all levels of society.

### 2. *Pooling of resources*

As indicated earlier, the AIMS strategic end state envisages a continental context where there is “increased wealth creation from AMD that positively contributes to socio-economic development, as well as increased national, regional and continental stability, through **collaborative, concerted, cooperative, coordinated, coherent and trust-building multi-layered efforts** to build blocks of maritime sector activities in concert with improving elements of maritime governance” (*emphasis added*). The importance of the highlighted words cannot be overemphasised. Africa’s dependence on demand from outside itself makes it vulnerable to the fluctuations of markets and decisions outside its control. It is insightful and informing that current examples of institutional excellence on the continent are manifestations of regional cooperation efforts<sup>3</sup>. While such collaborative efforts have their own challenges, they nevertheless give better opportunities for achieving the goals as uniformly agreed in the AIMS. The African Maritime Transport Charter similarly calls on African States to do this in its Article 8. It is imperative that institutional cooperation, co-funding and pooling of resources across national borders be encouraged.

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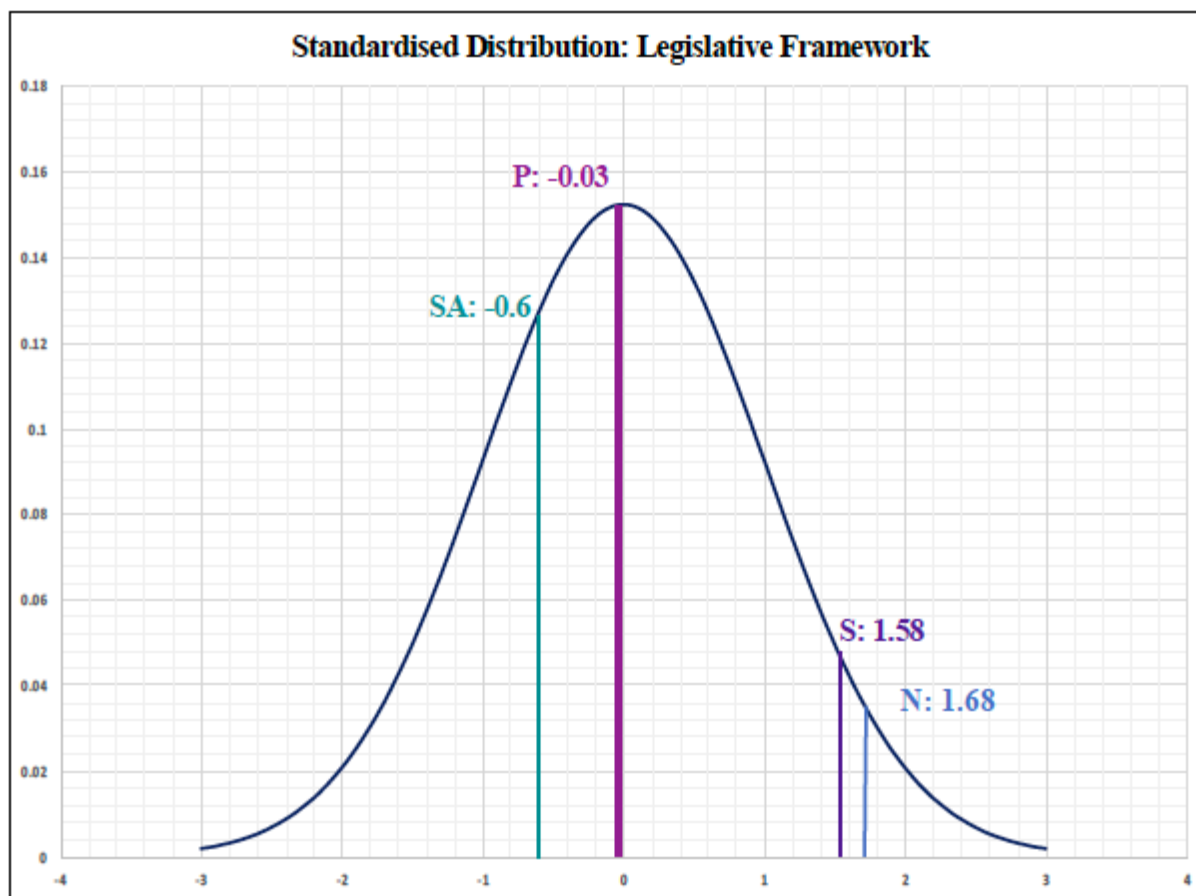
<sup>3</sup> The Arab Academy of Science, Technology and Maritime Transport (AASTMT) in Egypt and the Regional Maritime University (RMU) in Ghana, are in view here.

### 3. *African trade*

In this context it is important to acknowledge that shipping as such is a derived demand. **The primary demand is trade and optimising a sustainable dynamic of supply and demand for maritime labour will rest substantially on the development of trade between African countries. In this regard, the notion of an African Continental Free Trade Area (AfCFTA) is recognized and lauded.** This is viewed as extremely important for Africa in the evolving global geo-political landscape as it is arguably the only way that African countries can have a sustainable context for maritime education and training and a viable maritime labour market.

### 7.3. Technological Disruption and Future MET

With respect to the unfolding of a technological paradigm in the maritime industry and significant global research into the possibility, relevance and increased use of autonomous shipping the maritime landscape of the countries studied shows relatively little to no signs of readiness. At the time of completing this report, there is no legal, administrative, operational or infrastructural evidence of technological readiness in this regard. Specific to South Africa (SA), recent research at the World Maritime University, indicates that the country is behind the Philippines (P), Singapore (S) and Norway (N) as indicated in Figures 5, 6 and 7 on technological readiness for autonomous vessel operations measured for preparedness of the legislative framework, human resources (HR) and infrastructure.



*Figure 5: Comparative legislative preparedness for high technology ship operation (South Africa, the Philippines, Singapore and Norway).*

From “Scenario planning for an autonomous future: a comparative analysis of national preparedness relating to maritime policy/legislative frameworks, societal readiness and HR development for autonomous vessel operations” by Y. De Klerk, 2019, MSc Dissertation, World Maritime University, Malmö. Copyright 2019 by Y. De Klerk

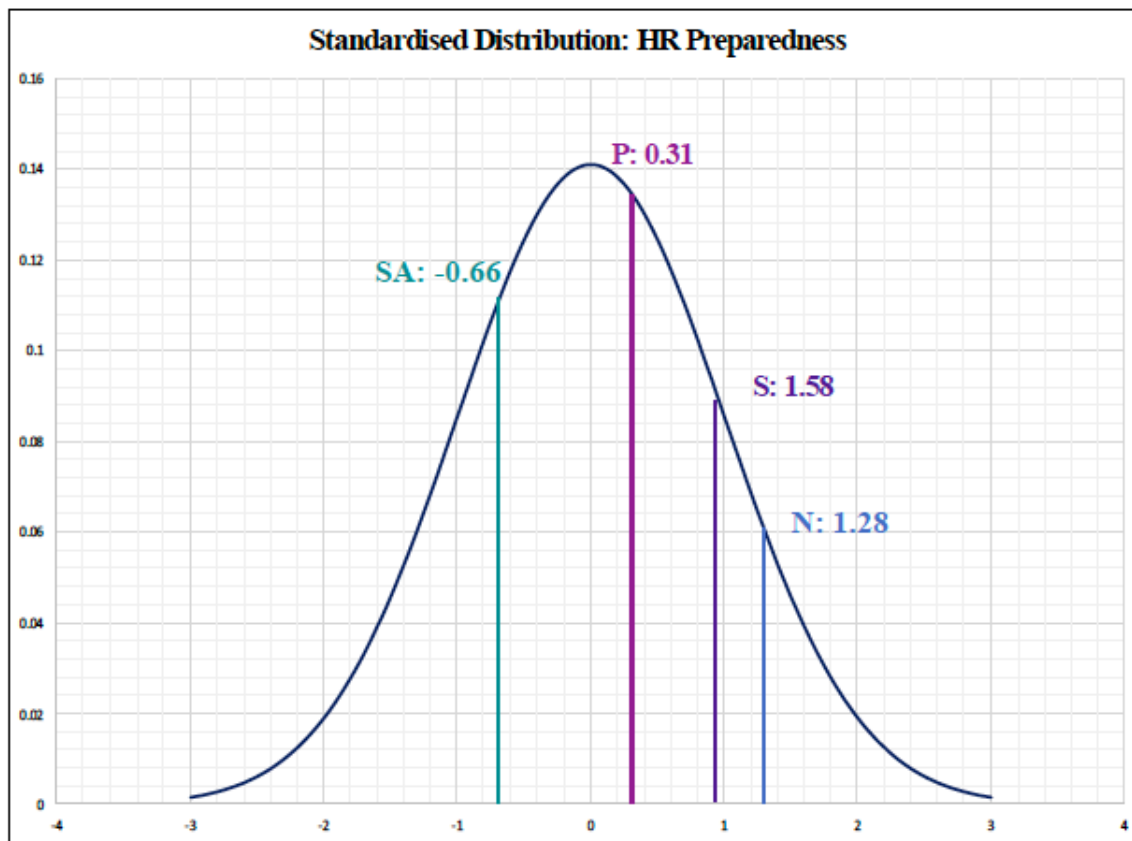


Figure 6: Comparative HR preparedness for high technology ship operation (South Africa, the Philippines, Singapore and Norway).

From “Scenario planning for an autonomous future: a comparative analysis of national preparedness relating to maritime policy/legislative frameworks, societal readiness and HR development for autonomous vessel operations” by Y. De Klerk, 2019, MSc Dissertation, World Maritime University, Malmö. Copyright 2019 by Y. De Klerk

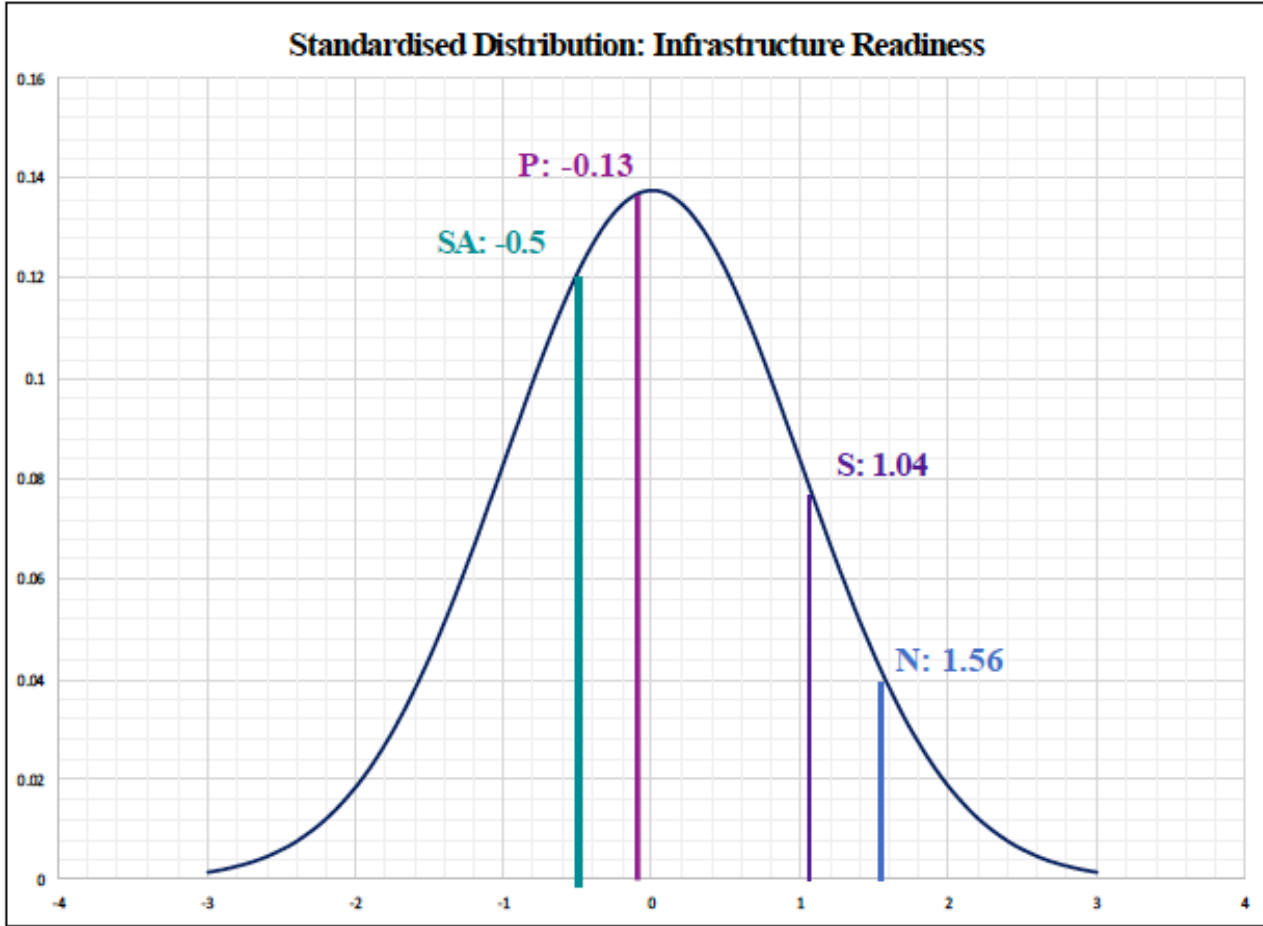


Figure 7: Comparative infrastructure preparedness for high technology ship operation (South Africa, the Philippines, Singapore and Norway).

From “Scenario planning for an autonomous future: a comparative analysis of national preparedness relating to maritime policy/legislative frameworks, societal readiness and HR development for autonomous vessel operations” by Y. De Klerk, 2019, MSc Dissertation, World Maritime University, Malmö. Copyright 2019 by Y. De Klerk

Given the qualitative analysis presented in this report, the situation in the countries studied (Egypt, Ghana, Kenya and Nigeria) can be argued to be similar to that of South Africa.

It has been suggested that technology will allow Africa to leapfrog developmental steps that it has not been able to keep up with in the past (see for example Diop ( 2017)). For this to be true, a great deal of policy attention must be given to the nature of the maritime education and training and maritime capacity-building activities that the countries studied and Africa as a whole offers to their people. The current approach, content and outcomes of MET in Africa, particularly in a context of limited resources, may not be ideal for a quickly evolving future.

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## RESEARCH LIMITATIONS

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There were limitations in quantitative data collection. While this may reflect resource limitations in the present study effort, it more likely reflects the lack of or more probably the difficulty inherent in the studied maritime administration systems to store, generate and disseminate relevant quantitative measures.

## CONTINUING WORK

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The data collected in this research is being transferred into a live database (<http://afrimet.wmu.se/>). The development of the site is still in progress. Ongoing work will seek to validate the data obtained through methodological processes of triangulation to reduce the limitations inherent in self-reports (relied on heavily in this study) and to add more countries to the database as and when funding for extended research becomes available.

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