FULL REPORT | MARCH 2025

Deep dive on seafarer sustainability

Supporting the opportunity for Africa
and women to create a sustainable
supply of seafarers for the future

Energy | Vessels | Maritime trade | People | Ports

WMU WORLD MARITIME UNIVERSITY

Background

The **Global Maritime Trends programme** launched by Lloyd's Register and Lloyd's Register Foundation, is a dynamic, multi-year research initiative, designed to provide evidence, insight, and foresight into the major challenges shaping the maritime industry between now and 2050, taking a holistic view of the maritime world, from fishing to offshore wind.

The programme launched in 2023 with the Global Maritime Trends 2050 Report (GMT2050 Report) by Economist Impact, which analyses possible future scenarios for maritime in 2050, based on the speed of technology adoption and the level of global collaboration, to help the industry forecast risks, opportunities, and required investment.

At the heart of the programme are a series of 'deep dive' reports which explore critical maritime issues, delivering expert analysis and robust data to provide a comprehensive understanding of the evolving maritime landscape and the potential implications for various maritime stakeholders.

In parallel with those deep dives and part of that same programme is the **Global Maritime Trends Barometer** which offers an annual pulse of the maritime industry's journey through the energy transition and digital transition, while assessing progress towards the four future scenarios as outlined in the GMT2050 Report by Economist Impact. The Barometer is structured along five key components of the maritime industry: maritime trade, energy, vessels, ports and people.

Scan to find out more about the GMT programme.

The **World Maritime University** (WMU) in Malmö, Sweden is established within the framework of the International Maritime Organization (IMO), a specialized agency of the United Nations. The mission of WMU is to be the world centre of excellence in postgraduate maritime and oceans education, professional training and research, while building global capacity and promoting sustainable development. WMU's vision is to inspire leadership and innovation for a sustainable maritime and oceans future. WMU is an organization by and for the international maritime community and is committed to the United Nations 2030 Sustainable Development Agenda.

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Lloyd's Register Foundation Foreword

At a time of planetary crises and increasing political conflict, the need for robust foresight about the future has never been greater. This is particularly true for the maritime sector, which is undergoing significant change as it decarbonises and digitises, in a troubled geopolitical context. Ensuring that maritime economic activity evolves in a way that is safe, sustainable, just and equitable, requires that decisions are based on the best possible information about the future, and what is needed to prepare for it. With shipping, ports and their supply chains enabling world trade, and with the ocean being a vital carbon sink, source of renewable energy and food for feeding a growing global population, future-proofing the maritime economy is critical for society.

Global Maritime Trends is a joint Lloyd's Register and Lloyd's Register Foundation research programme. Starting with the Global Maritime Trends 2050 report published in 2023 in partnership with Economist Impact, this programme will deliver a series of 'deep dive' reports – of which this is the first – providing evidence, insight, and foresight on the large-scale challenges affecting the maritime industry over coming years. The reports draw on expert analyses and robust data to provide a comprehensive understanding of the evolving landscape and the potential implications for various maritime stakeholders.

One of the most striking future scenarios described in the initial GMT2050 report was the suggestion that by 2050, many more seafarers would be women, and many more would come from Africa. Currently, women comprise a woeful 2% of seafarers and Africa supplies only four percent of the global seafaring workforce, despite both the continent's vast potential as a supplier of seafarers, and of global seafaring as a source of rewarding work and economic growth.

Global shipping has a long-standing labour shortage, involving problems with both recruitment and retention that threaten the safety and sustainability of maritime trade and the wider maritime system. Clearly, there are vast and largely untapped numbers of female and African seafarers with much to offer the maritime economy. What has been less clear, is how the potential of women and African seafarers can be realised on a large scale, which is what this report attempts to answer. Researchers at the World Maritime University have obtained and collated data, unseen elsewhere, on African Maritime Education and Training enrolment and graduation, good practice, and on subsequent employment, as well as data and good practice relating to the employment of women seafarers, globally. Their analysis allows policy makers and other stakeholders to understand the current state of play, and where to focus efforts to improve it. Towards its end, the report includes a modelled scenario for achieving 25% of women seafarers in the global workforce and concludes with detailed recommendations for each stakeholder category with a key role to play in enabling a future of seafaring that is markedly more female, and more African.

All deep dives are intended to help progress specific aspects of the maritime economy as it transitions towards net-zero emissions and increasing digitisation. To help track overall progress, the Global Maritime Trends Barometer – profiled on page 2 – plots the sector's speed of technology uptake against levels of global co-operation, using metrics and indicators relating to maritime trade, vessels, energy, ports, and people. Currently, the barometer shows a clear underinvestment in human capital that is delaying both the energy and digital transition. Implementation of this report's recommendations would help address that delay.

Global Maritime Trends speaks to both Lloyd's Register and Lloyd's Register Foundation's shared safety mission by producing high-quality, accessible evidence that enables good planning and decision making to avoid unintended risks within the maritime system. We welcome feedback on deep dives, encourage ideas for new topics, and invite expert input into their content so that the programme delivers for the entire maritime community. Please get in touch: info@lrfoundation.org.uk.

Beth Elliot, Director of Strategic Communications, Lloyd's Register Foundation

Lloyd's Register Foreword

The maritime industry is a rich tapestry of people and cultures, reflecting the global exchange of goods, and connections.

At its heart are the seafarers-essential to keeping the industry strong, competitive, and resilient. As we navigate our industry's transformation, addressing the challenges faced by seafarers requires a diverse and skilled workforce – our greatest asset in shaping maritime's sustainable future. This is why our first deep-dive within the Global Maritime Trends Programme is to look at seafarer sustainability and the role of Africa and explore how we can turn diversity into opportunity. This continent, home to the world's youngest and fastest-growing population, is uniquely positioned to play a key role in the future maritime workforce.

By investing in education and training for African youth, we not only bridge the skills gap but also build a more resilient, inclusive, and future-ready industry. A prime example of this is the work of Mercy Ships, a long-standing partner of Lloyd's Register, off the coast of Africa and its dedication to the training and education of maritime volunteers.

Advancing diversity efforts isn't just about workforce representation – it extends to every aspect of maritime operations, from ship design to workplace culture. The Global Maritime Forum's All Aboard Alliance and its golden standards for living and working at sea, can serve as a guiding light, setting industry benchmarks for best practices in fostering an inclusive and equitable environment at sea.

While progress has been made, significant challenges remain. Women and marginalised groups continue to be underrepresented, and structural barriers persist. However, the success stories highlighted in this report serve as powerful blueprints for change. By championing diversity and fostering inclusion, we can unlock the full potential of the maritime workforce.

This report can work as a reminder that the future of maritime lies in our ability to adapt, innovate, and embrace diversity. As we chart the course ahead, let us commit to building an industry that is not only sustainable but also equitable and inclusive-for everyone who calls the sea their home.

Philippa Charlton, Chief Marketing Officer, Lloyd's Register

Preface

The maritime industry, a cornerstone of global trade and economic connectivity, relies on the indispensable contribution of seafarers to ensure its smooth operation.

As of 2021, the global seafarer workforce was estimated at 1.87 million, with Asia and the Pacific supplying 50 percent, Europe contributing 33 percent and Africa accounting for four percent. This imbalance underscores the untapped potential of underrepresented regions, particularly Africa. In view of this, there is a pressing need for targeted investments in Maritime Education and Training (MET) as well as Science, Technology, Engineering and Mathematics (STEM) courses, given the critical role they play in shaping the next generation of skilled maritime professionals.

The World Maritime University conducted groundbreaking research for this report, examining the complex dynamics of seafarer supply and demand. The results highlight the opportunities that may be available by investing in Africa's emerging talents and empowering women to play a more significant role in maritime professions. Women currently account for only 1.28 percent of the global seafarer workforce. Their inclusion in maritime professions is not only a matter of equity; it is also a driver of innovation and diverse perspectives to benefit the industry. The research indicates that targeted policies, accessible training, and clear pathways into the industry must be implemented, empowering women to play a more prominent role at sea and ultimately creating a richer and more inclusive maritime workforce. Fostering inclusivity, enhancing training infrastructure and embracing sustainable practices will help the industry to

meet the evolving demands of global maritime trade and secure a resilient workforce for the future. This report also sheds light on, and delves into, the current status, challenges, and promising practices relating to seafarer sustainability. It identifies an urgent need to enhance enrolment in MET courses as well as STEM to provide meaningful support and internships to increase recruitment and retention of seafarers, particularly from Africa and other underrepresented regions. Addressing these challenges can provide the industry with a steady supply of skilled professionals while fostering diversity, equity, and inclusion.

Sincere gratitude is extended to Lloyd's Register Foundation for its generous financial support of this research, as well as to the national maritime administrations, authorities, and MET institutions in Africa whose participation in the project provided critical data and valuable insights that significantly enriched the research.

Seafarers are vital to world shipping and to everything that depends on it. With the commitment and support of donors and industry stakeholders, together we can alleviate the significant crewing challenge facing the maritime industry and ensure a sustainable and inclusive future for global seafaring.

Prof. Maximo Q. Mejia Jr.
President, World Maritime University

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Introduction & background

Seafarers are the backbone of the maritime industry, driving over 80 percent of global trade and supporting the seamless and safe movement of goods across oceans (UNCTAD, 2024; EMSA, 2024). Without their important contribution, the globalised economy connecting global supply and demand, and enabling the production and consumption of goods across continents, would be under serious threat.

However, as the world shifts towards a more sustainable future, the focus has largely been on greener ships, alternative fuels and innovative technologies, often overlooking the human element that powers this complex system. Although the International Maritime Organization (IMO) has celebrated the International Day of the Seafarer since 2010, and a United Nations General Assembly Resolution called for seafarers to be designated as key workers during the COVID-19 pandemic in 2020, the almost two million seafarers worldwide are often not at the centre of vital discussions about the future of the shipping industry. There is an urgent need to pay more attention to the sustainability of seafarer supply, to ensure that the maritime industry has a long-term ability to recruit and retain seafarers and support their professional well-being while ensuring they remain motivated, skilled, and engaged in their changing work environment.

The sustainability of seafarer supply is an essential pillar of maritime resilience and operational efficiency. The maritime industry faces high employee turnover rates, partly due to challenging work conditions, shortage of seafarers, extended time away from families, limited career progression, evolving skill requirements, and exposure to environmental risks. By fostering the sustainability of seafarer supply, companies can simultaneously improve job satisfaction, enhance loyalty, and reduce the costs associated with training and recruiting new personnel. Moreover, a sustainable approach to seafarer welfare ensures the maritime sector remains resilient and adaptive in the face of evolving demands and global challenges.

The challenge of low retention has become increasingly urgent due to the growing shortage of qualified seafarers and rapid technological advances in the industry, including decarbonisation and digitalisation (Calinao et al., 2020). These shifts have drawn attention to the crucial areas of enrolment of students in maritime education, as well as recruitment and retention to ensure a steady supply of skilled seafarers in the future. The maritime sector is inherently mobile, with seafarers often originating from a diverse array of labour supply countries (Tang & Bhattacharya, 2021).

However, retaining these seafarers remains a significant challenge for shipping and ship management companies operating in the international maritime industry (Papachristou et al., 2014). Low retention rates not only reduce performance and motivation but also negatively impact attitudes toward safety (Berg & Lappalainen, 2013), and the persistent shortage of qualified seafarers intensifies these challenges. Studies by Cahoon et al. (2010) and BIMCO/ICS (2021) emphasise that it is critical to address these issues by prioritising and advancing seafarer supply initiatives. Most importantly, securing a sustainable seafarer supply is not only about retention and training but also about creating a supportive workplace that includes gender equality, fair wages, career development, and long-term opportunities in the maritime industry.

The GMT2050 report, authored by Economist Impact, highlights the transformative trends expected to shape the maritime sector by 2050, focusing on five key components: maritime trade, vessels, energy, ports, and people (Economist Impact, 2023).

Among these, the GMT2050 report highlights the critical role of human capital, forecasting two notable scenarios. One is an increase of women seafarers to become 25 percent of the total workforce in shipping by 2050; and the other is that Africa's youthful and talented demographic could emerge as a pivotal player in reshaping the global maritime labour market and become the next generation of seafarers globally. These anticipated transformative changes in two scenarios, however, only indicate potential for change, as baseline data on women seafarers and African Maritime Education and Training (MET) are largely absent. Without such baseline data, any initiative and leadership to promote women and African seafarers will have limited effect. This report provides a robust evidence-based analysis of key metrics, including the rates of attraction, recruitment, and retention of seafarers, offering valuable insights into the factors shaping the maritime workforce with a special emphasis on MET in Africa.

With seafarers serving as the backbone of global trade, the sector's reliance on a skilled, motivated and healthy workforce is vital to maintaining operational efficiency, safety and resilience. This study not only highlights the pressing challenges but also lays the groundwork for actionable strategies to secure the industry's long-term sustainability, stability and growth.

As identified by the Economist Impact report, 'people' is one of the five foundational pillars driving the maritime economy, emphasising the crucial role of human capital in fostering innovation and sustaining the sector's growth. Figure 1 illustrates this vision, providing a detailed overview of the current regional distribution of seafarer supply as of 2021. This visualisation highlights both the existing workforce dynamics and the geographical imbalances in labour contributions in maritime trade, setting the scene for discussions on how regions like Africa can leverage their demographic potential to redefine their role in the global maritime labour market.
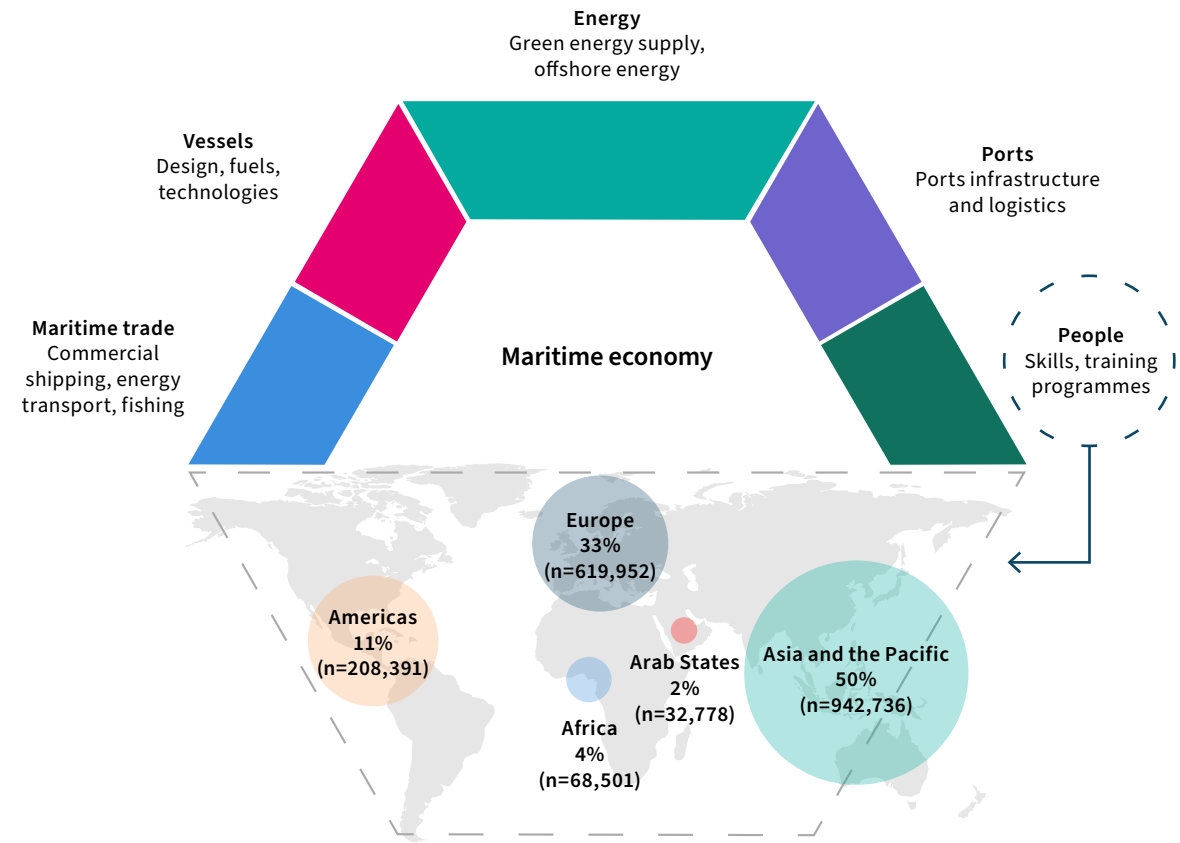

Figure 1: The emphasis on people and uneven distribution of seafarer supply by region. (Source: Economist Impact) (Source: WMU (2023). Transport 2040 report, p.46)

Aims and objectives

2.

This report discusses two potential developments to address seafarer shortage challenges in the maritime sector: 1) a growing gender diversity onboard ships; and 2) a higher percentage of African seafarers engaged in shipping operations.

This focused approach is intended to support evidence-based policy making to ensure positive changes for the seafarer shortage and provide confidence for investing in MET in Africa. By enabling an expanded pool of qualified seafaring labour, the work supports the long-term, overall safety of the maritime system.

To achieve this aim, four objectives were set for this study, which guided the analysis:

1. Understand what evidence exists on gender diversity and MET in Africa

2. Collect and analyse gender-disaggregated data on enrolments of students in MET institutions and recruitment and retention of seafarers

3. Analyse factors which may contribute to barriers and opportunities in recruiting and retaining women seafarers and African seafarers

4. Present the examples of good practices for securing a sustainable supply of seafarers promoted by global and African maritime stakeholders.

The corresponding research questions were:

1. What is the current knowledge about gender diversity and African MET?

2. What are the current trends in enrolment, recruitment and retention of both men and women within African MET institutions, and how do these trends currently impact or are expected to impact the supply of qualified seafarers for the maritime industry?

3. What factors may contribute to barriers and opportunities in recruiting and retaining women seafarers as well as African seafarers?

4. How is the seafarer shortage being addressed and what are examples of good practices currently employed by global and African maritime stakeholders?

Methodology

This study employed a mixed-methods approach, integrating both existing and empirical data to provide a comprehensive understanding of the sustainability of seafarer supply and maritime workforce trends in Africa (Figure 2). The methodology was designed to ensure robust analyses of combined primary and secondary data sets and to synthesise specific, in-depth insights with broad maritime trends. The diverse data sources provide a nuanced perspective on the challenges and opportunities for promoting gender diversity and the sustainability of seafarer supply within Africa's maritime sector and on a global scale.

Gender disaggregated data & trend analysis

Existing data & info		
	Literature review	Research papers, project reports etc.
	Document analysis	IMO docs, ILO docs, other official docs
	Secondary data analysis	Statistics, figures, trend analysis
	Web search	Official websites of targeted institutions

Linking a global perspective to regional (African) case and vice versa

Empirical data		
	Mapping MET institutions	Eastern, Southern, Western, Central, and Northern Africa
	No. of MET institutions	Total = 149 (top 5: Nigeria, Kenya, South Africa, Egypt, Ghana
	Enrolment & completion	Kenya, Tanzania, Namibia, South Africa, Ghana and Nigeria
	Active shipowners	Hafnia, BSM, Maersk and Celebrity Cruises
	Good practices & barriers	Survey from Kenya, Namibia, South Africa, Ghana and Nigeria

Figure 2: Methodological framework

Existing data and information – the study drew on an extensive review of literature relevant to the maritime sector, with a specific focus on gender diversity and Africa. Key sources include academic publications, policy documents, institutional reports, and industry report analyses. A thorough document analysis was conducted to identify trends, gaps and insights related to maritime education, training and employment. Additionally, web searches and secondary data analysis were employed to supplement the literature review, providing further context on the structural and operational dimensions of gender diversity and the MET sector in Africa.

Empirical data – the empirical component of the study was designed to map and assess critical aspects of MET and seafarer-related activities in Africa. This included:

1. **Mapping MET institutions** – identifying the number and distribution of MET institutions across African countries to understand regional disparities and potential areas for intervention.

2. **Gender-disaggregated data collection** – gathering data on the enrolment of students in MET institutions with a focus on gender, providing insights into gender representation and trends in maritime education.

3. **Seafarer data collection** – documenting the number of active STCW-certified seafarers, their positions, and employment patterns to highlight workforce availability.

4. **Shipowners and recruitment practices** – identifying shipowners recruiting seafarers from Africa to evaluate industry engagement and opportunities for employment.

5. **Good practices and barriers** – investigating existing institutional practices that support the sustainability of seafarer supply, alongside identifying barriers that hinder progress in recruitment, retention and workforce development.

The study focused on six countries across three regions in Africa: Eastern, Southern and Western Africa. These countries were selected due to their prominence as key seafarer supply hubs and their status as primarily English-speaking nations, ensuring a consistent linguistic framework for the research. The participating countries were Ghana, Kenya, Namibia, Nigeria, South Africa, and Tanzania. The study engaged both academic

and non-academic maritime institutions, including respective national maritime authorities. A total of six MET institutions contributed data on student enrolment and graduation. These institutions included: Regional Maritime University (RMU) – Ghana, Bandari Maritime Academy (BMA) – Kenya, Namibian Maritime and Fisheries Institute (NAMFI) – Namibia, Maritime Academy of Nigeria (MAN Oron) – Nigeria, Durban University of Technology (DUT) – South Africa, and Dar es Salaam Maritime Institute (DMI) – Tanzania. While all the six institutions provided gender–disaggregated enrolment data, only four of them (RMU, BMA, MAN Oron, and DUT) additionally supplied graduation data. Moreover, five national maritime authorities from Ghana, Kenya, Nigeria, South Africa, and Tanzania also participated by providing the information on their seafarers (numbers by gender, positions, good practices and barriers).

The quantitative data collected were analysed to identify trends, gaps and patterns in gender representation within MET institutions. This analysis serves as a crucial foundation for understanding the state of gender diversity in maritime education and its broader implications for the seafarer workforce. In parallel, the qualitative data derived from responses to the questionnaire, were analysed thematically. The questionnaire addressed key topics, including institutional good practices, barriers and strategies for promoting gender equality in the maritime sector. The respondents provided valuable insights into key areas such as enrolment, recruitment and retention challenges, and initiatives to attract more women to MET programmes and seafaring careers. This approach of descriptive and thematic analyses offers a comprehensive exploration of statistical trends and qualitative insights, enabling a nuanced understanding of gender dynamics in MET and the seafarer population.

Understanding sustainable seafarer supply through a gender lens

4.

Building upon the objectives and the methodology outlined in the previous chapters, this section focuses on gender as a critical aspect of ensuring a sustainable supply of seafarers.

Using the framework provided, this chapter analyses secondary data to explore the underrepresentation of women in the maritime sector and the existing gender-related initiatives, both globally and in Africa, and examines how gender dynamics intersect with different challenges. By applying a gender lens, this report seeks to uncover the unique experiences of female seafarers, the barriers they face, and how gender imbalance impacts overall sustainability in the maritime sector. Additionally, this section draws comparisons with similar studies in other transport sectors, including road, rail and air transport.

4.1 Underrepresentation of women in the maritime sector

Seafarers are essential to the maritime industry and global trade, ensuring safe vessel operations, cargo transport and maintenance. Despite being adventurous and fascinating, seafaring remains a male-dominated field, with limited worldwide participation of women (Mathew, 2015).

The Baltic International Maritime Council (BIMCO)/International Chamber of Shipping (ICS) study underscores the stark gender disparity revealing that women represent a mere 1.28 percent of the global seafaring population under the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 as amended (STCW), which is approximately 24,000 women out of the world's 1.9 million seafarers (BIMCO/ICS, 2021). This low representation highlights the urgent need for more inclusive recruitment strategies and education campaigns to attract and retain women in the industry. Ensuring gender equality in the maritime sector not only promotes fairness but also helps address the growing demand for skilled professionals as the industry expands and adapts to new technologies, especially now when the BIMCO/ICS report projects that more than 89,000 maritime officers must join the workforce within the next five years to address anticipated demand in 2026. The maritime sector continues to lag behind other professional fields in addressing gender equality.

Historically, apprehensions and prejudices against women in this traditionally male working environment discouraged women's entry, resulting in their persistently low representation in the sector (Pastra et al., 2015; Kitada, 2022; Ryals, 2023). The maritime industry holds immense potential for addressing the global seafarer shortage by increasing women's participation (DNV, 2023; Buscema et al., 2024). Despite global efforts to promote diversity and inclusion, the integration of women into the maritime workforce has been notably slow (Stannard et al., 2015; Kitada & Langaker, 2016; Kitada, 2021; Bosanquet & Hagerty, 2021; Narayanan et al., 2023). While women presently comprise only a small fraction of the total seafarers' workforce, they hold the key to future prosperity not only of firms but also of household, local, national and regional economies (ILO, 2001; IMO & WISTA, 2021; Bosanquet & Hagerty, 2021; Kitada, 2021; Win Big, 2024). Full participation of women in the maritime industry requires concerted efforts from leaders as well as those in positions of power and influence, by promoting women to serve in leadership positions in all sectors including in academia, government, board rooms and unions to implement measures designed to stimulate the recruitment, retention, and advancement of women both on ships and ashore; and eliminate outdated exclusionary narratives (Björk, 2020; Bosanquet & Hagerty, 2021). In addition, the industry must invest in women and reward them with lucrative opportunities as per their male counterparts.

Previous studies have documented numerous barriers that hinder women's engagement in the maritime sector (Belcher et al., 2003; Stannard et al., 2015; Kitada, 2019; Kitada, 2021; Johannesen et al., 2022). In some countries, women were banned from enrolling in nautical courses (Pike et al., 2016), and this has been gradually resolved with many MET institutions today accepting women. Employers are frequently reluctant to hire female cadets or promote women to senior ranks; driven by the false belief that women are physically and emotionally less effective at sea than men (Kitada, 2010; Tansey, 2015).

Additionally, women are often given low-paid jobs and must go beyond their male counterparts to prove their worth by frequently working to the limits of their endurance. Violence and harassment, including sexual harassment, bullying, and sexual assault, remain pervasive issues at sea. This has been discussed as part of the comprehensive review of STCW at the IMO's Sub-Committee on Human Element, Training and Watchkeeping (HTW). Ship designs assume that seafarers are predominantly men, therefore essential facilities and equipment relating to health and safety (e.g., appropriate size of Personal Protective Equipment (PPE) and sanitary bins) are not always available to women onboard (Stannard et al., 2015; Johannesen et al., 2022). Barriers rooted in traditional gender roles, limited awareness of career opportunities and the perception of masculine values in the maritime industry continue to discourage many young women from pursuing maritime careers (Bosanquet & Hagerty, 2021).

Efforts to promote gender equality and diversity have been initiated at global, regional and national levels. The IMO's Women in Maritime programme enhances the visibility of women in the maritime industry, fosters capacity building and encourages equal opportunities. The IMO celebrates the International Day for Women in Maritime every year on 18 May, promoting leadership and the contribution of women in maritime for safe, secure and environmentally sound shipping (Figure 3). Other organisations that offer support to women seafarers include the International Labour Organization (ILO), the Women's International Shipping and Trading Association (WISTA), the International Chamber of Shipping (ICS), the International Transport Workers' Federation (ITF), and the International Seafarers' Welfare and Assistance Network (ISWAN) (Kitada, 2021). The ILO is committed to supporting women seafarers through the Maritime Labour Convention (MLC) 2006, which has specific requirements for safety conditions at sea, including separate sleeping rooms, separate sanitary facilities for men and women and eliminating shipboard harassment and bullying. These initiatives have been complemented by local and regional efforts to boost the enrolment of women and underrepresented groups in MET and their recruitment into the seafaring workforce, particularly in Africa.

Figure 3: International Day for Women in Maritime 2024 output with the theme of "Women shaping the future of maritime safety" (Source: IMO)

4.2 Maritime women in Africa

Three African Women in Maritime Associations (WIMAs) gathered to discuss the future of maritime Africa in São Tomé and Príncipe from 2 to 4 September 2024, hosted by the IMO. These three WIMAs were Association for Women in the Maritime Sector in Eastern and Southern Africa region (WOMESA); Network of Professional Women in the Maritime and Port Sectors for West and Central Africa (NPWMP-WCA); and Women in Maritime of West and Central Africa (WIMOWCA).

The joint WIMA conference with the theme "Women Joining Hands to Shape the Future of Maritime Africa – Running the Race for Maritime Sustainability" discussed ways to increase the visibility of women and access to training. For example, only ten percent of search and rescue (SAR) activities involve women. In partnership with the International Maritime Rescue Federation, several forums and seminars on "Women in SAR in Africa" were delivered. Mentoring and networking were recognised as the effective tools to empower women in Africa and the importance of national and regional approaches were reiterated. Training opportunities are available, in addition to the IMO's training institutions such as WMU and IMLI, other IMO-funded maritime training fellowships, studying in local MET institutions, such as the Kofi Annan International Peacekeeping Training Centre (KAIPTC) and United Nations Development Programme (UNDP) in Nairobi.

A speaker from São Tomé and Príncipe shared their statistics, showing women at 32 percent in the Maritime Security São Tomé and Príncipe (IMAP); four percent in the Coast Guard; and 26 percent in the Harbour Master's Office (Figure 4).

To strengthen capacity development in Africa, the IMO has three regional offices located in Abidjan (Côte d'Ivoire), Accra (Ghana) and Nairobi (Kenya) based on a Memoranda of Understanding signed between the IMO and the host governments. In addition, there is an Egypt Office which covers Middle East and North Africa countries. Within the IMO member States, 37 are from Africa where the majority of them are either Least Developed Countries (LDCs) or Small Island Developing States (SIDS).

Figure 4: Women in Maritime São Tomé and Príncipe (Photo credit: reprinted with kind permission of © Coast Guard of São Tomé and Príncipe. All rights reserved.)

4.3 Lessons from other transport sectors

Generally, the literature on women working in transport sectors identifies underrepresentation as well as similar challenges and obstacles to those of their counterparts in the maritime sector. In the transport workforce, including road, logistics, aviation, rail, maritime transport and port sectors, women represent less than 20 percent of the total workforce, with a low of 18 percent recorded in 2018, according to the ILO (Ng & Acker, 2020).

Women truck drivers comprise 10.2 percent of the North American industry's driver workforce in 2021 and are exposed to gender bias and harassment. More than one third of the women survey respondents in North America reported their companies either not having a harassment policy or being unsure of whether their company has one (WIT, 2022).

In developing countries, many women are working in informal transport sectors. In Kenya for example, Mwangi (2013) reports 13.6 percent of informal transport owners are women. Matatu (minibus taxis) conductors in Nairobi work long hours at very low wage and women represent 85 percent of this occupation (Flone Initiative, 2020). In the aviation industry where women represent 40 percent of the workforce, the majority of them work as flight attendants or in customer service jobs while only five percent of commercial airplane pilots are women (Ng & Acker, 2020). In the British rail sector, women occupy 16.4 percent of the total workforce (Thory, 2022). At Indian Railways, women represented 6.7 percent of the workforce (n = 89337 out of 1.331 million employees) in 2015 and 2016 and face socio-cultural and institutional barriers (Sachdeva, 2022).

Across the different transport sectors, investing in girls' education should become a higher priority. It is not just an act of equality and equity; it is a strategic imperative. The economic ripple effects are profound, because the increase of women participating in seafaring will bolster household incomes, improve community resilience and contribute to national growth, particularly in developing countries. Gender equality initiatives will also unlock the untapped potential from half of the population, and transform the maritime industry into a more innovative, inclusive and sustainable sector globally.

Africa in maritime future: barriers and opportunities

Drawing on the insights gathered in the previous chapter, which explored the sustainability of seafarer supply through a gender lens, this chapter shifts focus to the broader context of Africa's maritime future. While chapter four highlights unique challenges female seafarers face, this section delves into the systemic barriers and opportunities within the African maritime sector as a whole.

Recent dialogues within the maritime industry about the seafarer shortage have sparked innovative strategies aimed at addressing the growing supply-demand gap in the workforce. As the maritime industry expands further, driven by global trade and technological advancements, the demand for skilled seafarers is growing. This demand is particularly pronounced in Europe and Asia, where an ageing workforce is further exacerbating the gap in the labour market. In response, this report highlights that Africa has emerged as a promising solution, positioned as a future hub for seafarer recruitment. Africa's young population and growing expertise are increasingly recognised as vital contributors to addressing the workforce challenges in the maritime industry (Economist Impact, 2023; WMU, 2023). With approximately 60 percent of its population under the age of 25, Africa's youthful demographic offers a rich talent pool and resilient workforce that can sustain the global shipping industry for years to come. This section explores African maritime activities and development, current and projected seafarer supply trends, case studies and success stories, emerging technologies, key drivers of change, and the critical role of the human element in shaping the future of the industry.

5.1 Africa's maritime profiles

Africa's maritime industry has greatly evolved over time, including periods where a limited number of harbours were involved in trans-Atlantic trade of primary goods such as food and textiles, to its modern focus on diverse and expanding capacities in global trade.

Historically, the ports were oriented towards Europe and America, and served by foreign shipping. With the onset of European rule in the nineteenth century, extensive engineering works improved access and capacity at these ports. During the twentieth century, three major dynamics shaped the hierarchy of African ports: independence from colonial rule, globalisation of shipping epitomised by containerisation, and the concession of major ports to private operators or entities for management and development (Debrie, 2012; Olukoju, 2020).

The application of technology and capital since the nineteenth century has also transformed old ports and led to the emergence of new ports across the coastline. Bigger ports are being constructed with an increasing number being run by concessions signed with foreign operators, with generally optimistic outcomes (Boermann, 2015; Badr & Mehyar, 2019; Olukoju, 2020; Bichou, 2021; Ayesu et al., 2022). According to Olukoju (2020), the maritime industry is a growth hub and enabler of economies of scale for production and trade in Africa. However, the ports must be efficient and competitive to be engines of local, national, regional and even international economic growth. Concession has been conceptualised in various ways by scholars and legal frameworks (Idornigie, 2006; Tsvetkov, 2010; Oghojafor et al., 2012; Kahyarara & Simon, 2018; Okeke, 2022). According to Tsvetkov (2010), a concession is a process in which a concession grantor gives a merchant concessionaire the right to operate a facility or provide a public service. In return, the concessionaire commits to constructing and managing the facility or overseeing service delivery at their own risk.

Similarly, Section 168 of the draft Ports and Harbour Authorities Bill defines concession as an agreement between an Authority and a third party, authorising the latter to provide port services or operate a port facility under the bill's provisions (Idornigie, 2006; Oghojafor et al., 2012; Okeke, 2022). The effectiveness of terminal privatisation through concession contracts depends on the competitive landscape of the port sector. Niekerk and Henriette (2005) argue that such arrangements are beneficial when port competition is naturally robust. However, in cases where competition must be introduced through regulation, concessions may not always be the ideal approach.

Port efficiency creates more economic benefits as it allows more cargo throughputs. To achieve port efficiency, there is a basic need for modern ships and a constant and sustainable supply of seafarers in shipping companies and maritime institutions to operate these modern ships. Africa's growing influence in global maritime trade is exemplified by the presence of two of its ports in the world's top 100 rankings. Morocco's Tangier-Mediterranean port leads the continent, securing an impressive fifth place globally in 2022. With a massive handling capacity of nine million containers, it serves as a critical gateway connecting Africa, Europe and the Americas, solidifying its role as a powerhouse in international shipping. Egypt's Port Said is strategically located at the northern entrance of the Suez Canal and is the world's busiest crossing traffic port, linking the Mediterranean Sea to the Indian Ocean.

However, both ports have shown signs of decline in recent rankings (UNCTAD, 2023). For example, Port Said dropped from 16th in 2022 to 52th in 2023, highlighting the urgent need for continued investment and innovation to maintain Africa's competitive edge in the global maritime industry (World Shipping Council, 2023).

From 2006 to 2019, African port throughput grew by 26 percent, with Sub-Saharan Africa expanding by 36 percent. However, both trailed behind the global growth rate of 42 percent. In 2020, African ports handled 1.25 billion tonnes of cargo, 817 million of which were processed in Sub-Saharan Africa, yet this figure was modest compared to the global throughput of 20.2 billion tonnes (Table 1). The COVID-19 pandemic further exposed these vulnerabilities, causing Africa's port throughput to decline by eight percent in 2020 compared to a global decrease of only 3.8 percent. In 2021, African ports recorded 89,000 ship calls exceeding 1,000 gross tonnes, with 43,000 in Sub-Saharan Africa (UNCTAD, 2022; Konstantinus & Woxenius, 2022). Although this accounted for just one percent of global port calls, 55 percent involved passenger ships serving short-high-demand routes vital for regional mobility.

Metric tonnes in millions	Sub-Saharan Africa				Africa				World			
	2006	2019	2020	Share	2006	2019	2020	Share	2006	2019	2020	Share
Total goods handled	629	854	817		1071	1348	1245		15,605	22,126	21,279	
Increase, Index 2006 = 100	100	136	130		100	126	116		100	142	136	
Total goods loaded	443	563	529	100%	722	814	735	100%	7702	11,071	10,648	100%
Crude oil loaded	225	211	182	34%	354	303	236	32%	1783	1860	1716	16%
Other tanker trade loaded	22	49	46	9%	86	92	83	11%	915	1303	1202	11%
Dry cargo loaded	197	304	302	57%	282	420	416	57%	5004	7908	7730	73%
Total goods discharged	186	291	288	100%	349	534	510	100%	7903	11,055	10,631	100%
Crude oil discharged	35	26	24	8%	41	35	31	6%	1940	2023	1864	18%
Other tanker trade discharged	25	70	69	24%	39	113	108	21%	897	1320	1222	11%
Dry cargo discharged	126	194	195	68%	269	385	372	73%	5066	7712	7545	71%

Table 1: Annual global seaborne trade by type of cargo and economic region for 2016, 2019 and 2020 (Source: UNCTAD, 2022; Konstantinus & Woxenius, 2022)

Coastal shipping in Africa is heavily driven by containerised services, accounting for 25 percent of port calls, more than double the average of ten percent as shown in Table 2. This dominance shows that the continent depends heavily on container ships that run regular routes or smaller connecting routes within a central hub system, crucial for regions with underdeveloped port infrastructure. Vessels equipped with onboard cranes are particularly effective in Sub-Saharan Africa, where ports often lack advanced handling equipment. In East Africa, countries like Kenya, Tanzania and Mozambique rely heavily on coastal shipping to support key industries such as fertiliser, sugar and salt production, which require bulk transport.

Port calls, 1000	Sub-Saharan Africa				Africa				World			
	2019	2020	2021	Share	2019	2020	2021	Share	2019	2020	2021	Share
All Ships	48	42	43	100%	102	84	89	100%	4363	3907	4286	100%
Liquid bulk carriers	8.5	7.9	8.1	19%	14	14	15	17%	526	489	518	12%
Liquefied petroleum gas carriers	1.0	0.9	0.9	2.2%	2.4	2.3	2.7	3.1%	55	53	58	1.4%
Liquefied natural gas carriers	0.4	0.4	0.4	0.8%	0.7	0.6	0.7	0.8%	12	12	14	0.3%
Dry bulk carriers	9.5	8.4	9.1	21%	14	13	14	16%	278	266	285	7%
Dry breakbulk carriers	10	9	9	21%	19	17	18	20%	447	414	436	10%
Roll-on, roll-off ships	3.0	2.7	2.9	7%	7.3	5.8	6.6	7%	191	166	180	4%
Container ships	12	11	11	25%	23	22	22	25%	475	459	447	10%
Passenger ships	3.5	1.8	1.5	3.5%	21	8.9	9.1	10.3%	2379	2047	2349	55%

Table 2: Annual port calls by economic region for 2019–2021 (Source: UNCTAD, 2022; Konstantinus & Woxenius, 2022)

Meanwhile, West Africa's port infrastructure has rapidly advanced through foreign investment, port concessions and expanded hub networks, though activity remains focused on trans-shipment for global lines rather than regional trade. The absence of integrated land-based transport corridors further elevates the importance of coastal and short-sea shipping in connecting Africa's economies and driving intermodal transport development. Figures 5 and 6 show the Network of Ocean Africa Container Lines (OACL) in Southern Africa and Coastal shipping network of the United Africa Feeder Line, respectively.
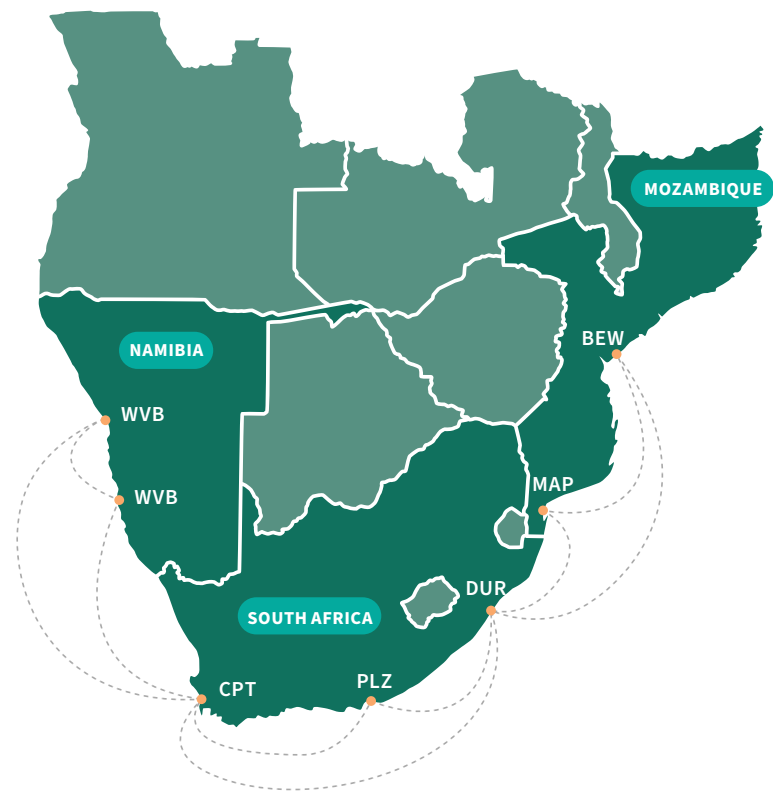

Figure 5: Network of Ocean Africa Container Lines (Source: Modified from Konstantinus & Woxenius, 2022)

Figure 6: Coastal shipping network of Feeder Line in Africa (Source: Modified from Konstantinus & Woxenius, 2022)

5.2 The current status of maritime transition to automation and decarbonisation in Africa

Africa presents a significant opportunity to advance its maritime industry through the adoption of port automation technologies. Currently, automated container terminals are operational across all continents except Africa and Antarctica (Figure 7), with 23 countries globally implementing a balance of semi- and fully-automated systems (Knatz et al., 2022). Even though studies report that Africa has no automated container terminals, progress is underway as several terminals in Africa have begun automating their gate processes (The Maritime Executive, 2016). This shift towards automation marks a critical first step in modernising port operations, improving efficiency, reducing congestion and enhancing cargo flow. In 2024, Africa's journey towards port automation took a major leap forward as Camco Technologies secured significant contracts to automate container terminals in Ghana, Kenya and Benin (Camco Technologies, 2024). As container traffic and trade flows surge across the continent, the demand for more efficient port operations has never been greater.

Given Africa's strategic geographic location along key global shipping routes and anticipated surge in intra-African trade driven by the African Continental Free Trade Area (AfCFTA), the integration of automated port infrastructure could evidently enhance the continent's competitiveness in global trade. Implementing advanced automated technologies such as autonomous cargo handling and smart port systems would streamline supply chains, alleviate port congestion and optimise cargo throughput (McKinsey and Company, 2018). This transition holds the potential to stimulate economic growth, attract foreign direct investment and support the development of high-skilled labour markets.

N Europe: 11 — 5 Fully-Automated 6 Semi-Automated

N. America: 6 — 3 Fully-Automated 3 Semi-Automated

Mediterranean: 6 — 6 Semi-Automated

C. America: 4 — 4 Semi-Automated

Pacific Asia: 22 — 7 Fully-Automated 15 Semi-Automated

Oceania: 7 — 3 Fully-Automated 4 Semi-Automated

M. East/ S. Asia: 7 — 7 Semi-Automated

Figure 7: Absence of automated container terminals in Africa (Source: Modified from Knatz et al., 2022)

Regional maritime transport is vital for Africa's economic growth, trade facilitation and socio-economic development. It offers African countries a safer, more energy-efficient and environmentally friendly alternative to road transport, providing critical connectivity for remote regions without requiring massive infrastructure investments (Konstantinus & Woxenius, 2022).

To address these potentials, the 2050 Africa's Integrated Maritime Strategy (AIMS 2050) aims to expand maritime infrastructure, including logistics platforms, dry ports and satellite container tracking to strengthen Africa's competitiveness (African Union, 2015). Integrating maritime transport into intermodal networks, supported by collaborative shipper-shipowner relationships, is key to maximising its impact. Additionally, the AfCFTA agreement, launched in 2018 with a $2.5 trillion market, is poised to transform the continent's economy. It is projected to boost intra-African trade by 52 percent, increase GDP by 80 percent through growth of small to medium sized enterprises (known as SMEs), and create 49 percent more jobs (Witschge, 2018; African Development Bank, 2019; Konstantinus & Woxenius, 2022). By 2023, inter-African trade could grow by over 80 percent (Abrego et al., 2019), driven by reduced trade barriers and modernised maritime logistics.

> ## By 2030, inter-African trade could grow by over 80 percent

The United Nations Conference on Trade and Development (UNCTAD) 2023 report on world investment in sustainable energy, emphasises that Africa's maritime trade patterns are poised for significant growth, particularly in traffic across all transport modes. In the clean energy transition, Africa is expected to play a key role in the hydrogen economy.

UNCTAD (2024) acknowledges that African coastal countries possess significant potential due to water and energy availability as well as the existence of port infrastructure in Africa.

In particular, Djibouti, Egypt, Ethiopia, Ghana, Kenya, Mauritania, Morocco, Nigeria, Rwanda, South Africa and Tanzania are considered to offer potential landing zones or hubs for storing and distributing green hydrogen (AbouSeada & Hatem, 2022).

Realising this potential will necessitate a re-evaluation of the continent's approach to maritime education, training, certification strategies, and recruitment processes. Currently, there is a lack of in-depth studies to define the maritime sector's human resources development in terms of its steps and processes in adding value to the hiring process in Africa. Consequently, no specific models exist to guide a comprehensive strategy for human resource growth that would position the maritime sector as a key contributor to the continent's economy (UNEP, 2015). This study addresses this gap by focusing on three key African regions – Eastern, Southern and Western Africa. Those countries representing each region were selected as Kenya and Tanzania in Eastern Africa; Namibia and South Africa in Southern Africa; and Ghana and Nigeria in Western Africa. These countries were chosen based on population size, number of MET institutions, seafarer representation, and key port activities.

5.3 Prospects in Africa's maritime sector

Africa's involvement in the maritime sector remains largely under-used despite its heavy reliance on maritime transport (AFRIMET, 2020). The continent's geographical advantage, combined with its growing focus on sustainable ocean economies (blue economy) and investment in port infrastructure, positions it as a rising powerhouse in international maritime trade (UNCTAD, 2023). Its strategic location provides access to some of the world's busiest shipping lanes, including those around the Cape of Good Hope and the Suez Canal. With a coastline extending over 30,000 kilometres, Africa hosts key shipping routes and vital ports such as Durban, Lagos, and Mombasa, which play integral roles in facilitating the movement of goods, connecting countries and driving global economic development (Rochwulaningsih et al., 2019). As Africa's economic development accelerates, its maritime sector is increasingly recognised as a critical driver of both regional and international trades.

Despite Africa being home to 54 nations, it is one of the most genetically diverse continents due to its status as the origin of the human race, and it boasts distinctive political and cultural systems. In 2024, Africa's population is estimated to be 1.5 billion, with Nigeria, Ethiopia, Egypt, the Democratic Republic of the Congo, and South Africa among the most populous countries. Over the past 40 years, the continent has experienced rapid population growth, with a notably young demographic; more than half of the population in some countries is under 25 (World Population Review, 2024). Experts project Africa's population to reach 2.4 billion by 2050, with the most significant growth occurring in Sub-Saharan Africa. This rapid population increase has raised concerns among experts because many African nations are still developing and struggle to provide adequate infrastructure and resources such as employment, food, water, electricity, healthcare, and law enforcement to meet the needs of their expanding populations.

If these systems fail to keep pace with population growth, living conditions may worsen, potentially leading to increased mortality from issues like hunger and disease or migration.

In contrast, Africa's young population positions the continent as a valuable source of future seafarers to meet the global maritime industry's rising demands. With over 60 percent of Africa's population under the age of 25, the continent has a significant pool of potential talent that can be trained and integrated into the maritime workforce. This is particularly relevant as the shipping industry faces a global shortage of skilled seafarers due to an ageing workforce in many regions, including Europe and Asia (BIMCO/ICS, 2021; Economist Impact, 2023). With the potential to supply a significant portion of the world's seafarers, Africa may possibly surpass Asia in maritime workforce contributions, provided its vast potential is effectively harnessed (Economist Impact, 2023). Ghana, Kenya, Nigeria, and South Africa already home to established MET institutions, could enhance their seafaring programmes to better prepare their youth for careers in this sector. Moreover, international maritime stakeholders could invest in Africa's training infrastructure, so that the continent's youth gain the skills needed for seafaring jobs. This opportunity also aligns with Africa's broader economic goals (UNCTAD, 2023). With a high unemployment rate among young people, seafaring presents a viable career path. Thus, by developing robust MET programmes, African nations can help create jobs, reduce unemployment, and support global maritime demand. Additionally, Africa's rapid economic growth, abundant natural resources, low labour costs and business-friendly trade agreements make it a competitive sourcing alternative. Opportunities vary by industry, offering companies significant rewards in this emerging market.

To realise this vision, the African Call to Action for achieving a Just Transition for Africa's seafarers provides a roadmap for addressing workforce challenges and ensuring sustainable growth in the sector (RMU, SAIMI & Climate Champions, 2024). This call emphasises the need for collaborative efforts among governments, training institutions and the maritime industry to transform Africa's seafaring capacity. Governments are encouraged to invest in robust training infrastructures, establish and implement policies to increase the number of African seafarers and cadets, facilitate sea time opportunities, and better integrate Science, Technology, Engineering and Mathematics (STEM) education while fostering youth and gender inclusion campaigns. Training institutions are tasked with enhancing trainer capacity, modernising curricula and aligning their programmes with industry's evolving demands through collaborations and partnerships. Meanwhile, the maritime industry is called upon to prioritise African talent, fund upskilling programmes, engage seafarers in decarbonisation efforts and support training institutions through mentorships, internships and research into sustainable technologies. By aligning these strategic actions with the demographic and technological opportunities outlined in the Global Maritime Trends 2050 report, Africa has the potential not only to address its workforce challenges but also to position itself as a global leader in maritime labour. This integrated approach underscores the continent's capacity to drive innovation and sustainability in the maritime sector, contributing significantly to a just and inclusive global maritime future.

MET capacity in Africa

6.

Following chapter five's discussion on Africa's maritime future, which explored maritime profiles, developments and prospects, this chapter focuses on the critical role of MET in realising the continent's potential as a seafarer supplier. A skilled workforce is essential to overcoming barriers, shortages and seizing opportunities in the maritime sector.

This chapter examines the current state of MET in Africa, mapping institutions, the seafaring qualification process, and enrolment and graduation trends by gender and seagoing programmes. Also, it draws comparisons with MET enrolment trends at the World Maritime University (WMU) in Sweden, an international institution dedicated to the development of MET competencies globally.

Africa is currently home to approximately 150 MET institutions, both public and private (Appendix 1). According to the findings in this report, most of these are state-owned and some are private, approved by their respective governments through national authorities in charge of maritime affairs and higher education to provide specialised training for seafarers. According to Kiplimo and Ikua (2017), there has been a continuous growth in the maritime sector in many African countries like Kenya and Tanzania, with the institutional capacity to offer maritime training as per the required standards. The AFRIMET (2020) report also highlights the establishment and development of MET institutions in various parts of Africa including Ghana, Nigeria, South Africa and Egypt.

These institutions play a crucial role in developing the skills required for careers at sea, equipping young Africans with both theoretical knowledge and practical experience in line with international maritime standards (Ngcobo, 2018; Dyers, 2020; AFRIMET, 2020; Tiataing, 2021; Jones, 2022).

Among African countries in the Sub-Saharan region, Nigeria, Kenya and South Africa stand out as having the highest number of MET institutions. Nigeria leads with 31 institutions, followed by Kenya with 20 and South Africa with 14 (Figure 8). These figures were gathered through desktop research, including data collected from institutional websites and various literature sources such as the AFRIMET report and WMU-MET students' dissertations as well as the data collected from African institutions through the help of their respective maritime administrations, directors, human resource and experts in the industry. The presence of a higher number of MET institutions in African countries indicates a robust commitment to advancing MET and fulfilling the growing demand for skilled labour in the maritime sector, making those countries well-positioned to become prominent seafarer hubs.
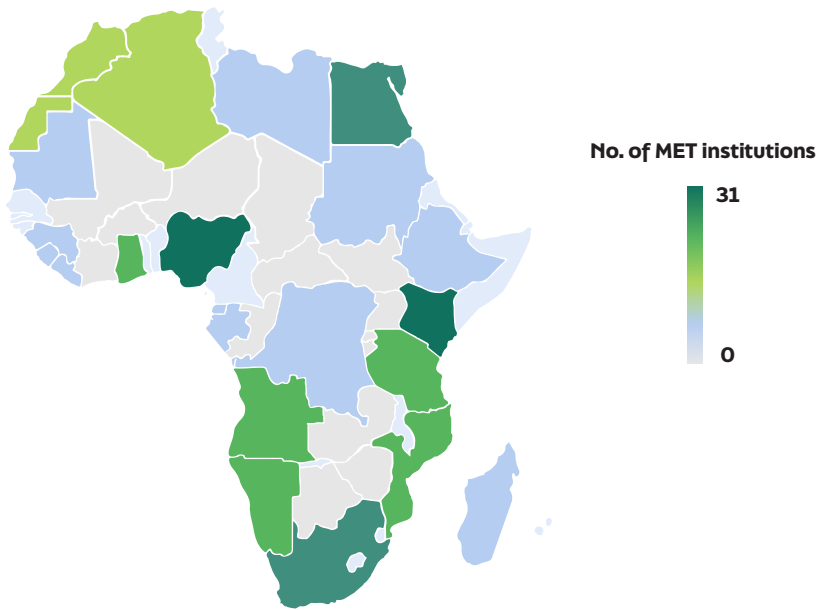

No. of MET institutions

31

0

Figure 8: The geographical distribution of MET institutions in African countries

Chapter 6

The MET process for seafarers varies by country (Appendix 1). Students who want to become deck officers or engineers mostly will enrol into a maritime training academy, college or university for their tertiary education to obtain a diploma or degree at the end of their courses. The education scheme to become a seafarer is monitored and regulated by maritime administrations in cooperation with authorities in charge of vocational training and higher education in each of the IMO member states. The officer and engineer education is undertaken at college or university and includes study programmes in marine engineering, nautical science, maritime transport logistics, maritime navigation and shipping management, to name a few (see Appendix 2). In South Africa, for instance, applicants must complete secondary schooling with English, mathematics and science as major subjects before enrolling in a marine engineering course (Mathebekase, 2018). At the university level, students attend a two-semester programme after which it becomes the student's responsibility to secure an employer or training berth to obtain sea time in accordance with the STCW Convention.

This transition often poses significant challenges, as a result of the limited number of available berths, stiff competition among students and the reliance on industry connections to secure placements. Additionally, students from underprivileged backgrounds may face financial and logistical barriers in meeting these requirements, further complicating their pathway to certification as officer or engineer.

Moreover, students have to attend various ancillary training courses as outlined by the STCW Convention, such as fire-fighting and lifeboat handling. For some students, the lengthy process of finding a training berth can significantly delay their qualification (Mathebekase, 2018). Figure 9 illustrates the steps or processes a student must follow to become a qualified seafarer in South Africa.
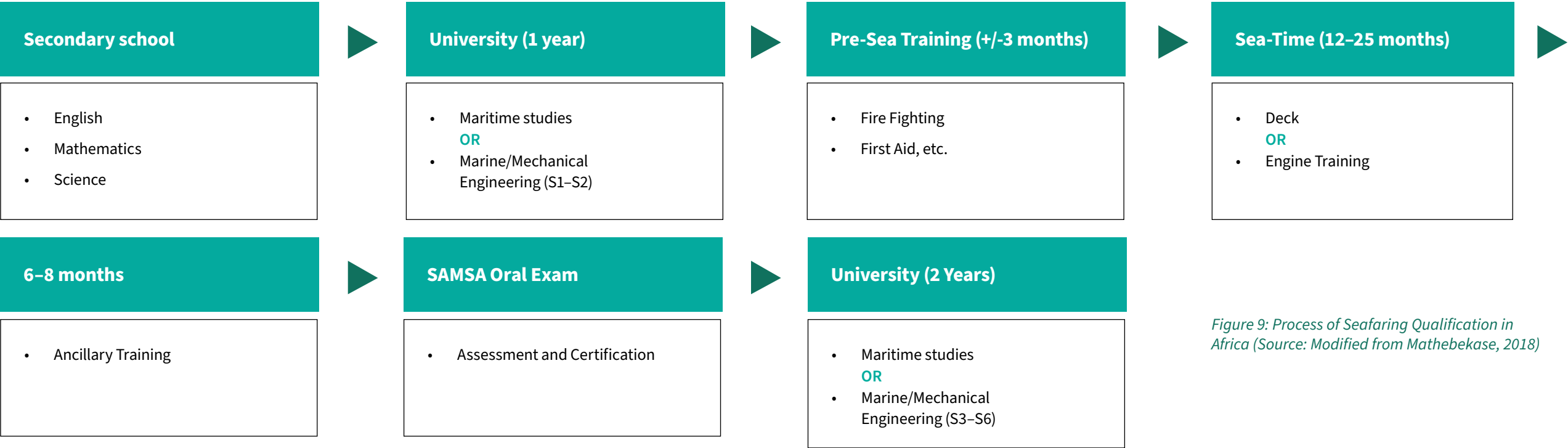
Secondary school	University (1 year)	Pre-Sea Training (+/-3 months)	Sea-Time (12–25 months)
• English • Mathematics • Science	• Maritime studies **OR** • Marine/Mechanical Engineering (S1–S2)	• Fire Fighting • First Aid, etc.	• Deck **OR** • Engine Training

6–8 months	SAMSA Oral Exam	University (2 Years)
• Ancillary Training	• Assessment and Certification	• Maritime studies **OR** • Marine/Mechanical Engineering (S3–S6)

Figure 9: Process of Seafaring Qualification in Africa (Source: Modified from Mathebekase, 2018)

In Kenya, the journey towards implementing MET began shortly after the country gained independence in 1963, with the introduction of a cadet training scheme supported by the British Government.

This initiative aimed to produce qualified officers who could take up the supervisory role of the jointly operated services for common lakes and harbours shared by Kenya, Uganda and Tanzania (Kiplimo & Ikua, 2017). However, East African MET institutions have encountered great challenges compared to their counterparts in South, West and North Africa, where maritime academies are fully established with comprehensive training and almost all relevant training facilities available, including advanced laboratories and high-end simulation technologies. In the past, East African MET institutions struggled with inadequate training resources, insufficient human capital and poor infrastructure. As a result, many trainees have sought maritime education abroad before the establishment of new institutions in Kenya and Tanzania (Kiplimo & Ikua, 2017).

Over the past decade, many African MET institutions have seen increasing student enrolments, indicating a growing demand for seafarers and a strong interest in maritime careers among African students. A study by Matsushima (2016) at Barbera Maritime and Fisheries Academy (BMFA) in Somalia found that over 90 percent of students were eager to work for international shipping companies.

90%+ of students were eager to work for international shipping companies

Notably, students with prior sea experience demonstrated a significantly higher level of interest in working for international shipping companies compared to those without any sea experience. Matsushima suggests that this high interest level post-sea experience may result in lower turnover rates after employment. Students' motivation centres on exploring the ocean, learning about the world around them, and earning competitive salaries. While many students seek opportunities with international shipping companies due to better compensation and exposure, this may also indicate limited recruitment by domestic maritime organisations, which could impact local industry development.

In 2022, Liberia overtook Panama to become the world's largest flag state by dead weight tonnage, reaching an impressive 378.3 million dead weight tons (DWT) in its fleet. This growth was further underscored by a 12.7 percent increase in ship tonnage between 2022 and 2023 (UNCTAD, 2023). According to UNCTAD (2023), although Panama still leads in the total number of vessels, Liberia holds the second position with 4,821 registered ships, boosting an average vessel size of 78,479 DWT and commanding the second-largest global share at 11.78 percent, closely trailing Panama at 12.86 percent. Nigeria stands as Africa's leading ship-owning nation and ranks 33rd globally, with a fleet of 291 vessels totalling 7.94 million DWT. Nigeria owned ships hold the 30th spot worldwide in fleet value, accounting for 0.56 percent of global vessel value (UNCTAD, 2023). Despite the dominance of non-African shipping companies, Liberia and Nigeria present significant opportunities for African seafarers and MET graduates to work on ships.

However, working for international companies fosters relationships between African countries and the global community while generating new employment opportunities and knowledge for future generations in Africa. A similar observation was made in this study, where African countries are found at the forefront of this shift, witnessing a surge in enrolment rates of young school leavers eager to be trained as seafarers. Further, the presence of good training facilities plays a leading role in STCW training requirements in the three sub-regions and calls for a more conscious effort at promoting African seafarers in the international market.

6.1 Enrolment trends in MET institutions across selected African Countries

Enrolment trends in MET programmes serve as a key metric for evaluating and predicting future seafarer supply. These trends provide insights into the capacity of MET institutions to produce graduates who will meet the demands of the maritime industry. Monitoring enrolment patterns not only helps to identify potential shortages or surpluses but also sheds light on the effectiveness of recruitment strategies and the attractiveness of maritime careers.

Today, Africa's population in the countries studied reflects vast potential for maritime workforce development. Nigeria leads with 232.7 million people, followed by Tanzania (68.6 million), South Africa (64 million), Kenya (56.4 million), Ghana (34.4 million) and Namibia (3 million) (World Population Review, 2024). Data from MET institutions in these six countries reveal significant enrolment disparities from 2015 to 2024 (Figure 10).

Tanzania and South Africa have consistently recorded higher enrolment figures, indicating robust participation in maritime training programmes. Conversely, Namibia, Kenya, Ghana and even Nigeria with its large population have reported lower enrolment figures, signalling untapped potential and the need for greater investment in MET infrastructure and enhanced outreach. The geographical distribution of MET students as depicted in Figure 10, provides insights into regions with the most significant enrolment activity. While South Africa and Tanzania currently outnumber the rest, institutions in Namibia, Kenya, Ghana and Nigeria hold significant potential for growth. These findings underscore the need for targeted efforts to share success stories across regions and support the development of seafarer pipelines throughout Africa.
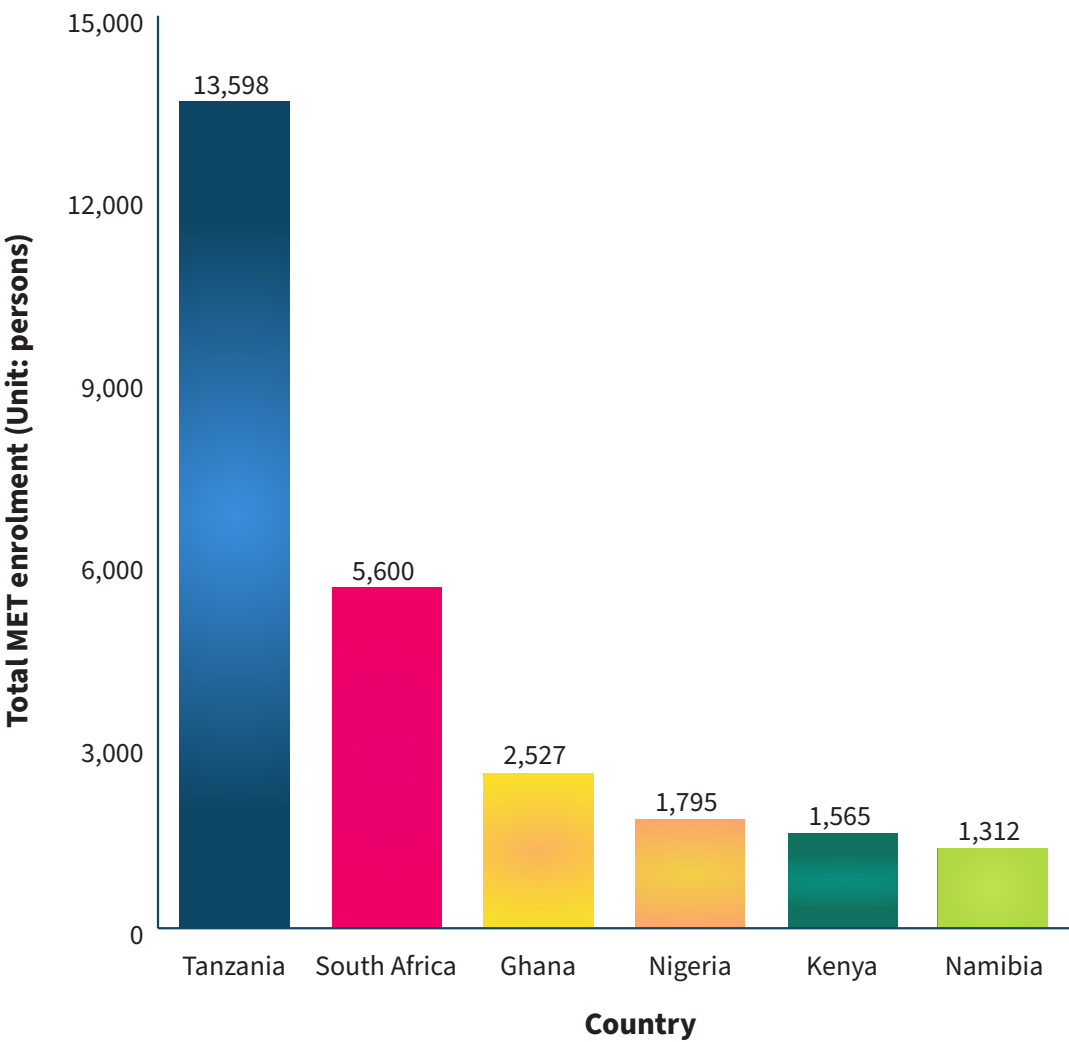

Figure 10: Total MET enrolment in African countries using the six selected institutions (2015–2024)
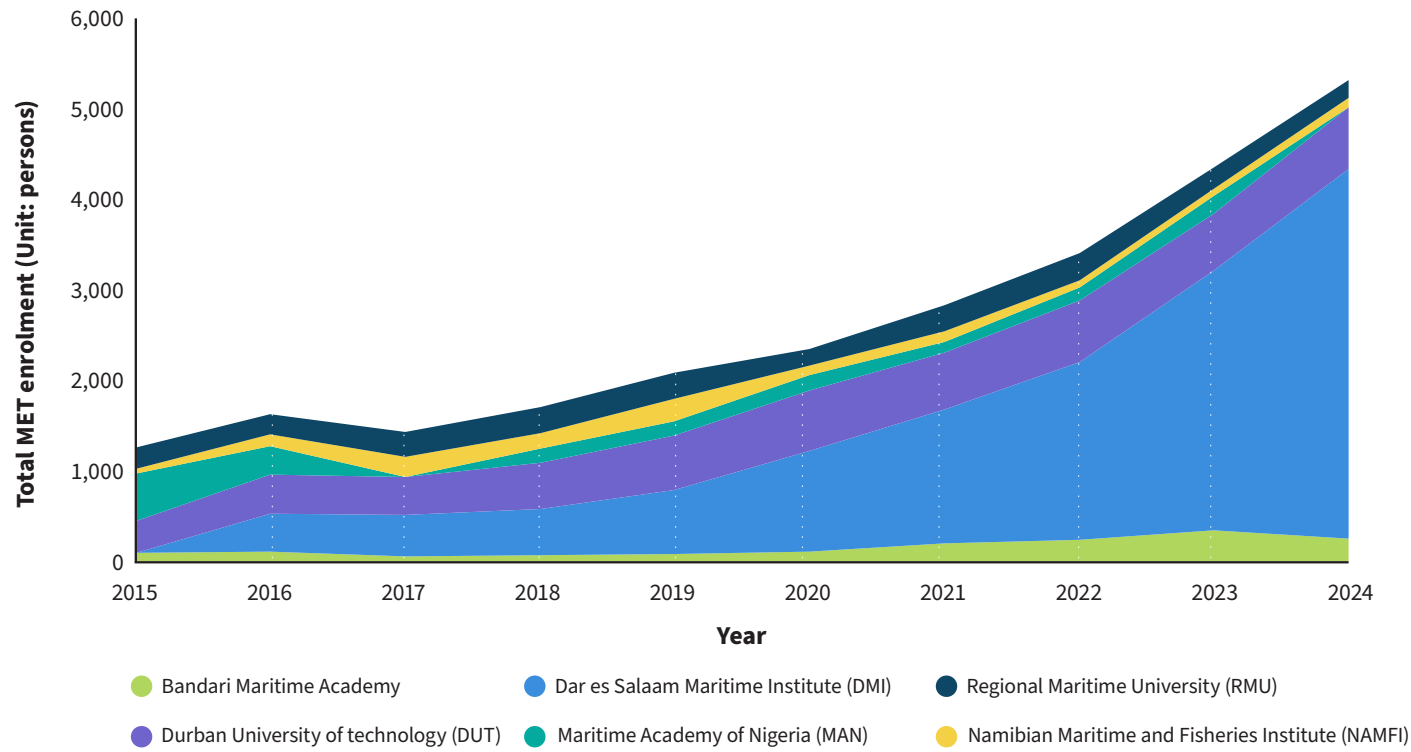
Figure 11: Trends in student enrolment across six MET institutions in Africa from 2015–2024

According to the previous studies, the motivation to pursue seafaring careers in Africa is driven by a combination of personal ambition, economic opportunity and job security (Ruggunan & Kanengoni, 2017; Bruce & Quartey, 2017). In South Africa, many maritime students are inspired by a deep personal interest in the industry, viewing it as a pathway to adventure, global exposure and professional growth. This intrinsic motivation is further strengthened by the promise of competitive salaries and stable employment in the global shipping sector, an attractive prospect in regions where youth unemployment remains high and are considered motivational factors in choices to continue working as a seafaring officer in South Africa (Ruggunan & Kanengoni, 2017). In Ghana, for example, the primary motivational factors identified by Bruce and Quartey (2017) include securing a stable and secure future, earning a good salary and attracting improved social status and prestige.

An analysis of data from six MET institutions (Figure 11) demonstrates a clear upward trajectory in student enrolment over the past decade (2015–2024). This growing trend reflects the increasing recognition of the maritime sector's strategic importance to economic development and the rising demand for qualified professionals and seafarers. Figure 11 shows that three institutions – Maritime Academy of Nigeria, Regional Maritime University and Namibian Maritime and Fisheries Institute – experienced a decline in student enrolment in 2017. The lower enrolment of MET students in 2017 can be attributed to the shipping crisis of 2016 (Northam, 2016), which was marked by a weakened Chinese economy and the collapse of major shipping companies like Hanjin. This turmoil in the global maritime industry most likely led to reduced confidence and fewer job prospects, which in turn may have influenced prospective students' decisions about whether to pursue maritime education during that period. However, the enrolment figures in RMU recovered in subsequent years, driven by good practices implemented by the institution, such as enhanced student support services, scholarships and financial aid.

Across most institutions, there has been a remarkable rise in enrolment figures, with growth rates ranging from approximately 90 percent to over 100 percent. These trends underscore the successful efforts of MET institutions to attract students, driven by factors such as heightened awareness of maritime career opportunities, targeted recruitment initiatives and the expansion of programme offerings aligned with industry needs.

In contrast, the Regional Maritime University (RMU) in Ghana and Maritime Academy in Nigeria exhibited a more stable enrolment trend compared to the other institutions. Enrolment figures at RMU ranged steadily between 185 (the lowest recorded in 2020) and 299 (the highest recorded in 2022) over the past decade. While RMU recorded a slight overall decline of about 12 percent in 2024 enrolment, its average for the decade remained 253 and is therefore higher than the initial figures (227) in 2015. This steady performance indicates organisational resilience (Duchek, 2020): RMU appears able to anticipate and adapt to challenges in attracting students to maritime-related programmes, maintaining consistent student baseline figures.

The scatter plot with a trendline (Figure 12) illustrates the overall enrolment trends in MET institutions over the past decade (2015–2024) and provides projections for future enrolment. The data reveals a strong positive correlation ($R^2 = 0.8835$), indicating increasing trends in student enrolment over the observed period (see Appendix 3: projections for each MET institution). This strong correlation supports the strategic planning of MET programmes to align with industry needs. The regression trendline suggests that, if current conditions persist, enrolment numbers are expected to continue rising in the coming years. This projection underscores the critical role of MET institutions in sustaining a stable supply of qualified seafarers to meet industry demands. However, the analysis also highlights the importance of addressing the potential challenges, such as resource limitation or regional disparities to ensure equitable growth across institutions.
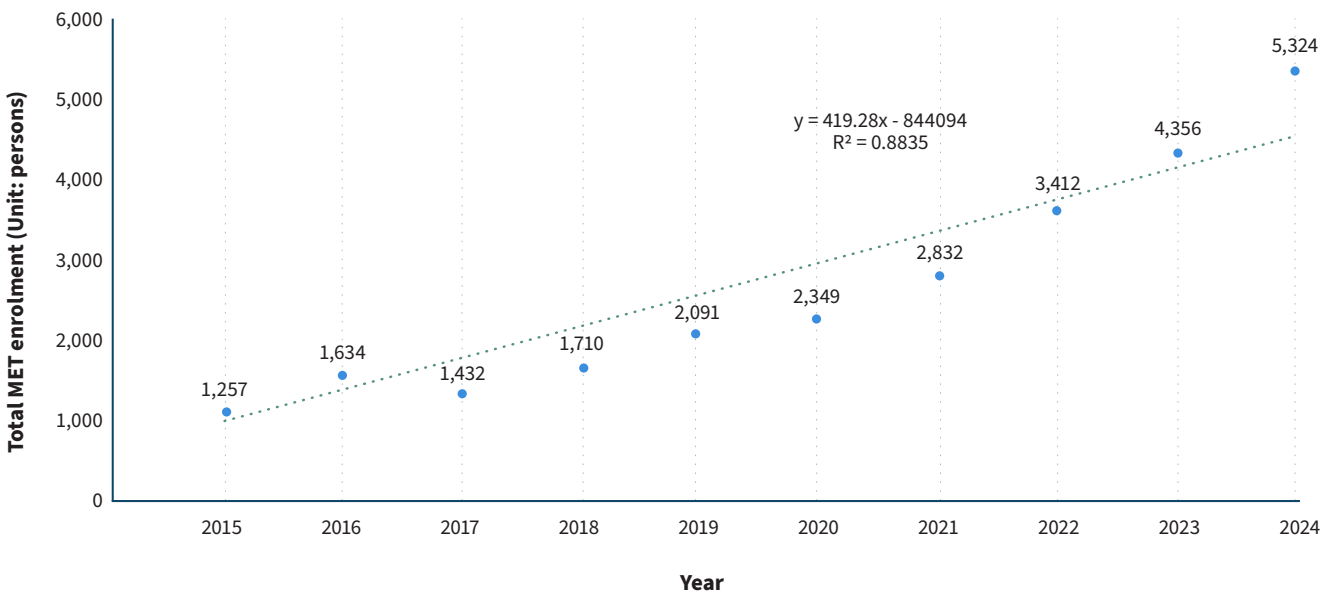

Figure 12: Overall trends and projections in student enrolment growth at MET institutions across selected African countries over the past decade (2015–2024)

Overall, the upward enrolment trends across most institutions highlight the increasing appeal of maritime education and the potential for Africa to address workforce gaps in the global maritime industry. These trends not only reflect the expanding capacity of MET institutions but also emphasise the critical role they play in cultivating the next generation of maritime professionals for sustainable and inclusive growth across the continent.

6.2 Graduation trends in MET institutions across selected African Countries

The analysis of graduation data provided by four MET institutions in Africa – Bandari Maritime Academy (Kenya), Durban University of Technology (South Africa), Regional Maritime Academy (Ghana) and Maritime Academy of Nigeria (Nigeria) – reveals a concerning trend of lower graduation rates compared to enrolment rates over the past decade (2015–2024).

While student enrolment has steadily increased across these institutions, graduation rates have not experienced a proportional rise, highlighting a significant gap in retention and completion rates (Figures 13, 14 and 15). For example, Bandari Maritime Academy, despite a strong increase in student enrolment, recorded a graduation rate of only 55 percent of its enrolled students over the last ten years, suggesting that a substantial portion of enrolled students either drop out or do not complete their programmes within the expected timeframe. Similarly, the graduation rates at the Durban University of Technology remained low, with only 22 percent of its enrolled students graduating annually, despite higher or consistent enrolment growth. The Regional Maritime University, on the other hand, showed the highest graduation rate of around 83 percent, but this still falls short when compared to the rising number of students being enrolled each year.
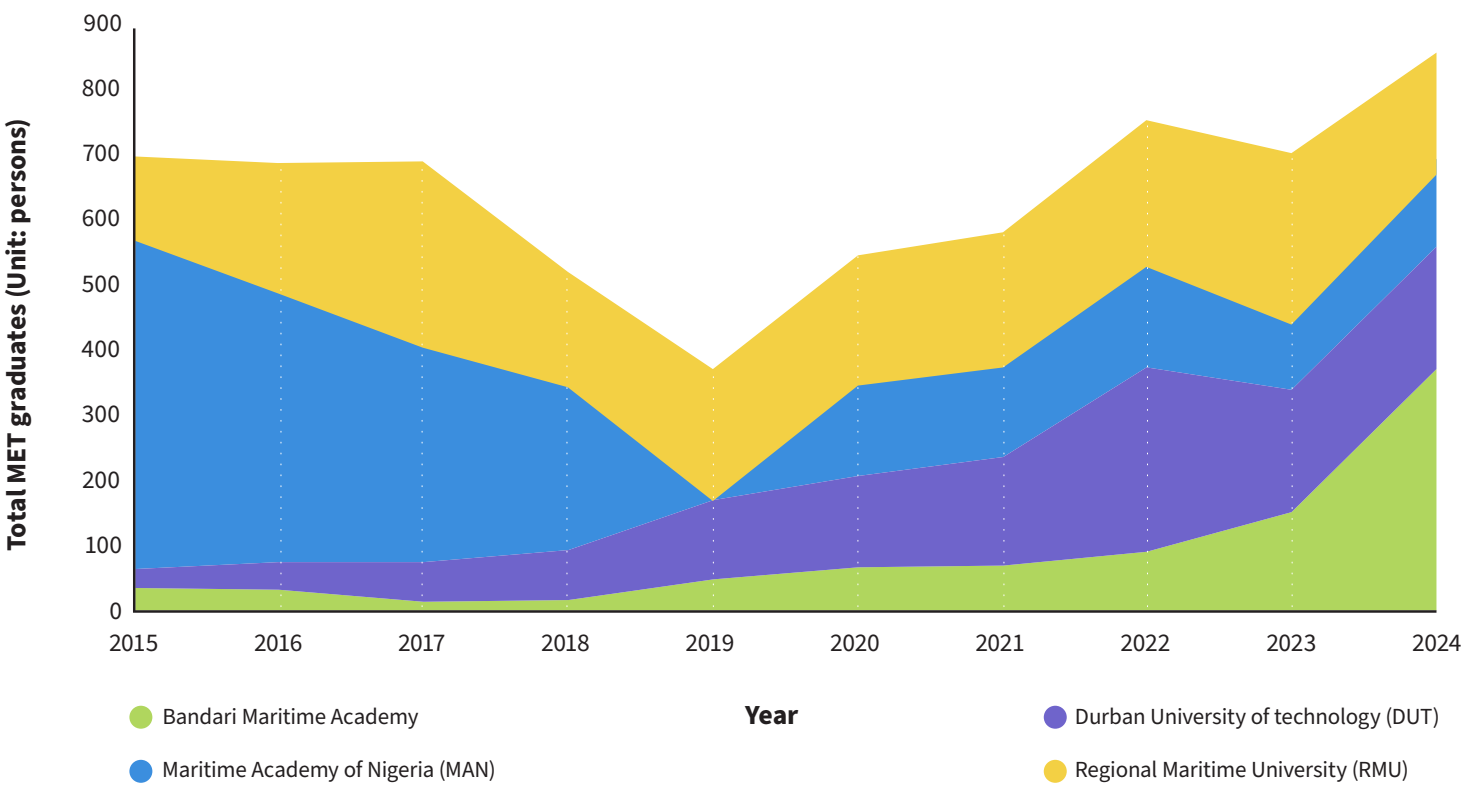

Figure 13: Trends in student graduation across four MET institutions in Africa from 2015–2024

The availability of opportunities for sea time during studies is an important factor that contributes to the discrepancies between enrolment and graduation rates. Limited access to practical training at sea can hinder students' ability to meet the necessary qualifications for graduation, as practical experience is a critical component of maritime education. This issue, alongside financial challenges, inadequate infrastructure and misalignment of curricula with industry needs, further exacerbates the difficulty students face in completing their studies. It is a trend which underlines the urgent need for targeted interventions to improve retention and graduation outcomes, ensuring that more students are not only enrolling but also completing their education and entering the maritime workforce. The findings also highlight the need for comprehensive strategies to address these barriers, including financial aid programmes, curriculum reform and improved academic and career support services to align graduation rates more closely with enrolment trends.
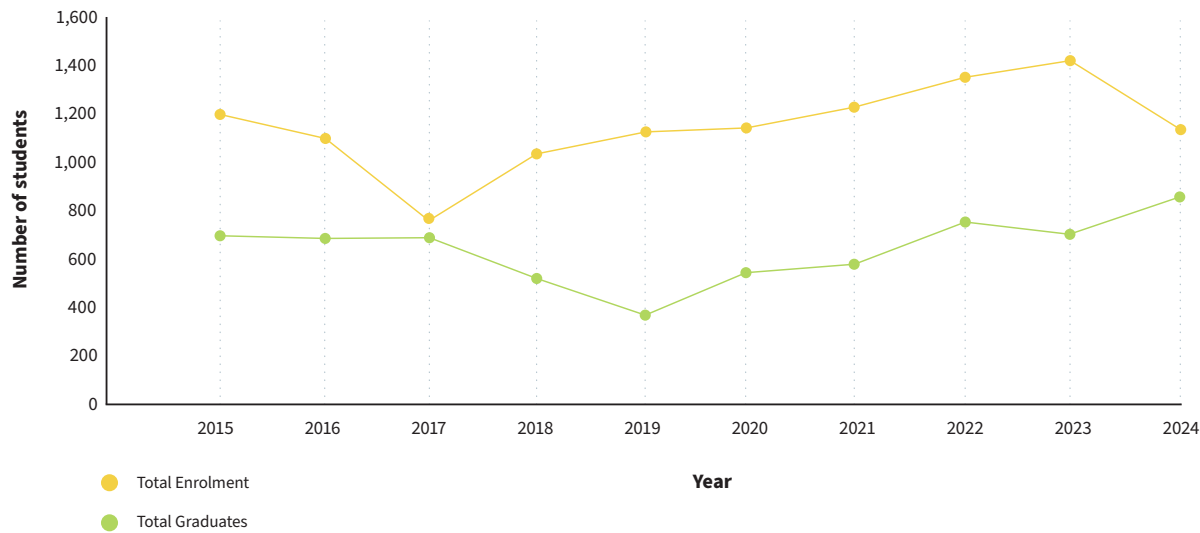

Figure 14: Comparison of overall enrolment and graduation trends in the six MET institutions (2015–2024)
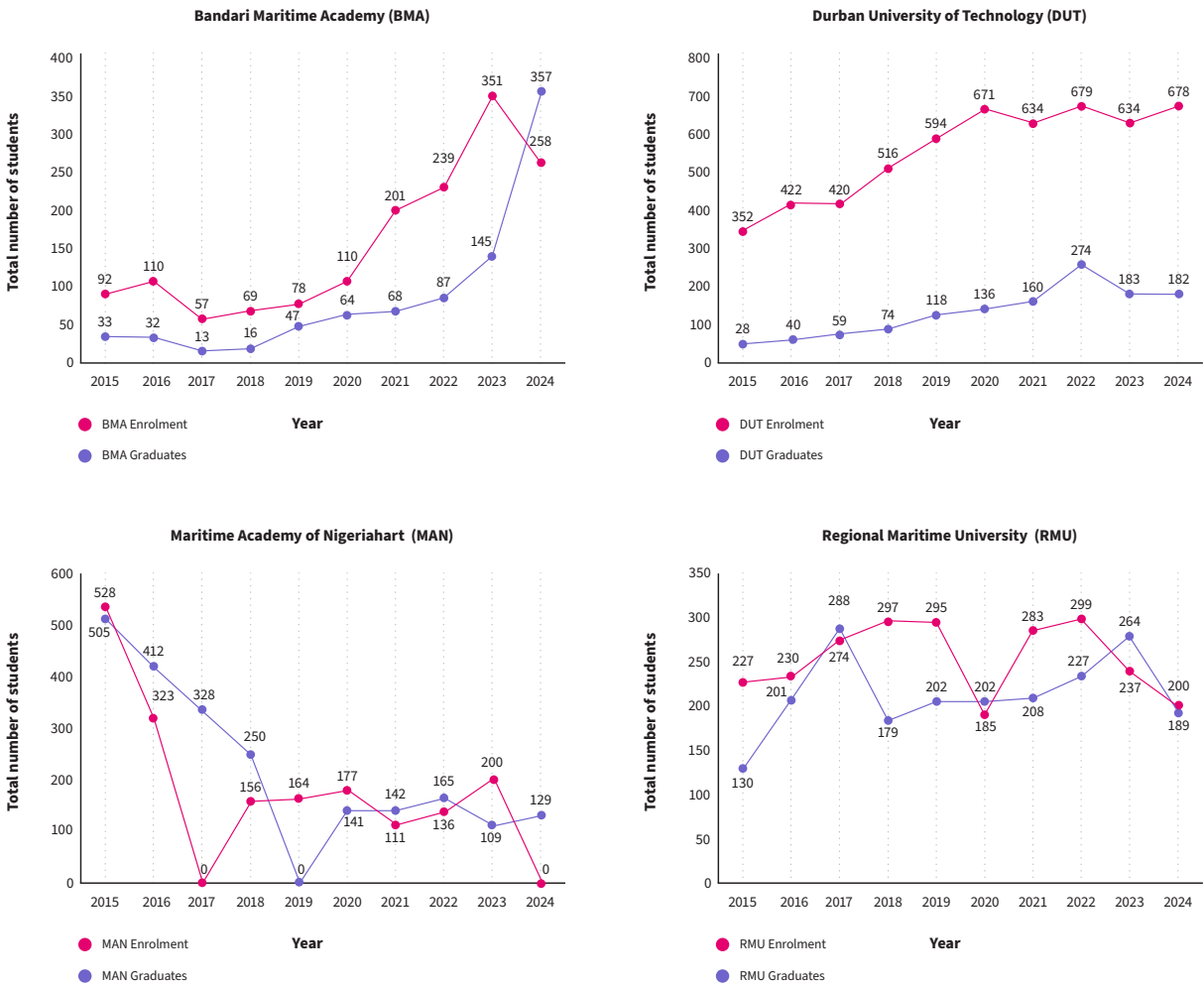

Figure 15: A comparative analysis of enrolment and graduation trends in each MET institution over the past decade (n = 4 institutions)

6.3 Enrolment in seagoing programmes

Enrolment rates in two seagoing programmes were also analysed, revealing significant variations across maritime institutions. A seagoing programme typically refers to a degree programme that includes structured, onboard training as part of its curriculum to comply with the STCW requirements.

Such programmes are essential for cadets and trainee officers seeking certification as they must accumulate a specified amount of practical experience at sea. This study considered programmes with mandatory sea time such as marine engineering and nautical science. In contrast, shore-based maritime courses without required onboard training such as maritime transport and logistics, management and naval architecture, as well as short courses and professional development training, were excluded from this analysis.

The differences in enrolment rates reflect institutional focus, regional priorities and students' interests, as well as other diverse factors influencing enrolment in these programmes. For instance, since their establishment, MET institutions have played a pivotal role in developing academic and vocational skills to support the growth of the blue economy. Notably, enrolment figures in marine engineering have grown faster than those in nautical science (Figure 16), a trend consistent with earlier studies that highlight better shore-based career opportunities for engineers, making engineering education more attractive (Dinwoodie, 2000; Lau & Ng, 2015). Marine engineering courses are often preferred due to their prestige, lucrative career prospects and high industry demand. In addition, engineering professions, including marine engineering, are widely regarded as high value due to their technical complexity, innovation and problem-solving nature.

Moreover, marine engineering careers tend to be well-paying, offering competitive salaries and excellent career progression.
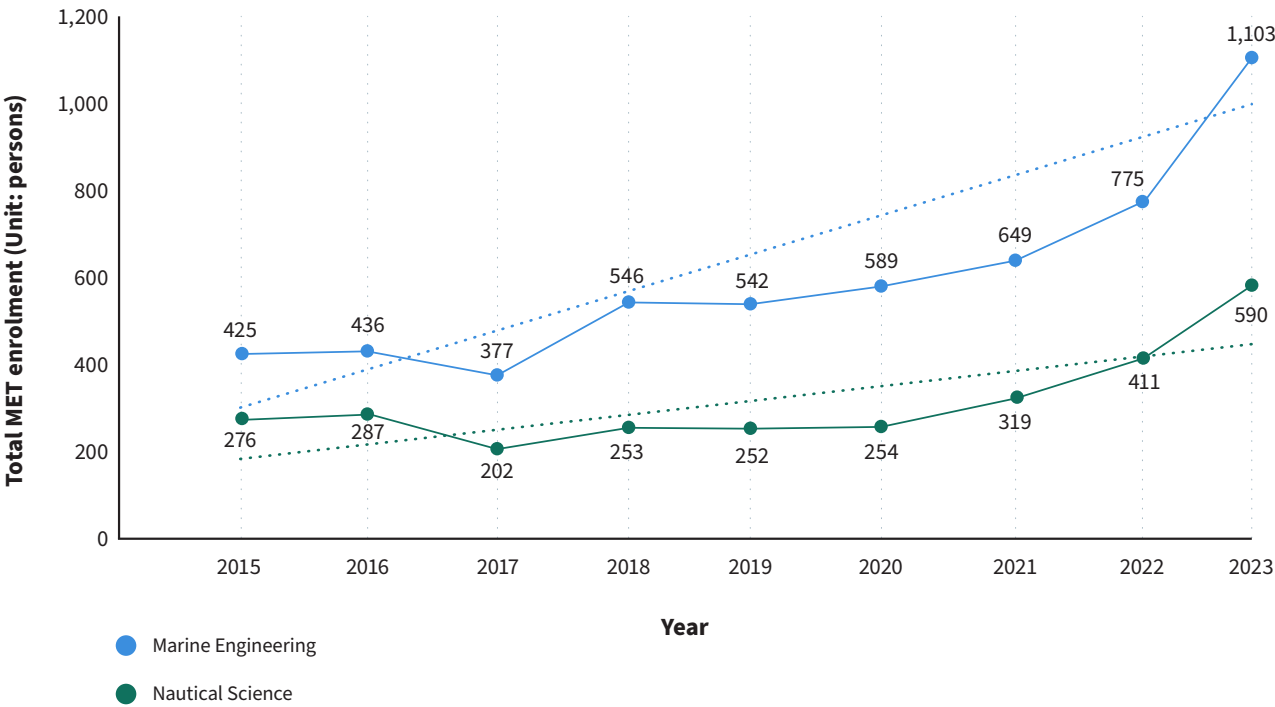

Figure 16: Enrolment trends in seagoing MET programmes in the selected institutions in Africa (n = 6 institutions)

The wage disparity between the shipping sector and the national minimum wages in many African countries is striking, for example, a national minimum wage is offered as low as approximately USD 47 per month in Nigeria and USD 22 in Ghana (Statista, 2025). In contrast, the ITF ILO minimum wage scale for able seafarers is USD 658 and for chief engineers is USD 2,015 based on the ITF Standard Agreement effective from 1 January 2023. However, many maritime administrations have yet to implement these changes (ILO, 2022a; ILO, 2022b). In some African countries, for instance, an engine officer earns a minimum wage of USD 531.2 per month, while an engine rating earns only about a minimum of USD 132.8 per month.[1] This highlights the significant earnings potential in the maritime sector, even though the sector's pay structure is not consistently enforced across all regions.

Marine engineering (in seagoing programmes) focuses on the operation and maintenance of mechanical systems on vessels making it indispensable to global trade and maritime operations, with roles such as engine ratings, engine officers, marine chief engineer, and engineering manager. In contrast, nautical science equips students with the skills to safely navigate and operate ships, covering both practical and theoretical aspects of deck work and navigation. Career opportunities include deck ratings, deck officers, captain and harbour pilot/master (Mehta, 2022). Both fields offer diverse career prospects in shipping companies and technical roles with

[1] Based on the informal communication with some African maritime administrations in January 2025.

opportunities both locally and internationally. Varying patterns of enrolment were evident in other institutions and programmes, especially the STCW courses, where training programmes closely aligned with industry demand attracted the most students. In Bandari Maritime Academy, diploma-level courses generally exhibited higher enrolment compared to certificates without diploma, suggesting an unsurprising preference among students for qualification with broader professional recognition and higher entry-level positions in the seafaring sector. Maritime Academy of Nigeria (MAN), Regional Maritime University (RMU), Dar es Salaam Maritime Institute (DMI), Durban University of Technology (DUT), and Namibian Maritime and Fisheries Institute (NAMFI) also recorded significant variations in programme-specific enrolment, emphasising the need to address gaps in promoting under-enrolled programmes like nautical science, so that MET institutions contribute effectively to meeting both regional and global maritime industry demand.

There is a need to address gaps in promoting under-enrolled programmes like nautical science

6.4 Enrolment of women in METIs and STEM fields

Several MET institutions in Europe started to open their doors to admit women to enrol in nautical and engineering courses in the late 1970s, and it took a few more decades for MET institutions in other parts of the world to follow suit (Kitada, 2021).

During the conference in Manila to amend the STCW Convention in 2010, Resolution 14 "Promotion of the participation of women in the maritime industry" was adopted. This indicates that low participation of women was recognized as a global challenge to address at the IMO level. In fact, despite the IMO's and other concerted efforts to advance gender equality, progress remains slow. Women's representation in MET institutions continues to be disproportionately low.

The data from MET institutions in the selected African countries reveal a persistent gender disparity in enrolment rates. Despite ongoing efforts to improve gender inclusivity within the maritime sector, the proportion of female students remains notably low in all the surveyed institutions, accounting for about 20 percent on average (Figure 17), with the highest female representation observed in Kenya and Tanzania at approximately 25 percent and 22 percent, respectively.
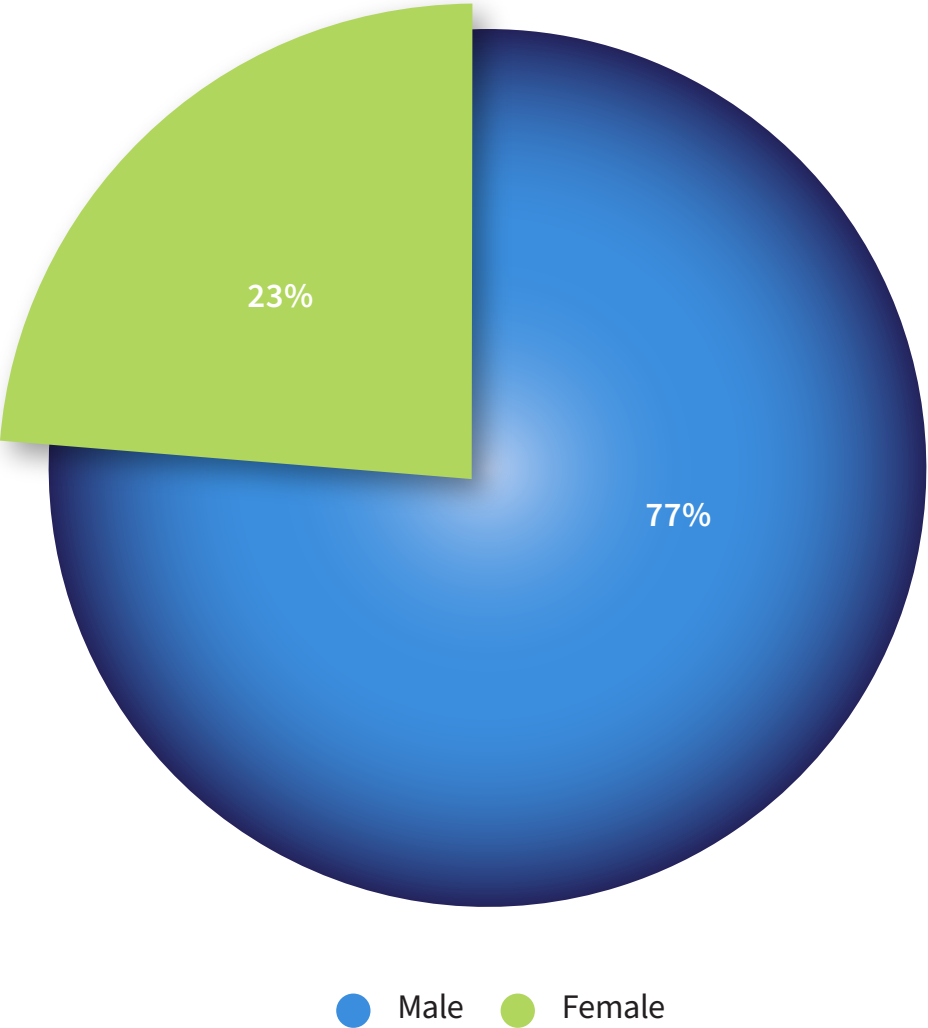

● Male ● Female

Figure 17: Proportion of female student enrolment in MET institutions across selected African countries over the past decade (2015–2024)

The higher representation of female students at BMA can likely be attributed to good practices like lowering fees and providing funding and scholarships to their students. Namibia, Ghana and Nigeria reported significantly lower rates of female enrolment, averaging around five to 18 percent over the past decade (Figure 18). Figure 19 also highlights gender disparities in graduation rates between female and male students at BMA (Kenya), RMU (Ghana) and MAN (Nigeria). While enrolment figures for female students have shown gradual growth, graduation rates lag significantly behind. For instance, completion rates for female students stand at 58 percent in Kenya and 61 percent in Ghana, underlining a critical gap in retaining and graduating women in MET programmes.
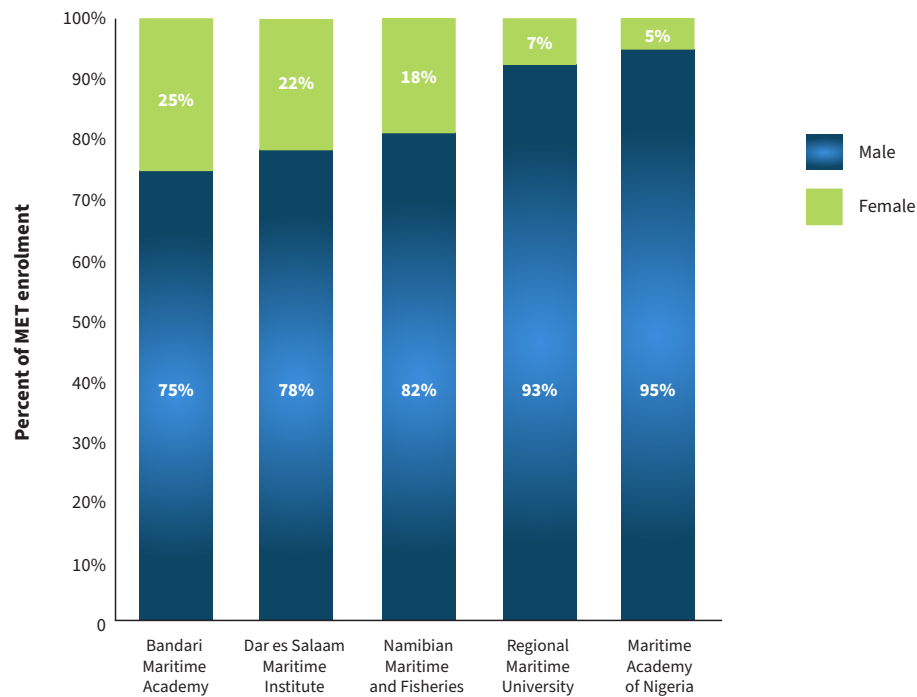
These findings suggest that while some progress has been made in encouraging women to pursue maritime education, there is still a significant gap that needs to be addressed. The low female enrolment and graduation rates contrast sharply with global efforts to promote gender equality in the maritime industry. Initiatives such as targeted scholarships, mentorship programmes and awareness campaigns appear to have had limited impact in some regions, underscoring the need for more robust and localised strategies to attract women to the sector. This analysis highlights the importance of addressing systemic barriers to female participation in MET institutions, including cultural barriers and misperceptions, lack of role models and limited awareness about career opportunities in the maritime field. It also signals the need to support women's enrolment, retention and completion in maritime education.

Figure 18: Proportion of female student enrolment across five MET institutions in African countries
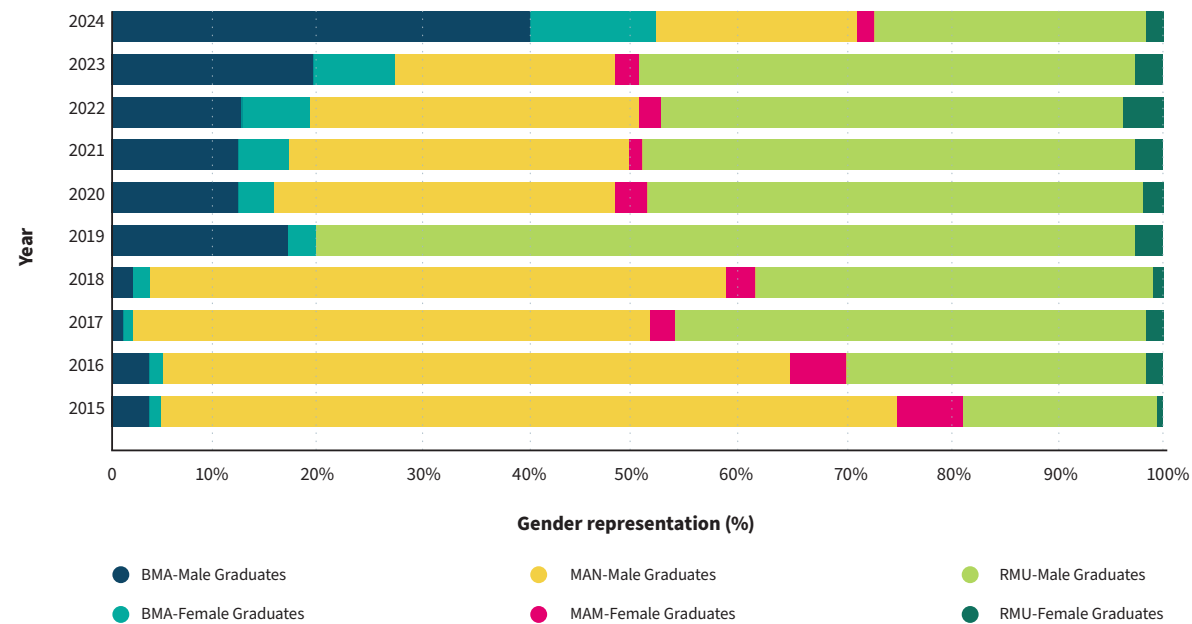

Figure 19: Gender representation in graduation rates across three MET institutions in African countries (Analysis only included the institutions which provided graduation data)

6.5 Developing MET competencies in Africa – Analysis of WMU MET specialists

Looking at the World Maritime University's (WMU) MSc programme, which specialises in MET, the regional representation of MET students in the last 10 years (2015–2024) reveals a commitment of regional and local stakeholders to invest in higher education and build capacity in MET and its experts. Over the past decade, the institution has enrolled students from a wide range of developing countries, reflecting its mission to build maritime capacity across continents. Among the represented regions, Asia leads significantly, contributing 50 percent of the total student population and underscoring the region's strong emphasis on maritime development and the demand for skilled professionals (Figure 20). Africa follows with 32 percent, demonstrating increasing interest and participation from countries aiming to strengthen their maritime sectors. North America, Europe, South America, Middle East and Oceania recorded between two and five percent. This implies that Africa, as the second largest continent to send their young maritime professionals to the MET specialisation, has been investing in MET as part of a sustainable maritime future. Figure 21 shows a diverse group of WMU graduates at the graduation ceremony held in 2024, with high representation of African young maritime professionals.
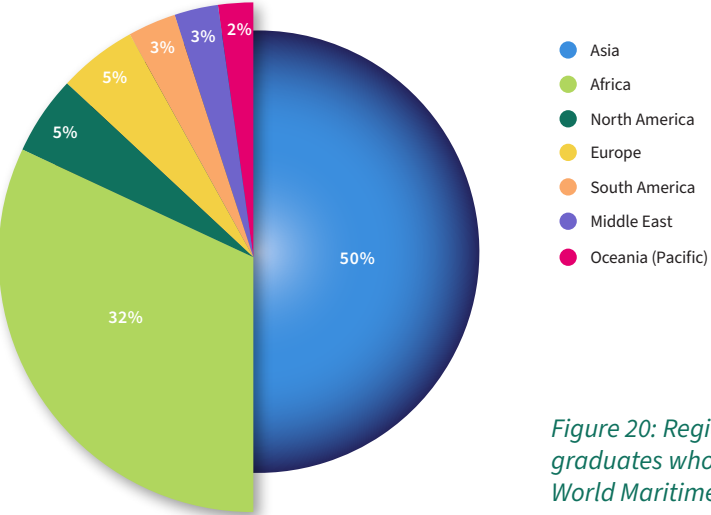

- Asia
- Africa
- North America
- Europe
- South America
- Middle East
- Oceania (Pacific)

50%
32%
5%
5%
3%
3%
2%

Figure 20: Regional representation of graduates who specialised MET at the World Maritime University (2015–2024)

Figure 21: The World Maritime University graduation ceremony in 2024

A recent trend in increased enrolment of African students in the MET specialisation of WMU shows how Africa is investing in developing MET competencies for future.

Prof. Momoko Kitada, Head of MET, WMU

In November 2024, the World Maritime University welcomed Captain Londy Ngcobo, the Managing Director of Womaritime Experts, who has broken barriers in the maritime industry, particularly in Africa, to share her extraordinary journey and impart valuable lessons (Figure 22). While her speech prominently encouraged women to pursue their dreams in the maritime sector, her message carried a universal call for inclusivity and empowerment.

Captain Londy shared her story with candour and passion, recounting her rise from humble beginnings to becoming Africa's first female dredge master. Her personal journey exemplified determination, resilience, and courage. "You will find Londy, an African girl that dared to dream, an African girl that did not wait to be chosen… In claiming your captaincy, it is much sweeter when it is shared with others," she said, urging graduates to embrace their unique paths.

Key Messages from Captain Londy Ngcobo are:

1. Claim your captaincy

Captain Londy emphasised the importance of taking ownership of one's life and career. She encouraged graduates to recognise their inherent power to navigate their own paths, rising above obstacles and seizing opportunities. This call to action urged them not to wait for validation or permission but to chart their own course boldly.

"Claiming captaincy means opening your heart to criticism, to chaos, sitting with it, and listening with your whole heart because that's where true growth, true captaincy, will be redefined."

2. Collaboration and shared success

She also highlighted that the individual achievements are amplified through teamwork and collaboration. Just as a ship's success depends on its captain and crew working in harmony, graduates were reminded that their collective efforts would shape the future of the maritime industry.

"Greatness multiplies if we show up, claiming captaincy in an industry where the stakes are high and the rules are constantly changing."

Captain Londy told the audience, calling for innovation and leadership in an evolving world. Captain Londy's speech was a stirring call to action. She urged the WMU's Class of 2024 to lead boldly, collaborate meaningfully, and transform their ambitions into impactful realities. Her words left a profound impression, inspiring the next generation of maritime leaders to claim their captaincy and navigate their destinies with courage and purpose.

Figure 22: Captain Londy Ngcobo from South Africa

Recruitment and retention of seafarers in the selected African regions

7.

Having explored the status of MET capacity in Africa, this chapter shifts focus to a crucial next step in building a sustainable maritime workforce; the recruitment and retention of seafarers in selected African regions.

While strengthening MET is essential for equipping future seafarers with the necessary skills, the success of this training relies heavily on the ability to recruit new talent and retain experienced professionals in the industry. This chapter delves into the specific challenges and opportunities related to the recruitment and retention of seafarers across various African regions or countries, highlighting regional disparities, barriers to entry and strategies for improving seafarer retention in light of the growing global demand for maritime personnel.

The African maritime industry is a growing force in the global shipping sector, offering both opportunities and challenges. As a key driver of economic development, it connects Africa to international trade networks.

Central to this industry are its seafarers, who play a vital role in keeping vessels operational. Given Africa's extensive coastline and historical shipping partnerships (Amoabeng–Prah, 1999), seafaring has long provided employment opportunities for its youth. However, despite this potential, the expanding industry faces persistent challenges in recruiting and retaining a skilled seafaring workforce. The increasing demand for a more skilled and resilient workforce is met with obstacles such as limited training opportunities and global competition for talent, making it increasingly difficult to sustain a stable pool of seafarers in selected African regions. This chapter explores the dynamics of recruitment and retention of seafarers, examining the workforce composition, key challenges, strategies and implications for the region's maritime sector.

World Maritime University

Seafarer sustainability

7.1 Overview of the African seafaring workforce

Africa is emerging as a key player in the future of global maritime operations, with its extensive coastline and growing pool of seafarers.

The continent's youthful population makes it a vital source for the next generation of maritime professionals, who are instrumental in manning ships that transport the majority of global trade. To increase and sustain the number of seafarers, innovative approaches beyond traditional training and recruitment are essential. By adopting inclusive policies, Africa has the potential to create a more resilient and diverse maritime industry which is crucial for maintaining global trade, economic stability and fostering international relations. Without seafarers, global supply chains would face significant disruptions, impacting industries worldwide.

However, the current statistics from BIMCO/ICS (2021) highlight a significant gap in the global seafaring workforce, including Africa, underscoring the challenges the continent faces in contributing effectively to the global maritime industry. With a population of about 1.5 billion people, Africa only contributes approximately 78,000 seafarers to the international labour pool. This figure represents a mere four percent of the global total of 1.9 million seafarers, indicating a substantial underutilisation of the continent's human resources. Among the total African seafarers, there are approximately 27,624 officers and 49,928 ratings. It highlights not only the missed opportunities for economic growth and development within the region but also the challenges in training and retaining qualified personnel.

Appendix 6 provides a detailed breakdown of African countries from the BIMCO/ICS report with the highest estimated number of seafarers, highlighting the geographical distribution and availability of maritime talent across the continent. It is important to note that the methodology employed by BIMCO/ICS (2021) is the estimation based on a specific sampling technique of African seafarers and fleet. This report has taken a different approach by collecting data directly from the African maritime stakeholders who accessed their own databases. Therefore, possible discrepancies in the number of African seafarers between two reports (i.e., BIMCO/ICS 2021 report and this report) are mainly due to different methodologies for data collection and analysis. This report provides the actual number of seafarers in selected African countries, yet to obtain an actual number of African seafarers in the whole continent requires further research. Despite the lack of data in the African seafaring workforce, Africa has been striving for a Just Transition for maritime through strategic actions. During the Regional Stakeholder Engagement Workshop on Regionalising the Maritime Just Transition Task Force 10-point Action Plan in Africa held on 19th September 2024 in Ghana, African maritime stakeholders including the ITF's Regional Secretary, Mohammed Dauda Safiyanu expressed deep concern over the low numbers of African seafarers reported saying: "Africa accounts for only 78,000 seafarers out of the 1.9 million, just four percent of the total workforce. This is a worrying statistic, given Africa's resilience and potential in the maritime sector. We must ensure Africa takes centre stage in this transition, creating more opportunities for African seafarers to be fully engaged and employed in the industry."

This statement highlights that the maritime industry has been slow to fully engage African seafarers. To tackle the challenges in the African maritime industry, stakeholders have prioritised three key areas: investing in skills, promoting gender and diversity, and upholding global labour standards. Their call-to-action targets governments, regulators, policymakers, training institutions, and the industry. Key actions include investing in seafarer training institutions, implementing policies to increase the number of African cadets, fostering the training of competent trainers, establishing collaborations and partnerships within the industry to expand opportunities, and industry to fully fund the upskilling and reskilling of qualified seafarers.

The total number of seafarers recorded in this study from five selected African countries (Ghana, Kenya, Nigeria, South Africa and Tanzania) was 55,674, exceeding the figures previously reported in the previous studies. This discrepancy highlights significant gaps in existing data sources and suggests that African seafarer participation may be underrepresented in global maritime workforce analyses. The findings emphasise the need for more accurate, up-to-date reporting to better inform policy, workforce planning and industry strategies for seafarer recruitment and retention. In addition, there is an urgent need to implement innovative digital tracking systems and collaborative regional databases to bridge this gap.

7.2 Gender representation among seafarers in the selected African countries

The gender composition of registered and active seafarers in Ghana, Kenya, Nigeria, and South Africa reveals some variation in women's representation, reflecting varying levels of progress in integrating women into the maritime workforce.

In our data, women make up approximately four percent of the total seafarer population in the selected African countries (i.e., Ghana, Kenya, Nigeria, and South Africa), highlighting their underrepresentation in this vital industry. In some of these countries, women constitute a low percentage, ranging from 1.2 percent to five percent of the total seafarer population, for example, in South Africa (n=222; 1.2 percent), Ghana (n=85; 1.6 percent), and Nigeria (n=1,008; 5.0 percent), highlighting significant barriers to gender inclusion.

Conversely, Kenya showcases a more promising scenario, with women making up 33 percent of its seafarers, a remarkable achievement compared to global averages (Figure 23).

This gender disparity in African seafarers mirrors the general trends in the global seafarer workforce. While Kenya's efforts to foster inclusive recruitment and training practices have borne fruit, Ghana, Nigeria, and South Africa's low representation signals the need for intensified initiatives to attract, train and retain women in seafaring roles. Addressing these disparities is essential to achieving gender equality and unlocking the full potential of the maritime workforce.
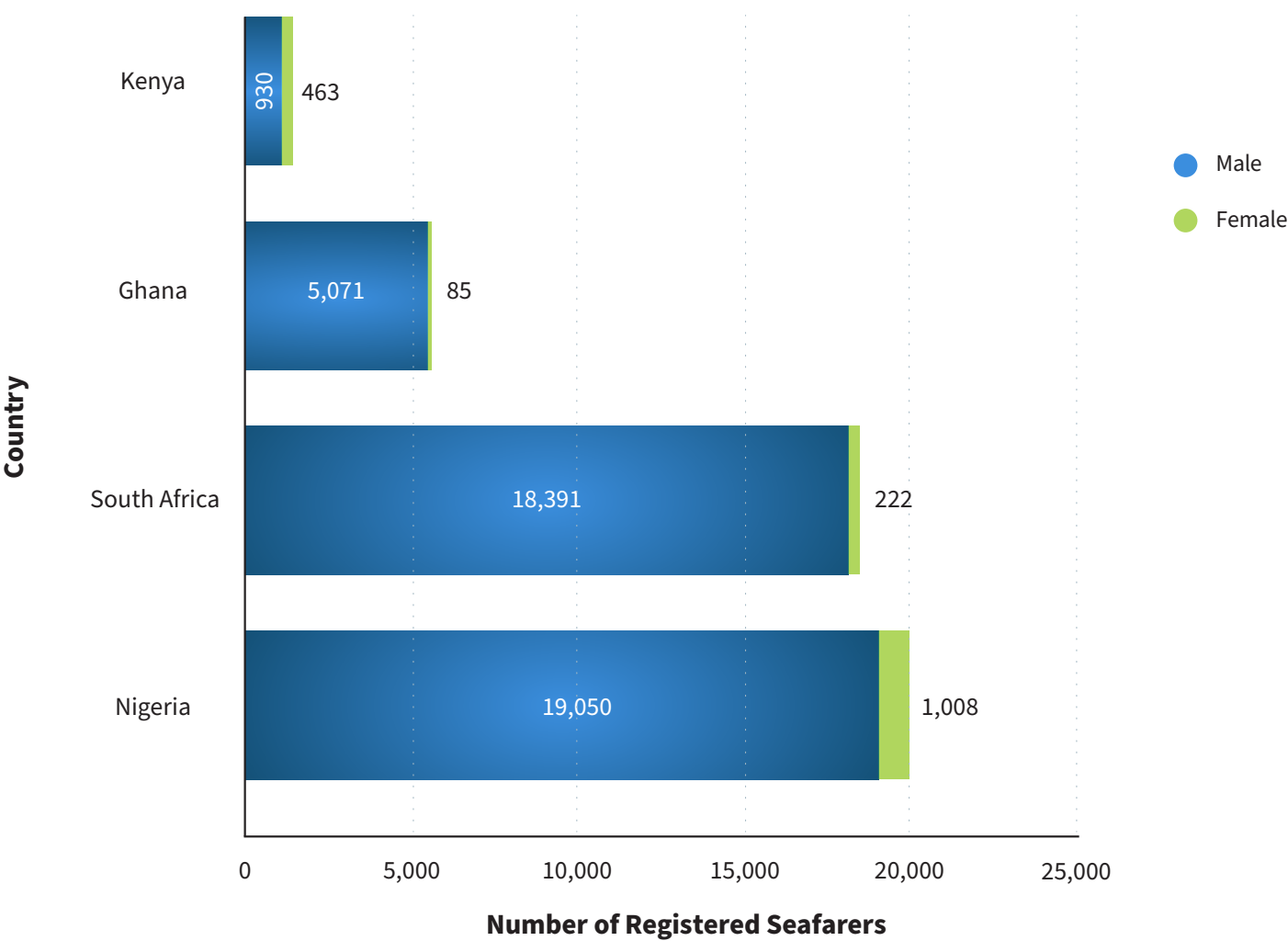

Figure 23: Gender representation among seafarers in the selected African countries (analysis includes only Ghana, Kenya, Nigeria, and South Africa, which provided gender-disaggregated seafarers' data)

The analysis of seafarer roles in the five countries indicates a significant imbalance in the recruitment of crew members between officers and ratings (Figure 24). A total of 54,271 seafarers (ratings and officers, excluding cooks and cadets under training) were recorded from the five African countries, with the majority (72 percent) ratings (38,125). This finding highlights the consistent underreporting of the number of African seafarers in global maritime reports. Both South Africa and Nigeria show a similar trend in the numbers of registered officers and ratings. In Nigeria, for instance, the data reveals that most registered seafarers are deck ratings (n = 9,088) and engine ratings (n = 3,221), far surpassing the number of deck officers (n = 2,869) and engine officers (n = 2,949). This trend suggests a heavy reliance on non-officer roles to meet operational demands in the shipping industry. The limited number of officers may reflect challenges in advanced maritime training, certification or career progression opportunities within the country. Addressing this gap requires investing in officer positions to enhance the country's overall maritime capacity and workforce sustainability.
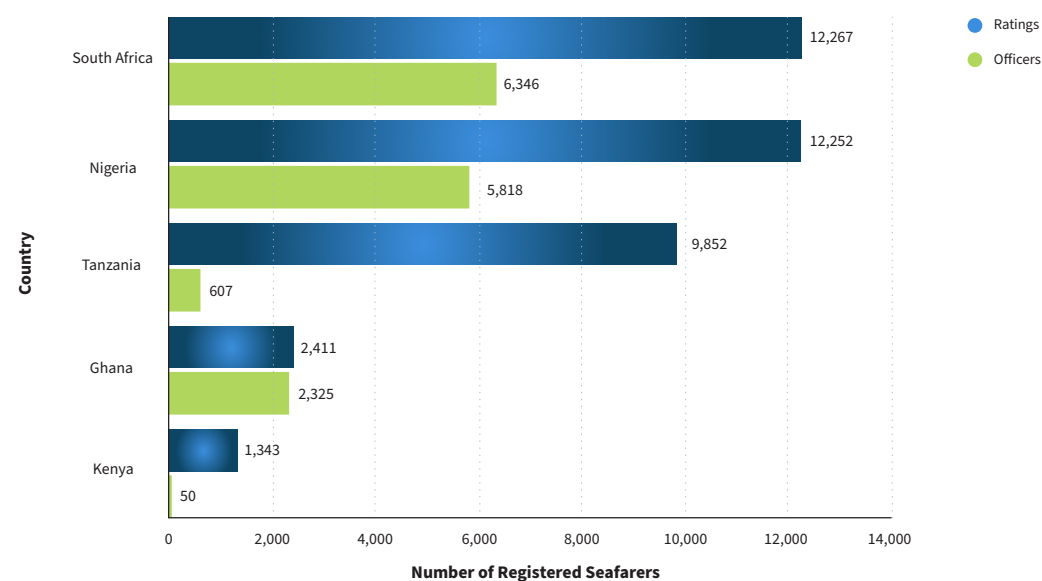

Figure 24: The total number of active officers and ratings in both deck and engine departments in the selected African countries (this analysis excludes the data provided on the number of cooks and cadets under training). (n = 5 countries)

Among five selected countries, Ghana has the most balanced seafarer workforce between officers (n = 2,325) and ratings (n = 2,411). In contrast, Kenya and Tanzania produce far fewer officers than ratings, compared to other countries. The recruitment of seafarers in Kenya demonstrates generally low numbers across all maritime positions compared to South Africa and Nigeria, reflecting the limited capacity of the industry to engage its maritime workforce. The scarcity is particularly pronounced among officers, with only a handful registered and the number of female officers is exceptionally minimal, with just one female engine officer and three female deck officers recorded. This data underscores the challenges in achieving gender parity and highlights the underrepresentation of women in higher-ranking positions. The situation calls for targeted interventions to promote gender equality and inclusivity, increase access to officer training and support the recruitment of female seafarers in leadership roles within Kenya's maritime sector.

This study also benefited from the contribution by companies which support data collection if the country's data were not accessible. For example, the Tanzania Shipping Agencies Corporation (TASAC) provided the number of their registered seafarers operating in areas including the Great Lakes, the Indian Ocean and on other international vessels. The total number of registered seafarers in Tanzania was 10,459, but only 1,241 seafarers were employed, and the majority (n = 9,218) were unemployed and ratings. The data from South Africa shows a total of 5,117 Standards of Training, Certification and Watchkeeping (STCW) certified seafarers (this figure excludes the seafarers working in fisheries vessels), collated by rank, gender and race. The deck department emerged as the most populous, with 2,226 seafarers, compared to 1,920 in the engine department. However, the analysis reveals a persistent gender disparity across all ranks, highlighting the underrepresentation of women in the maritime sector. Notably, the highest number of women recorded in any position was 143: these were serving in the role of Chief in Charge of a Navigational Watch. These findings point to the need for gender-specific initiatives to promote gender equality within the maritime workforce.

7.3 Gender and race in seafarers: A case study in South Africa

South Africa presents a unique case study by offering seafarers data disaggregated by both race and gender. Renowned for its cultural richness and diversity, the country is also deeply marked by racial classification and systemic inequality, particularly during the apartheid era (1948–1994).

The apartheid government institutionalised segregation, creating a legal framework that enforced 'white' supremacy and denied equal rights to 'non-white' populations. Under this system, individuals were classified into four main racial categories: 'black', 'white', 'coloured' and 'Indian/Asian', with access to economic, social and political resources determined by race (Adhikari, 2006; Le Roux & Oyedemi, 2022).

'Black' Africans, the indigenous majority, endured the harshest discrimination, relegated to low-income jobs, substandard education and restricted land ownership. 'White' individuals of European descent benefited from superior education, high-paying jobs, and full political rights. 'Coloured' individuals of mixed heritage, occupied an intermediary status but faced significant limitations. 'Indian/Asian' South Africans while better off than 'black' Africans, experienced restrictions on property ownership and business opportunities (Christopher, 2002). Despite the abolition of discriminatory laws in the 1990s and the implementation of affirmative action policies, South Africa remains a stratified society where race is the primary social cleavage (Pellicer & Ranchhod, 2023; Tewolde, 2024).

Socio-economic disparities persist, with 'black' South Africans bearing a disproportionate burden of unemployment, poverty, and limited access to educational opportunities. Post-apartheid reforms dismantled the legal framework of segregation, but the socio-economic legacy persists. The Group Areas Act and other apartheid laws confined 'non-whites' to poorly resourced areas, entrenching inequality.

Affirmative action policies have made progress, yet systemic barriers and persistent racial biases continue to hinder equitable opportunities. Education access has improved for all racial groups; however, disparities remain stark and racial stereotypes still influence hiring practices and societal dynamics (Tewolde, 2024). Pellicer and Ranchhod (2023) highlight that being classified as 'white' under apartheid significantly enhanced income prospects, with 'white' men earning over four times more than their 'non-white' counterparts. Discriminatory policies extended beyond the labour market to education, healthcare and residential quality, creating profound productivity and opportunity differentials across racial groups. This comprehensive system of inequality led to radically different life experiences based on racial classification.

Figures 25 and 26 illustrate the racial representation in different seafaring ranks in South Africa. In Figure 25, male seafarers identified as 'black' largely occupy the lowest ranks in deck and engine departments (e.g., officer in charge of a navigational watch and officer in charge of engineering watch). As the rankings go up in order to the top positions of master and chief engineer, so there are fewer 'black' seafarers. Male seafarers identified as 'white' and 'Asian' are better represented in the higher rankings (see more in Appendix 5).
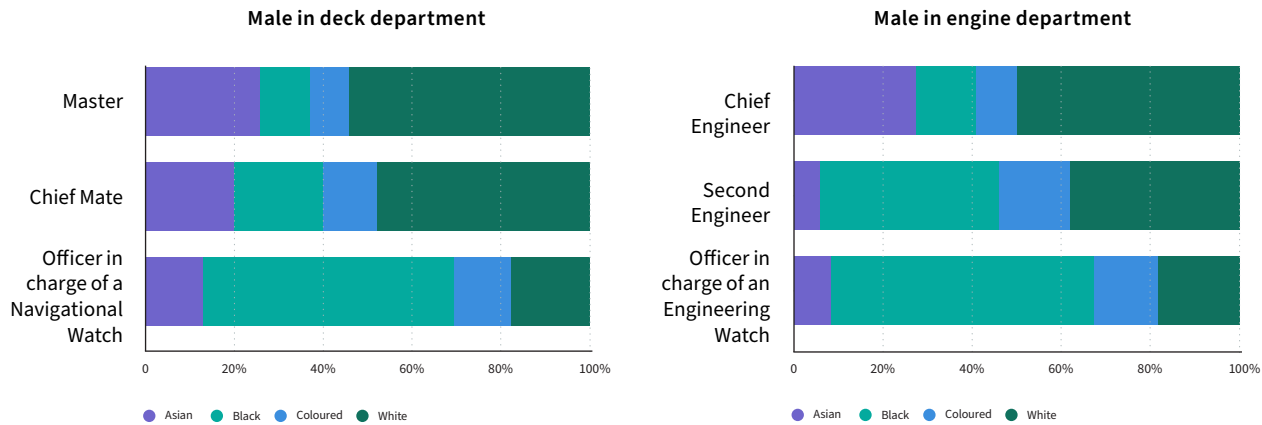
In contrast, the female seafarers' data reveals a different scenario, where the top positions in the deck department are almost equally distributed among 'white' and 'black' women. It is still the case though, that the majority of 'black' women occupy the lowest ranks such as officer in charge of a navigational watch (Figure 26). The privilege of being 'white' is less significant for women because being female is culturally disadvantageous. In other words, the intersectionality of gender and racial identities creates higher hurdles for 'black' women seafarers to their career progression.
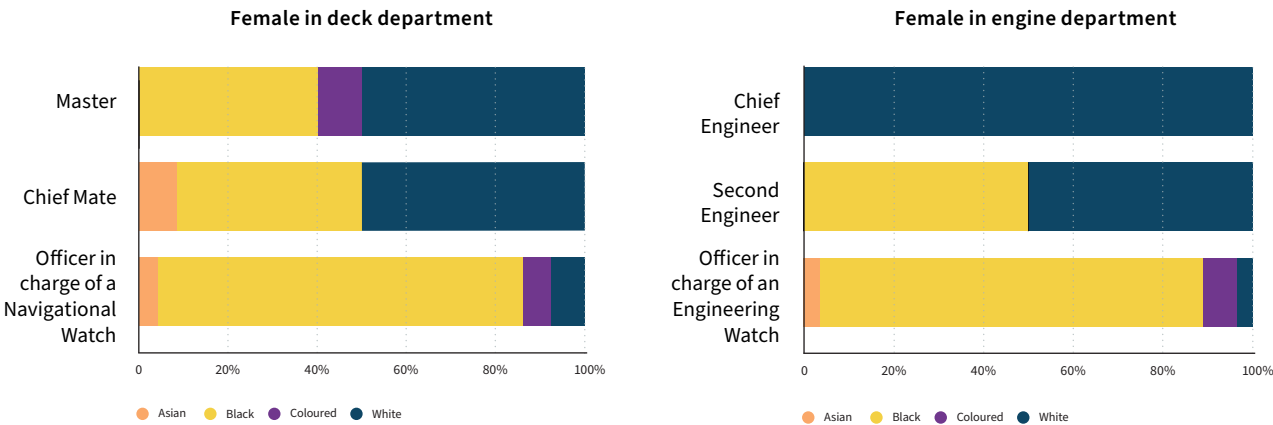

Figure 25: Racial representation of male seafarers by ranks in the deck and engine departments in South Africa

Figure 26: Racial representation of female seafarers by ranks in the deck and engine departments in South Africa

7.4 Training barriers

Africa's MET institutions and seafarers have shared the challenges they face in daily operations and career development, respectively. The figure below highlights the main challenges facing MET programmes, reflecting broader issues encountered by Africa's MET institutions and maritime administrations. These challenges include a scarcity of appropriate berths for mandatory onboard ship training, difficulties in attracting and retaining critical staff due to salary disparities between the academy and the industry, and limited accommodation for female seafarers on ships, which hinders their career progression. The top common challenges in each category are presented below in Figure 27. A detailed table with additional challenges and good practices shared by MET institutions and national maritime administrations can be found in Appendix 4.

Challenges at the MET institutional level
- Inadequate funding
- Access to sea time placements
- Shortage and/or retention of qualified staff
- Inadequate training equipment
- Low uptake of maritime courses by female students

Challenges faced by African seafarers
- Unemployment
- Lack of infrastructure
- Image of African seafarers
- Limited resources e.g., lack of access to vessels
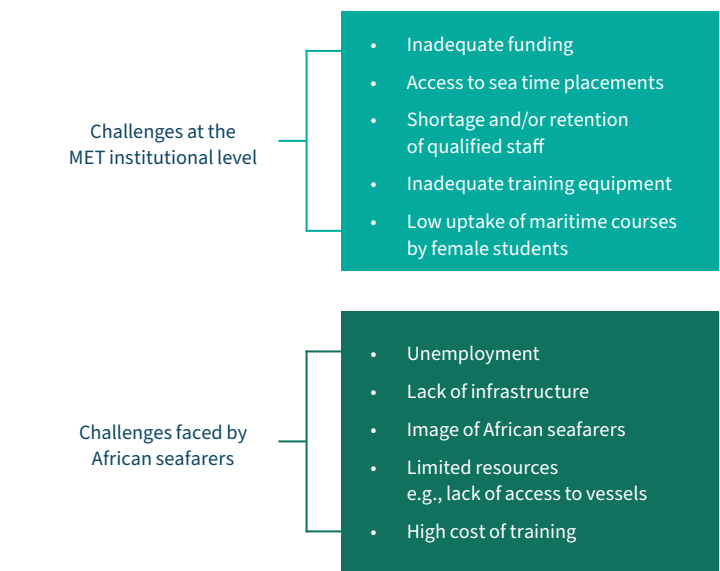- High cost of training

Figure 27: Barriers facing MET institutions and seafarers in the selected African countries

Previous studies highlight numerous challenges hindering the development of a skilled and sustainable seafarer workforce worldwide, including Africa. Slow regulatory progress and limited resources make investment in seafarer training facilities and modern equipment difficult, exacerbating issues like the shortage of competent trainers and experienced seafarers. Many aspiring seafarers fail to complete their training due to the lack of practical onboard opportunities, a problem compounded by Africa's limited fleet ownership. Additional barriers include high training costs, and inadequate training quality. Gender diversity remains poor, with few women working as seafarers and persistent bullying and harassment onboard. Moreover, the rapid evolution of vessel technology and the lack of clarity on decarbonisation trajectories further complicate training for a sustainable maritime future and potentially doubly disadvantage Africa. These crucial challenges must be addressed to ensure a sustainable supply of seafarers in Africa, and beyond. Grimett (2023) also highlights the issue of seafarer placement (12-month practical training), which has been continually raised in the African context because of the limited domestic shipping. African seafarers have had to rely upon the international merchant navy for jobs and practical training. She further noted that there are no accurate figures regarding the number of African seafarers, particularly for South Africa, beyond the estimated 4,500 and 6,000 seafarers working onboard both the South African fleet (specifically Unicorn Shipping Line ships) and other global lines. In addition, the sale of the Safmarine to Maersk, sanctions against South Africa by the global community, the previous apartheid education and training policies which allowed for "white-only" officers,

and current issues with unregulated training, have resulted in very few training institutes producing seafarers with globally recognised qualifications. Moreover, many shipowners often prefer experienced crew members for operational efficiency and safety reasons, making it difficult for young and inexperienced seafarers to gain the necessary sea time. However, the severity of this issue varies across regions and shipping sectors. Also, despite the increased seafarer skills requirements many employers are reluctant to contribute to their training and development. The responsibility and burden of increased education often lies with the seafarer and their family. Apart from the cost of continuous learning, many seafarers are responsible for regularly renewing their compulsory certificates, which can be costly. However, the specific fees and renewal requirements may vary depending on a seafarer's rank, country, employer policies and regulatory frameworks.

The status of African seafarers, along with the opportunities and challenges they face, highlights the urgent need to understand their position. These insights are crucial for developing effective strategies to tackle current issues and prepare for future opportunities. Additionally, the gaps in gender representation revealed in this analysis should be addressed in policies and interventions. This study also offers an in-depth analysis of the challenges faced by the African seafaring community, an area that has been largely overlooked in both research and policy.

7.5 Legal barriers – IMO White List and EMSA recognition

As the United Nations' specialised agency for maritime affairs, the International Maritime Organisation's (IMO) mission is to enhance capacity for safer shipping and cleaner oceans (IMO, 2013).

A crucial aspect of this mission is the establishment of a robust legal framework for MET. This framework ensures the safety of navigation, protection of human life at sea, and regulation of seafarer qualifications, including the issuance of Certificates of Competency (COC) and dispensations for working onboard ships. The current legal framework adheres to both national and international laws, aligning with the STCW for seafarers, initially adopted in 1978 and later updated with the Manila Amendments in 2010. To ensure compliance, MET institutions undergo assessments and are held to the training standards outlined in the STCW Convention, ensuring their programmes meet international benchmarks.

A significant mechanism for monitoring compliance is the IMO White List, which identifies countries effectively implementing STCW standards. As of 2024, the Maritime Safety Committee (MSC) reported 131 countries on the list during its 104th session (4–8 October 2021). However, only 24 African countries feature on this list, reflecting gaps in regional adherence to global standards (Table 3 and Figure 28). Furthermore, only 10 African states (Figure 29) are among the 50 countries recognised under Article 20 of Directive (EU) 2022/993, which sets minimum training standards for seafarers (EMSA, 2023). This underscores the critical need to enhance MET standards and capacity-developing efforts across Africa to meet global expectations and support sustainable maritime development.

Countries recognised by the IMO	Countries recognised by EMSA
1. Algeria	1. Algeria
2. Cape Verde	2. Cape Verde
3. Comoros	3. Egypt
4. Côte d'Ivoire	4. Ethiopia
5. Egypt	5. Ghana
6. Eritrea	6. Madagascar
7. Ethiopia	7. Morocco
8. Ghana	8. Senegal
9. Kenya	9. South Africa
10. Liberia	10. Tunisia
11. Libya	
12. Madagascar	
13. Malawi	
14. Mauritania	
15. Mauritius	
16. Morocco	
17. Mozambique	
18. Nigeria	
19. Senegal	
20. Seychelles	
21. South Africa	
22. Togo	
23. Tunisia	
24. United Republic of Tanzania	

Table 3: The recognised African countries by the IMO and EMSA

Being on the IMO White List and achieving European Maritime Safety Agency (EMSA) recognition are crucial milestones for a country's maritime sector. These statuses confirm compliance with international standards for maritime safety, training and certification, enhancing global recognition of maritime credentials. For seafarers, this ensures that their certificates are accepted worldwide, including in the European Union, one of the largest maritime markets. This global acceptance makes seafarers more competitive in the international labour market and significantly expands their employment opportunities. In contrast, countries not being on the IMO White List or lacking EMSA recognition face limitations, restricting job prospects for their maritime workforce. Additionally, such recognition is often a prerequisite for vessels registered in these countries to engage in international trade, thereby boosting seafarers' access to global shipping companies. Beyond employment, these credentials instil confidence in maritime safety and training systems, helping countries avoid reputational damage and ensuring their maritime sectors remain robust and competitive on the global scale.

To address these legal and training barriers and foster a sustainable future for the maritime sector, the Regional Maritime University (RMU), South African International Maritime Institute (SAIMI) and Climate Champions (2024) advocate that a collaborative approach among governments, training institutions and the maritime industry is crucial to tackling workforce challenges and fostering sustainable growth. As reported earlier, their Call to Action urges governments to invest in training infrastructure, develop policies to increase the number of African seafarers and cadets and facilitate sea time opportunities, while also integrating STEM education and promoting youth and gender inclusion. MET institutions must enhance trainer capacity, update curricula and work closely with the industry to ensure training aligns with evolving demands. The maritime industry should invest in upskilling, prioritise African talent, engage seafarers in decarbonisation efforts and support training institutions through mentorships, internships and research into sustainable technologies.

Counties recognised by the IMO

Figure 28: Geographical distribution of African countries recognised by the IMO

Countries recognised by EMSA

Figure 29: Geographical distribution of African countries recognised by EMSA

Initiatives designed to increase diversity in the maritime sector

8.

Despite identified challenges to increase the number of women and African seafarers in the previous chapters, there are existing initiatives designed to increase diversity in the maritime sector. This section introduces selected examples at the global level as well as the African level. Sharing and learning from these examples, including in relation to evaluating effectiveness, can help individuals and organisations to take actions in support of the sustainability of seafarer supply.

As the industry faces growing demand for skilled seafarers, enhancing diversity particularly in gender and regional representation, becomes crucial for a sustainable workforce.

World Maritime University

8.1 Global initiatives to promote gender equality and diversity

Various global actors, including UN agencies, shipowners, companies, trade unions, academic institutions or NGOs, have initiatives to promote gender equality and diversity in the maritime sector. Organisations were asked to share what they considered to be their 'good practice' initiatives, and information provided is shared below:

Rewriting women into maritime history by the Lloyd's Register Foundation Heritage and Education Centre (LRF HEC) in partnership with the IMO, ICS, NI, WISTA UK, Nautilus International, and Preston Turnbull LLP

Women have largely remained invisible because their roles and contributions to the maritime sector have been excluded from the maritime history narrative. This project showcases women's involvement in the industry over the centuries, provides role models, and increases the visibility of women in the maritime industry. Find women's stories at: https://hec.lrfoundation.org.uk/whats-on/rewriting-women-into-maritime-history

Diversity in Maritime Programme by Maritime UK, funded by Stena Line

The programme includes four, safe-space networks: Women in Maritime; Mental Health in Maritime; Pride in Maritime; and Ethnicity in Maritime. The Diversity in Maritime Taskforce is made up of Chairs of the Networks and Working Group Leads to ensure cross-collaboration, where appropriate. Find more information at: https://www.maritimeuk.org/priorities/people/diversity-maritime

All Aboard Alliance by Global Maritime Forum (GMF)

All Aboard Alliance was established in 2022 as a platform for industry-wide collaborative and ambitious initiatives to achieve global diversity, equity, and inclusion (DEI). As of February 2025, there are 35 industry members in this alliance. Their two work streams include "Diversity@Sea" and "Diversifying Maritime Leadership". The Diversity@Sea initiative addresses the talent shortage and gender imbalance in the maritime industry by focusing on safer and more welcoming work conditions at sea, preventing sexual misconduct, and improving pregnancy and family leave policies. Its pilot project aims to test co-designed solutions to improve working and living conditions at sea. Other activities include the development of a severity scale for sexual misconduct and establishing better policies for pregnancy and family leave. Find more information at: https://globalmaritimeforum.org/diversity-at-sea

To learn how All Aboard Alliance member companies are working towards DEI, their initiatives are captured in the annual report, which is accessible at: https://globalmaritimeforum.org/report/all-aboard-alliance-insights-2024

Women in Maritime Lab by Hafnia

An open innovation competition called the "Women in Maritime Lab" was opened in late 2020 by Hafnia, together with BW Group and Shell. The objective was to identify innovative digital ideas that could be tested, developed, and deployed to create impact without delay. The competition attracted more than 50 submissions under the themes of attracting women to maritime, retaining women in the industry and helping women to progress to senior positions. Find more information at: https://hafnia.com/wp-content/uploads/2022/07/Hafnia-Article_Women-in-Maritime-lab-2020-FINAL.pdf

Declaration of LGBTQI+ Inclusion within the Maritime Industry by I EXIST TOO

The declaration acknowledges that the maritime industry has historically not been inclusive or supportive of the LGBTQI+ community. Discrimination, harassment, and unequal treatment have been too common, creating barriers for the full participation of LGBTQI+ individuals in the industry. By being committed to both human rights and improving the diversity and inclusivity of the maritime industry, it is important to create a welcoming and supportive workplace for all individuals, regardless of their sexual orientation, gender identity, gender expression, or sex characteristics. Find more information at: https://www.i-exist-too.com

Allyship guidance to build safer cultures at sea by ISWAN

The International Seafarers' Welfare and Assistance Network (ISWAN) launched a global campaign to empower male seafarers to act as allies in support of their women colleagues. The campaign provides practical guidance on addressing inappropriate behaviour and building strong support networks. Two-versions of guides provide actionable steps to foster a culture of allyship and include concrete suggestions on "what to say and how to say it" when challenging inappropriate behaviour and how to restore a sense of safety in tense or high-pressure situations. Find more information at: https://www.iswan.org.uk/resources/publications/how-to-be-an-ally-allyship-guidance-to-build-safer-cultures-at-sea

#WomenInSAR Initiative by IMRF

The International Maritime Rescue Federation (IMRF) launched #WomenInSAR initiative in June 2019 as part of their Equality, Diversity and Inclusion (EDI) project to address the lack of women's representation across maritime search and rescue (SAR) activities, in both volunteer and paid positions. #WomenInSAR initiative includes a number of projects, such as #WomenInSAR training, #WomenInSAR mentoring scheme, #WomenInSAR survey, #WomenInSAR Guidance, and #WomenInSAR Report among others. Find more information at: https://www.international-maritime-rescue.org/News/the-imrf-womeninsar-initiative

Global network of over 5100 women maritime professionals by WISTA

The Women's International Shipping & Trading Association (WISTA) has been working towards gender equality and empowering women in the maritime, trading and logistics sectors for over 50 years. WISTA actively collaborates with the IMO in various initiatives, including the Women in Maritime surveys, IMO-WISTA speakers bureau, leadership accelerator programme, diversity handbook, diversity and inclusion pledge, scholarship and other resources. Find more information at: https://wistainternational.com

Empowering women through maritime and ocean education and research by WMU

The World Maritime University (WMU) as a global centre of excellence recognised by the IMO and the United Nations General Assembly, plays a significant role in maritime and ocean education, research, capacity and economic development, while promoting the roles of women in the maritime and ocean sectors. As of January 2025, WMU has created a global network of leaders in the maritime and oceans sectors with 6342 alumni from 171 countries and territories, including 1493 female graduates. Find more information at: https://www.wmu.se

8.2 Initiatives designed to increase enrolment in MET institutions in Africa

Recognising the challenges involved in enrolment and recruitment, MET institutions and national maritime authorities are taking proactive steps to address these issues through various initiatives. In this report, we gathered examples of strategies and initiatives employed by selected MET institutions in Africa to attract women students and increase their enrolment in maritime-related courses (Table 4). Such practices are aimed at enhancing seafarer training and addressing industry demands, include partnering with industry players and other international maritime organisations, community and high school outreach, and providing scholarship and financial aid to students in need. Fostering partnerships with industry and shipping companies ensures relevance by incorporating real-world maritime challenges into training programmes.

Institution: Bandari Maritime Academy (BMA)

Good practices/initiatives:

- Industry partnerships
- Sector skills advisory committee
- Outreach and recruitment
- Hand-on learning opportunities
- Scholarships and financial support
- Guest speakers

Institution: Namibian Maritime and Fisheries Institute (NAMFI)

Good practices/initiatives:

- Industry collaboration
- Hand-on training
- Community engagement
- Gender inclusion programmes
- Continuous curriculum development

Institution: Durban University of Technology (DUT)

Good practices/initiatives:

- Industry partnerships
- Engagement with schools across the country
- State-of-the-art simulator room

Institution: Regional Maritime University (RMU)

Good practices/initiatives:

- Industry partnerships and internships
- Alumni engagement and networking
- Scholarships and financial support
- Community and high school outreach
- Enhanced digital presence and marketing
- Strengthening faculty and facilities
- Accreditation and international recognition
- Curriculum innovation and specialisations
- Engagement with maritime organisations and policy makers
- Student support services

Table 4: 'Good practices' self-selected by MET institutions and Maritime Administrations in the selected African countries to enhance MET standards[2]

[2] METI's logos and photos were used from each institution's website, which are publicly available.

Institution: Maritime Academy of Nigeria (MAN)

Good practices/initiatives:

- State-of-the art training and accommodation facilities for cadets
- Documented and implements a quality standards system approved by Nigerian Maritime Administration and Safety Agency (NIMASA)
- Employed qualified and experienced instructors
- Intensive full-time teaching and practical training
- Accreditation of all programmes by the National Board for Technical Education (NBTE) and NIMASA

Institution: Nigerian Maritime Administration and Safety Agency (NIMASA)

Good practices/initiatives:

- Nigerian Seafarers Development Programme established in 2008 (https://divein.co.za/article/national-seafarer-development-programme/)
- Opportunities for extensive sea time exposure and expanding employment chances for Nigerian seafarers and cadets on international sea-going vessels
- Sensitisation and educational programmes on the opportunities and benefits of seafaring

Institution: Ghana Maritime Authority (GMA)

Good practices/initiatives:

- The launch of a nationwide "go to sea campaign" beginning with the Upper East Region of Ghana aiming to raise awareness of maritime careers and engage young students across the country[3]

Institution: South African International Maritime Institute (SAIMI)

Good practices/initiatives:

- The National Seafarer Development Programme (NSDP) run by the South African International Maritime Institute (SAIMI) – established in 2011 https://saimi.co.za/article/national-seafarer-development-programme/
- IMEC South African cadet training programme launched by the SAIMI and the International Maritime Employers Council (IMEC)

Table 4 (continued): 'Good practices' self-selected by MET institutions and Maritime Administrations in the selected African countries to enhance MET standards[2]

[3] The maiden event took place at the Navrongo Senior High school on the 4th October 2024 bringing together thirteen (13) second cycle schools across the Upper East Region of Northern Ghana with a total student number of 515 (220 females & 295 males). The initiative is part of a broader worldwide effort to address the shortage of maritime professionals and encourage young people to consider careers in the maritime sector. The Northern Region though distant from the coast plays a crucial role in the national economy and the GMA aimed to ensure equal access to opportunities and information through this initiative.

8.3 Industry and academic partnerships to provide training opportunities

The latest initiative promoting a Just Transition in Africa is the Just Transition 10-point action plan for Africa. This initiative emphasises the importance of industry-academic partnerships in enhancing the MET capacity development (Figure 30).

From a shipowner perspective, a representative from Hafnia highlighted the importance of collaboration and partnerships, such as that which Hafnia has with RMU (Ghana) and BMA (Kenya) to support training opportunities for African seafarers. In addition to receiving RMU cadets for the Hafnia DEI Culture Lab Vessels, Hafnia has 22 Kenyan seafarers who were onboard their vessels at the time of the workshop. Of those, 70 percent were already in their second year and instructors gave positive feedback about students' performance. Hafnia also advocated for greater numbers of women enrolling in African MET institutions and for more company-MET partnerships.

Partnerships between African METs and internationally reputable shipping companies, such as Hafnia, Bernhard Schulte Shipmanagement (BSM), Celebrity Cruises, and Maersk, also result in successful promotion of African seafarers, including women. A similar partnership project by the IMO and the Republic of Korea offers sponsorship to African cadets, including women, to gain sea time on the vessels owned by the Institute of Maritime and Fisheries Technology (KIMFT). More information can be found below. Other initiatives to promote African seafarers include the African Continental Free Trade Area (AFCFTA) agreement; Blue Women Africa; and the African Union's 2050 Africa's Integrated Maritime Strategy (AIMS).[4] Several regional women in maritime associations also play a vital role in increasing the visibility of African women professionals in the maritime sector, such as Association for Women in the Maritime Sector in Eastern and Southern Africa region (WOMESA).[5]

An overview of 10-point action plan

Establish consensus
1. Unlock training

Fundamental just transition principles
2. Global labour standards
3. Gender and diversity
4. Health and safety

Recruitment and attrition
5. Support seafarer career pathways
6. Address attrition and recruitment

Skills and training
7. Investing in skills
8. Strengthening global training standards
9. Delivering fair training
10. Monitoring skills

Figure 30: An overview of 10-point action plan

[4] See more information about Blue Women Africa (https://www.bluewomenafrica.com/en/who-are-we/); and the African Union's 2050 Africa's Integrated Maritime Strategy (AIMS) (https://www.unep.org/resources/report/africas-integrated-maritime-strategy-2050).
[5] (WOMESA (https://womesa.org/); and other associations include the Network of Professional Women in the Maritime and Port Sectors for West and Central Africa (NPWMP-WCA) (https://agpaoc-pmawca.org/pmawca-women-network/); Women in Maritime of West and Central Africa (WIMOWCA) (https://www.wimowca.org); and WIMAfrica (https://wimafrica.net/).

Hafnia DEI Culture Lab Vessels
by Hafnia in partnership with RMU (Ghana)

Hafnia signed a Memorandum of Understanding (MOU) with the RMU in Ghana to increase the number of women seafarers. A minimum of 16 cadet positions aboard the vessels were granted. The first 17 female cadets from RMU received sea time onboard, followed by seven more members. The Culture Lab involves crewing four Hafnia vessels with at least 50 percent female seafarers to gain insights that can help Hafnia make life at sea more appealing to women. Hafnia currently counts 35 percent of women onshore, with a target of achieving a 40 percent ratio by 2025. Female seafarers at Hafnia currently make up approximately five percent of the total team at sea, higher than the two percent industry average. Find more information at:

- https://hafnia.com/news/hafnia-and-regional-maritime-university-ghana-enter-into-official-partnership
- https://hafnia.com/news/hafnia-commemorates-women-in-maritime-day-2023

Building a new Maritime Training Centre (MTC) within RMU by Bernhard Schulte Shipmanagement (BSM)

A subsidiary company of Bernhard Schulte Shipmanagement (BSM), Schulte Maritime Services Ghana (SMSG) establishes a new Maritime Training Centre (MTC) within the Regional Maritime University (RMU), Ghana. As a result of a close partnership between SMSG and RMU over years, MTC offers vocational training courses for both the BSM crew and the RMU students. MTC also aims to expand its programme to non-maritime students who can work in the maritime, engineering and offshore sectors. Find more information at: https://bsm-highlights.com/issue1_2019/latest-news/schulte-group-expands-its-maritime-training-to-africa

Annual Sea-Time Training by Maersk in partnership with BMA (Kenya)

Maersk set up a new sea training programme to accept ten cadets from Bandari Maritime Academy (BMA), Kenya with the aim of strengthening MET. This programme will be offered to fulfil 12-month onboard training for cadets and planned annually. Kenya Maritime Authority and BMA are in collaboration to realise this new partnership between the Kenyan METI and the Danish company. Find more information at: https://www.kenyanews.go.ke/131653-2

First All-Female Sailing by Celebrity Cruises

Celebrity Cruises, as part of Royal Caribbean Cruises, is a pioneer in upping the proportion of women in its crew. Since 2015, the percentage of qualified women on their navigational bridges has increased from three percent to 32 percent. On 8 March 2020, the first all-women bridge and leadership team for the historic sailing of Celebrity Edge was achieved. The team consisted of 26 women from 16 different countries, including Nicholine Tifuh Azirh (Second Officer, Cameroon), Gifty Adu Gyami (Apprentice Officer, Ghana), and Doctor Sumaya Guffar (Medical doctor, South Africa). Find more information at:

- https://www.seatrade-cruise.com/crew-crewing/celebrity-celebrates-international-women-s-day-having-achieved-32-female-bridge-officers
- https://www.celebritycruisespresscenter.com/press-release/1147/barrier-breaking-history-making-celebrity-cruises-to-set-sail-with-first-ever-all-female-bridge-and-officer-team
- https://www.youtube.com/watch?v=sbeebDfLkjc

Diversity in Maritime Programme by Sea Shepherd Global in partnership with WIMAfrica, funded by Lloyd's Register Foundation

By partnering with African Women in Maritime (WIMAfrica), Sea Shepherd Global offered work opportunities to women seafarers from African countries looking to advance their maritime careers while also working towards marine conservation. Sierra Leonean national, Regina Conteh-Khali was the first seafarer participating in the scheme to join a Sea Shepherd ship.
Find more information at:

- https://www.seashepherdglobal.org/latest-news/african-women-seafarers

- https://wimafrica.net

Mercy Ships in partnership with Lloyd's Register

Mercy Ships is a global Christian charity in partnership with African countries and deploys hospital ships (the Africa Mercy and the Global Mercy) to transform surgical systems and provide free surgery to those most in need. Mercy Ships is currently focused on sub-Saharan Africa and some other African countries, such as Benin, Cameroon, Guinea, Madagascar, and Senegal.

Ms. Denise Ngum is one of the Mercy Ship crew who worked on board as an electrical engineer. Read more stories about Denise at: https://www.mercyships.org.uk/who-we-are/meet-the-crew/denise-ngum

Lloyd's Register is one of the long-standing partners with Mercy Ships and provides an in-kind annual investment along with a number of in-kind benefits.

Global Onboard Training Programme by the IMO and the Republic of Korea

This capacity-building course focuses on onboard training to fulfil the minimum standard of seagoing experience in accordance with the STCW Convention, in partnership with the Institute of Maritime and Fisheries Technology (KIMFT). The beneficiaries of this programme in 2023 were 40 cadets of which 26 were male and 14 females from ten developing countries, including Kenya and Tanzania. In addition, 15 cadets from Ghana, Senegal and Ukraine participated in another IMO-funded course.
Find more information at:

- https://www.gobtkorea.or.kr/kor/main/main.html

- TC/74/4(b)/1

Conclusions and recommendations

9.1 Conclusions

Ensuring a sustainable supply of seafarers requires a holistic understanding of challenges and opportunities across all regions, supported by reliable data. This study highlights the critical gaps in gender diversity, MET, and workforce development, globally and with a specific focus on Africa, while aligning these insights within the broader context of global seafarer dynamics. The sustainable supply of seafarers is a cornerstone for the future global maritime industry; but faces persistent challenges that demand concerted efforts, along with targeted and collaborative solutions.

Although African seafarers currently comprise only a small fraction of the global workforce; approximately four percent compared to Asia's dominant 50 percent, the findings underscore Africa's untapped potential. The African MET institutions studied have made promising efforts in cultivating a resilient workforce, with increasing enrolment rates over the past decade despite challenges such as limited infrastructure, inadequate funding and a shortage of qualified staff. Modernised curricula with the use of simulators and strong partnerships between MET institutions, industry stakeholders and governments would fully leverage Africa's maritime potential in equipping future seafarers with skills needed for a competitive global labour market. By prioritising skill development, promoting inclusivity and implementing strategic policy interventions, Africa can close the workforce gap and establish itself as a key contributor to the global maritime industry, driving sustainable growth and equity across the sector.

The study also highlights that women remain significantly underrepresented in both MET institutions (as students) and seafaring roles. Despite some progress, most of the studied institutions have yet to fully embrace their potential for equality and inclusivity. The findings point to the urgent need for systemic change, starting with policies and good practices that promote gender diversity at every level, from enrolment in MET institutions to recruitment and career advancement opportunities at sea. Building an inclusive maritime workforce is critical in addressing workforce shortages and ensuring sustainable growth.
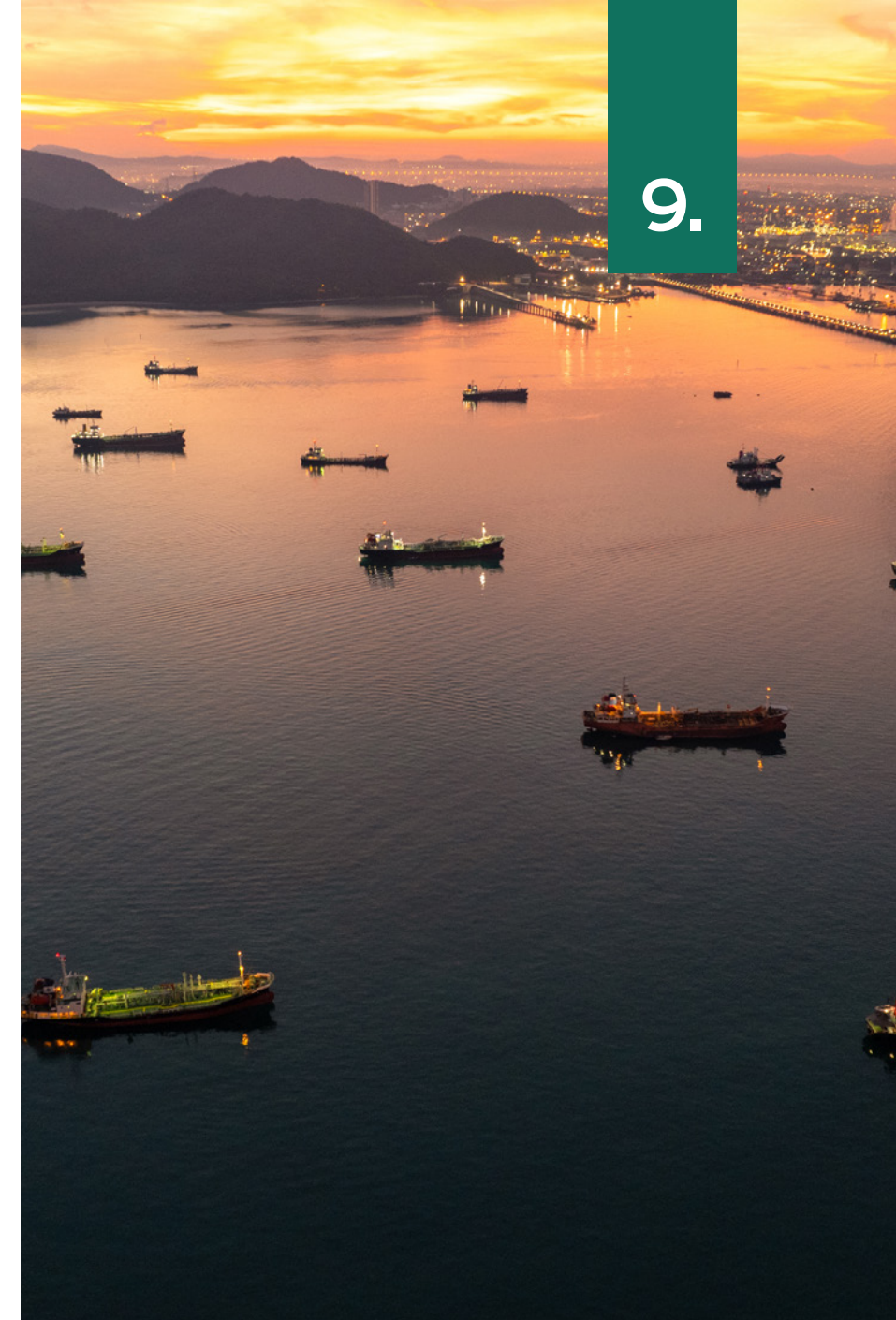
9.2 Pathway to 25 percent women seafarers by 2050

Currently, women seafarers are estimated to comprise only 1.28 percent of the total seafarer population (BIMCO & ICS, 2021). The GMT2050 report predicts that the number of women seafarers could be 25 percent across the total seafaring workforce by 2050, which would be a remarkable transformation, and position the maritime sector as a beacon of gender diversity and innovation.

For that to be achieved, there needs to be a planned and concerted effort across stakeholders. This report offers possible plan that would help the industry reach this 25 percent based on a series of key assumptions, detailed below.

Figure 31 breaks down the stages involved in achieving women comprising 25 percent of seafarers. Though the calculation is simplified, the most important assumption is that women's enrolment in MET institutions reaches 50 percent of the total enrolment. Within the proposed scenario, the transformation begins in 2025, when a global initiative to achieve 50 percent enrolment of girls in STEM education is implemented, as illustrated in Figure 32).

This would be a ground-breaking and bold global effort that would spark a chain reaction, reshaping the seafaring profession in ways once unimaginable, across the previously male-dominated maritime sector. By providing equal access to STEM education, millions of young women would be empowered to envision themselves in careers that once seemed inaccessible. This targeted approach would break barriers in classrooms and MET institutions worldwide and would see a steady influx of talented women enrolling in seafaring programmes. These women would bring fresh perspectives and technological skills, qualities that are crucial for meeting the evolving demands of the maritime industry.

Girls who study science	Women enrol in METIs	Women employed by shipping companies	Women retained in shipping companies after 5 yrs	Women retained in shipping companies after 10 yrs	Women stayed in shore-based jobs after 20 yrs
50%	50%	30%	25%	20%	20%

Average of women 25%

2025   2035   2040   2045

Figure 31: Assumption of increased women seafarers up to 25 percent by 2050

Without a pool of women and girls educated in MET as a mandated target, it will clearly not be possible to achieve 25 percent of women among seafarers by 2050.

Achieving the ambitious goal of increasing women seafarers to 25 percent of the global workforce by 2050 requires a strategic, multi-stakeholder approach, carefully mapped across future decades. This effort hinges on a combination of education reforms, policy interventions, industry commitments and cultural shifts. This report suggests a phased pathway to accomplish this transformation, addressing the gaps left by existing frameworks while building on opportunities in education and training (Figure 32).

i. Global STEM Initiative: Laying the Foundation (2025–2027)
The proposed journey begins by targeting the younger generation with a ground-breaking global initiative aimed at achieving gender parity in STEM education. This campaign could be spearheaded by a coalition of governments, relevant United Nations bodies, and non-governmental organisations, and would seek to break down longstanding barriers that prevent young women from pursuing careers in STEM-related fields. This initiative would focus on providing scholarships for young women, mentorship programmes led by female professionals, and widespread outreach campaigns to inspire girls to envision careers in traditionally male-dominated sectors like maritime. By 2027, the initiative would be expected to lay the groundwork for equitable participation in MET institutions worldwide.

ii. Maritime Education and Training (MET): The Engine of Change (2027–2035)
Following the foundational work in STEM education, the next phase would involve overhauling MET institutions to achieve 50 percent female enrolment by 2035. This effort would require collaboration between governments, industry leaders, and MET institutions to develop gender-equity policies that eliminate financial, cultural and institutional barriers for women. Key actions would include offering targeted scholarships, modernising curricula to emphasise diversity and inclusion and providing access to hands-on training opportunities such as internships and sea time. Public awareness campaigns would further challenge societal stereotypes about women's roles in seafaring, making these careers more appealing and accessible to a new generation of women. By 2035, these efforts would position MET institutions as inclusive hubs for nurturing maritime talent.

iii. Industry Integration: Building Careers (2035–2045)
As more women graduate from MET institutions, the focus would shift to ensuring their successful integration into the maritime workforce. Maritime companies would adopt gender-inclusive hiring practices, create policies for safe and supportive workplaces and establish mentorship programmes to foster women's career growth. Retention strategies such as equal pay, opportunities for career advancement and gender-sensitive workplace environments would be essential to sustain the momentum. Additionally, highlighting the achievements of women in leadership roles would inspire others and reshape perceptions about women's contributions to the sector.

iv. Innovation and Sustainability: Women at the Helm (2045–2050)
Were the stages above to play out, by 2045 women will not only represent a significant portion of the seafaring workforce but will also drive innovation and sustainability in the maritime industry. Their perspectives and technological skills will help propel the sector towards automation, decarbonisation and greener practices. This phase will see women helping to shape the future of maritime, contributing to innovative technologies and redefining the sector's role in a sustainable economy.

2025–2027 – Global STEM Initiative
A global Initiative targeting 50 percent female enrolment in STEM education launched through scholarships, mentorships and awareness campaigns.

2027–2035 – Reformed MET institutions
MET institutions overhaul curricula, adopt inclusive policies and achieve 50 percent female enrolment.

2035–2045 – Industry Integration
Maritime companies implement inclusive hiring to ensure recruitment and retention, safe workplaces, mentorship programmes and career advancement opportunities for women.

**2045–2050 – Women Driving Innovation**
Women lead in maritime sector's transformation, driving innovation, automation and sustainability.

Figure 32: A scenario illustrating the pathway to 25 percent women seafarers by 2050

9.3 Recommendations for increasing African seafarers

This section presents targeted recommendations for increasing the number of African seafarers and securing the sustainability of seafarer supply, categorised by key maritime stakeholders as summarised in .

These stakeholders include governments and maritime administrations, MET institutions, global and regional industry stakeholders, and developed maritime nations and international organisations. Each category outlines actionable steps tailored to address the unique roles and responsibilities of these entities in fostering a resilient and inclusive maritime workforce. By aligning concerted efforts across these groups, the recommendations aim to drive meaningful progress towards sustainability and gender diversity in the sector.
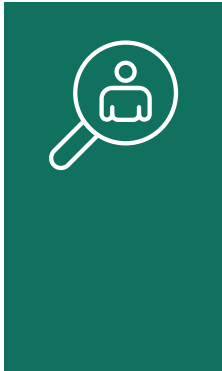
i. Governments and maritime administrations in Africa

African governments and maritime administrations play a pivotal role in shaping the future of the continent's maritime industry. It is crucial to establish and fund national seafarer development programmes, including scholarships, training centres and partnerships with international maritime stakeholders, providing aspiring seafarers with both the skills and financial support needed to succeed in a highly competitive global sector. Additionally, regional collaboration among African nations through frameworks such as the African Union will enhance the continent's collective maritime strength, enabling countries to pool resources and standardise maritime training and certification systems for consistency and high standards.

Governments should also implement workforce monitoring systems to track the recruitment, retention, and dynamics of the seafaring workforce, so that Africa addresses any emerging supply and demand gaps in a timely and strategic manner. Further, continent-wide and national awareness campaigns promoting maritime careers should be launched to inspire young Africans to explore opportunities at sea, highlighting the potential of the global maritime industry as a pathway to career stability and economic growth. Finally, facilitating sea training opportunities is essential for increasing the successful completion rates of the STCW-certified courses. Since this is a cross-cutting issue, governments and industry stakeholders must collaborate to create more opportunities for sea training berths, so that African maritime professionals are fully prepared for the challenges of global seafaring work.

ii. Maritime Education and Training Institutions (METIs) in Africa

African MET institutions must adopt innovative practices to improve the quality and global competitiveness of their programmes. A primary recommendation is the integration of advanced technology, such as simulators and virtual reality systems, so that African MET meets the needs of industry and African seafarers are not 'left behind'. These tools can bridge the gap between theoretical learning and practical experience, preparing students for modern shipping technologies and operations. In addition, international partnerships should be developed with renowned maritime institutions in developed countries to establish exchange programmes, so African trainees can gain practical sea-going experience and exposure to good practices from across the world. The curriculum should be carefully crafted to balance global maritime trends such as green shipping and automation, with Africa-specific needs like local trade routes and port operations, so graduates are well-prepared to serve both global and regional maritime demands. Additionally, African MET institutions should work towards international accreditation to enhance the global recognition and employability of their graduates.

iii. Global and regional industry stakeholders

For maritime industry stakeholders, it is vital to foster stronger collaboration with both government and MET institutions to create targeted, industry-led training programmes. Such programmes should include apprenticeships and on-the-job training tailored specifically to the operational needs of African shipowners and employers. In addition, there is an urgent need for sponsorships and scholarships aimed at young people from underserved communities, enabling them to pursue maritime careers and ensuring that all have access to opportunities, regardless of their socio-economic backgrounds.

Another important initiative is the establishment of mentorship programmes, where experienced seafarers provide guidance and career advice to new recruits, so there are smoother transitions and improved retention rates in the industry. Stakeholders must also encourage more African women and diverse ethnic groups to pursue maritime careers, breaking down historical barriers, and fostering a more diverse and dynamic workforce.

iv. Developed maritime countries and international organisations

Developed maritime countries and international organisations, such as the IMO, ILO and World Bank, can play a key role in accelerating Africa's maritime sector growth by providing technical assistance for the development of state-of-the-art training facilities across the continent. Investments in training infrastructure, particularly in countries with significant maritime potential, are needed. Knowledge transfer is equally important; facilitating exchange programmes where African maritime professionals can receive training on seafaring as well as port and fleet management with the support of developed countries and international organisations. Additionally, these organisations can support African governments in creating robust legal and institutional frameworks that adhere to international maritime standards, so that the continent is fully integrated into the global maritime system.

Table 5: Key recommendations for increasing African seafarers categorised by maritime stakeholders

Stakeholders	Recommendations
Governments and maritime administrations in Africa	• Establish national seafarer development programmes • Regional collaboration by establishing regional centres to serve as hubs for skills development • Workforce monitoring through the conduct of supply and demand analysis to track workforce sustainability • Expand access to sea-training berths • Develop retention strategies such as gender diversity policies • Create awareness of maritime careers to young populations
Maritime Education and Training Institutions (METIs) in Africa	• Simulator-based training • International partnerships • Localised curricula to target domestic and regional demands • Accreditation and recognition • Develop institutional gender-related policies
Global and regional industry stakeholders	• Partnerships with governments and training institutions to create industry-led training • Provide financial support (e.g., sponsorships and scholarships) to aspiring seafarers • Establish mentorship programmes for career growth and guide young recruits • Actively support gender diversity and inclusion by employing more African women seafarers • Expand access to sea-training berths
Developed maritime countries and international organisations	• Provide technical assistance in developing training facilities • Invest in modern training infrastructure in countries with significant maritime potential • Facilitate knowledge transfer through exchange programmes • Capacity building and support governments in establishing legal and institutional frameworks • Facilitate sea-time opportunities

List of abbreviations

AB	Able Seafarers	ILO	International Labour Organization	OS	Ordinary Seafarers
BIMCO	Baltic and International Maritime Council	IMO	International Maritime Organization	RMU	Regional Maritime University
BMA	Bandari Maritime Academy	ITF	International Transport Workers' Federation	SAMSA	South African Maritime Safety Authority
CEC	Certificate of Equivalent Competency	IWMS	Integration of Women in the Maritime Sector	SAIMI	South African International Maritime Institute
COC	Certificate of Competency	KMA	Kenya Maritime Authority	STCW	International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978
COP	Certificate of Proficiency	LRF	Lloyd's Register Foundation		
DEI	Diversity, Equity and Inclusion	MAN	Maritime Academy of Nigeria	STEM	Science, Technology, Engineering and Mathematics
DMI	Dar es Salaam Maritime Institute	MET	Maritime Education and Training	TASAC	Tanzania Shipping Agencies Corporation
DUT	Durban University of Technology	METI	Maritime Education and Training Institution	UNCTAD	United Nations Conference on Trade and Development
EMSA	European Maritime Safety Agency	MJT	Maritime Just Transition		
GMA	Ghana Maritime Authority	NAMFI	Namibian Maritime and Fisheries Institute	WIMA	Women in Maritime Association
GMT	Global Maritime Trends	NIMASA	Nigerian Maritime Administration and Safety Agency	WISTA	Women's International Shipping & Trading Association
ICS	International Chamber of Shipping	OOW	Officer on Watch	WMU	World Maritime University

Glossary

Automated container terminal (ACT)	An automated container terminal (ACT) refers to the application of computerised systems to manage the movement of containers within a port or terminal, aiming to improve efficiency and productivity by reducing the time and cost associated with manual handling processes. It has also been defined as a terminal that automates some or all of the core processes of its operations, such as gates, ship operations, transfer and yard equipment.
Certificate of Competency (CoC)	An internationally recognised certificate issued and endorsed for masters and officers and watchkeepers in accordance with the relevant provisions and chapters of STCW, entitling the holder to serve in the capacity and perform the specific roles and functions involved at the level of responsibility specified on the certificate.
Deck officer	An officer who is responsible for navigation, cargo operations onboard, and effective management of navigational tasks and is qualified in accordance with the provisions of Chapter II of the STCW Convention.
Diversity, Equity and Inclusion (DEI)	A framework that promotes the fair treatment and full participation of all people of different races, ethnicities, religions, abilities, genders, and sexual orientations. Each value is closely linked and used as a business case in many organisations.
Engineer Officer	An officer who is responsible for operating and maintaining the propulsion plants and support systems and qualified in accordance with the provisions of Chapter III of the STCW Convention.
Gender	The social attributes and opportunities associated with being male and female and the relationships between women and men and girls and boys, as well as the relations between women and those between men. These attributes, opportunities and relationships are socially constructed and are learned through socialisation processes.
Gender diversity	A term that recognises that many people's preferences and self-expression fall outside commonly understood gender norms.

Glossary

Gender equality	According to UN Women, gender equality refers to the equal rights, responsibilities and opportunities of women and men and girls and boys. Equality does not mean that women and men will become the same but that women's and men's rights, responsibilities and opportunities will not depend on whether they are born male or female. Gender equality implies that the interests, needs and priorities of both women and men are taken into consideration, recognising the diversity of different groups of women and men. Gender equality is not a women's issue but should concern and fully engage men as well as women. Equality between women and men is seen both as a human rights issue and as a precondition for, and indicator of, sustainable people-centred development.
Maritime Education and Training Institutions	All types of institutions involved in the education and training of seafarers, such as maritime schools, colleges, universities and other training providers.
Maritime Just Transition (MJT)	An initiative that shipping's response to the climate emergency puts seafarers and communities at the heart of the solution and promotes just and equitable transition. The Maritime Just Transition Task Force was set up during the 26th meeting of the conference of the parties (COP 26) to the United Nations Climate Convention (UNFCCC) in Glasgow, by the International Chamber of Shipping (ICS), the International Transport Workers' Federation (ITF), the United Nations Global Compact (UNGC), the International Labour Organization (ILO) and the International Maritime Organization (IMO). Lloyd's Register Foundation is its founding funder.
Ratings	Those qualified in support level functions of the operation and maintenance of the vessel and cargo handling under the supervision of deck or engine officers. Some ratings work in stewards' departments.
STCW	The International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW), 1978, adopted by the International Maritime Organization (IMO). The Convention and its Code set the minimum requirements for seafarers' training, certification and competence in various aspects of maritime safety, security and environmental protection. In addition to two major revisions in 1995 and 2010, the STCW Convention and Codes have been under the comprehensive review at the IMO since the 9th session of the Human Element, Training and Watchkeeping (HTW) Sub-Committee.

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Appendix 1: List of Maritime Education and Training (MET) institutions in coastal states of Africa

No.	African countries	Name of the MET institutions	Location
Southern Africa			
1.	South Africa	South African International Maritime Institute (SAIMI)	Gqeberha, Cape Town
		South African Maritime Training Academy (SAMTRA)	Cape Town, Simon's Town
		South Africa Maritime School and Transport College (SAMSTC)	Durban, Cape Town, and Johannesburg
		Transnet Maritime School of Excellence (MSOE)	Durban
		Sea Safety Training Group (SSTG) Maritime Training Academy	Cape Town, Durban, and Saldanha Bay
		Durban University of Technology (DUT)	Durban
		Shipping and Transport College (STC) – South Africa	Cape Town and Durban
		Grindrob Shipping Training Academy (currently known as STC SA-Durban Campus)	Durban
		Cape Peninsula University of Technology (CPUT)	Cape Town
		Nelson Mandela University (NMU)	Gqeberha (formerly known as Port Elizabeth)
		Umfolozi Technical and Vocational Education and Training (TVET) College	Richards Bay
		Lawhill Maritime Centre	Simon's Town
		School of Shipping	Cape Town
		Sea Safety Training Group	Cape Town
2.	Namibia	Namibian Maritime and Fisheries Institute (NAMFI)	Walvis Bay
		University of Namibia (UNAM) School of Marine Engineering & Maritime Studies	Henties Bay
		Namibia University of Science and Technology (NUST)-Faculty of Marine Engineering	Gqeberha, Cape Town
		IMO International Maritime Law Institute (IMLI) Namibia	Cape Town, Simon's Town
		Walvis Bay Fishing Industry Training School	Durban, Cape Town, and Johannesburg
		Namport Training Centre	Durban

No.	African countries	Name of the MET institutions	Location
Eastern Africa			
3.	Madagascar	Institut Superieur de Technologie	Antananarivo
		Institut National de Formation Professionnelle	Antananarivo
		Ecole Nationale Superieure Polytechnique	Antananarivo
4.	Comoros	Union Des Comores Administration Maritime	Moroni
5.	Mozambique	Escola Superior de Ciências Náuticas	Maputo
		Instituto de Formacao Maritima e Pesqueira	Maputo and Beira
6.	Tanzania	Dar es Salaam Maritime Institute (DMI)	Dar es Salaam
		National Institute of Transport	Dar es Salaam
		Bandari College	Dar es Salaam
7.	Kenya	Bandari Maritime Academy (Approved by KMA)	Mombasa
		Indian Ocean Maritime Training Centre	Watamu and Mombasa
		Jomo Kenyatta University of Agriculture and Technology	Nairobi (Juja) & Mombasa
		Technical University of Mombasa (Approved by KMA)	Mombasa
		Kenya Coast National Polytechnic (KCNP)	Mombasa
		Kisumu Maritime Centre	Antananarivo
		Mount Kenya University (Mombasa Campus) (Approved by KMA)	Antananarivo
		Kenya Institute of Highways and Building Technology (KIHBT) – Maritime Training Wing	Antananarivo
		Kenya School of Government (KSG)	Moroni
		Kenya School of Revenue (Mombasa & Nairobi Campus) (Approved by KMA)	Maputo
		Coast International College (Approved by KMA)	Maputo and Beira
		Pioneer International University, Nairobi (Approved by KMA)	Dar es Salaam
		Kenya Methodist University (Mombasa Campus) (Approved by KMA)	Dar es Salaam

No.	African countries	Name of the MET institutions	Location
	Kenya	Riara University (Waiting approval by KMA)	
		Platinum School of Business Management (Waiting approval by KMA)	
		Shipping Transport College of East Africa (Waiting approval by KMA)	
		The Zonal Training Institute (Waiting approval by KMA)	
		Maritime Management Institute (Waiting approval by KMA)	
		Equip Institute (Waiting approval by KMA)	
		Kenya Railways Marine School	
		Maritime & Management Institute of East Africa	Mombasa
		Premier Training Institute	
8.	Somalia	Somali Maritime and Fisheries Academy	Mogadishu
		University of Somalia (UNISO)	Mogadishu
		Puntland Maritime and Fisheries Academy	Bosaso, Puntland
		Berbera Maritime and Fisheries Academy	Berbera
		National University of Somalia	Mogadishu
9.	Djibouti	None	
10.	Eritrea	Massawa College of Marine Science and Technology	Massawa
		SMAP Institute of Training, Education, Research and Consultancy	Asmara
11.	Ethiopia	Ethiopian Maritime Training Institute (EMTI) – Ethiopian Maritime Academy	Bahir Dar, Addis Ababa
		The Ethiopian Maritime Academy	
		The Babogaya Maritime and Logistics Training Academy	
12.	Mauritius	Mauritius Maritime Training Academy	Port Louis
		Polytechnics Mauritius	Pamplemousses, Montagne Blanche, Reduit Triangle Moka, Rose Belle, Baie Malgache, Ebene Cyber City

No.	African countries	Name of the MET institutions	Location
13.	Seychelles	Seychelles Maritime Academy (Formerly known as Maritime Training Centre -MTC)	Seychelles Maritime Academy and CINEC to continue joint seafarers' programme
		Seychelles Maritime Safety Authority (SMSA)	Victoria, Mahe
14.	Malawi	Malawi Marine Training College	Monkey Bay
Northern Africa			
15.	Sudan	Sudanese Maritime Academy	
16.	Egypt	Egyptian Authority for Maritime Safety (EAMS)	Cairo
		Arab Academy for Science, Technology and Maritime Transport (AASTMT)	Alexandria (main campus), Cairo, Port Said
		College of Maritime Transport and Technology	Alexandria
		Maritime Upgrading Studies Institute	Alexandria
		Maritime Postgraduate Studies Institute	
		Maritime Research and Consultation Centre	
		Port Training Institute	Alexandria
		Maritime Safety Institute	Alexandria
		Arab Institute for Navigation	Alexandria
		Suez Canal Authority Training Institute	Ismailia
		Egyptian International Maritime Organization (EIMO)	Cairo
		National Institute for Transport	Cairo
17.	Libya	None	
18.	Tunisia	International Training Centre (ITC), Tunisia	Route De Gabes
		Institut Mediterraneen de Formation aux Metiers Maritimes (IMFMM)	Rades
		Yassine Marine Services (YMS)	Ariana
		Academie Naval	Menzel Bourguiba

No.	African countries	Name of the MET institutions	Location
19.	Algeria	National Higher School of Marine Science and Coastal Development (École Nationale Supérieure des Sciences de la Mer et de l'Aménagement du Littoral (ENSSMAL)	Dely Ibrahim
		École Technique de Formation et d'Instruction Maritimes de Béjaia	Béjaïa
		École Nationale Supérieure Maritime	Bou Ismaïl
		École Technique de Formation et d'Instruction Maritimes de Mostaganem	Mostaganem
		Ministry of Vocational Training and Education	Ben Aknoun
20.	Western Sahara	None	
21.	Morocco	Institut Supérieur des Pêches Maritimes d'Agadir	Agadir
		Institut de Technologie des Pêches Maritimes	Al Hoceïma
		Institut de Technologie des Pêches Maritimes	Larache, Safi, Tan-Tan
		Institut Supérieur D'Etudes Maritimes	Casablanca
22.	Mauritania	Maritime and Offshore Training Centre (Grupo Stier Mauritania)	Nouakchott
23.	Senegal	National Maritime Training School (Ecole Nationale de Formation Maritime)	Dakar
		Universite Amadou Mahtar Mbow	Dakar
		Institut Superieur d'Enseignement Maritime et Portuaire	Dakar
24.	The Gambia	Gambia Technical Training Institute (GTTI) now renamed as University of Applied Science, Engineering and Technology main campus in Kanifing	
		Gambia Maritime Administration	Oversee training, recruitment and welfare of the Gambian Seafarers
		Regional Maritime University	The Regional Maritime University is an international tertiary institution and private university founded by the Republics of Cameroon, The Gambia, Ghana, Liberia and Sierra Leone.
25.	Guinea-Bissau	None	
26.	Guinea	None	
27.	Sierra Leone	None	

No.	African countries	Name of the MET institutions	Location
28.	Liberia	None	
29.	Cote D'vivoire	Regional Academy of Marine Sciences and Technologies (ARSTM) in Abidjan, Ivory Coast (Académie Régionale des Sciences et Techniques de la Mer (ARSTM) – WMU Branch)	Abidjan
30.	Ghana	Regional Maritime University (RMU)	Accra
		Ghana Institute of Freight Forwarders (GIFF)	Tema
		Ghana Nautical College	Tema
		Tema Port Training Institute	Tema
		Takoradi Technical University (TTU)	Takoradi
		University of Ghana, Legon	Legon
		Kwame Nkurumah University of Science and Technology	Kumasi
31.	Togo	École Maritime du Togo (EMARITO) TOGO	
		Maritime Professions Institute	
32.	Cape Verde (Cabo Verde)	Universidade Tecnica do Atlantico (UTA), Mindelo (Technical University of the Atlantic)	Mindelo
		Universidade Do Mindelo (University of Mindelo)	Mindelo
33.	Benin	University of Benin	Benin City
34.	Nigeria	Maritime Academy of Nigeria (MAN)	Oron, Akwa Ibom State
		Federal College of Fisheries and Marine Technology (FCFMT)	Victoria Island, Lagos
		Nigeria Maritime University (NMU)	Okerenkoko, Delta State
		Charkin Maritime Safety Centre/Charkin Maritime Academy	Port Harcourt, Rivers State
		Elkins Marine International	Lagos
		Joemarine Institute of Nautical Studies	Warri, Delta State.
		Coastal Maritime Academy	Lagos
		Tolmann Allied Services Co. Ltd.	Port Harcourt

No.	African countries	Name of the MET institutions	Location
	Nigeria	Matral Maritime Training Center	Lagos
		Izisco Obosco Institute of Marine Studies and Technology	Delta State
		Falck Prime Atlantic	Victoria Island, Lagos
		PEM Offshore Simulation and Innovative Centre (POSAIC)	Lagos
		Hudson Trident Training Centre	Lagos
		Conarina School of Maritime Transport Technology & Management Studies	Port Harcourt
		Kaygrill Services Limited	Port Harcourt
		DAC Maritime Training Institute	Lagos
		Generic College Limited Federal University of Petroleum Resources	Delta State
		Institute of Transport and Management Technology (ITMT)	Lagos
		Certified Institute of Shipping Nigeria (CISN)	Lagos
		Lagos Aviation and Maritime Business Academy (LAMBA)	Lagos
		Stars Maritime Academy	Ota, Lagos
		Global Maritime Academy	Ughelli, Delta State
		Delta State School of Marine Technology/Maritime Polytechnic (DESOMATECH)	Burutu, Delta State
		African Maritime Academy (AMA)	Lagos, Eleekara
		Maritime Center of Excellence	Bonny
		Institute of Marine and Technology	Etinan
		Merchant Navy Maritime Academy	Ikeja
		Crown Maritime Academy	Lagos
		Western Aviation and Marine Business Academy	Port Harcourt
		Southern Maritime Academy	Uwheru
		Global Maritime Academy	Warri

No.	African countries	Name of the MET institutions	Location
Central Africa			
35.	Cameroon	Taaka Maritime Higher Institute (TAMAHI)	Limbe and Buea
		University of Ebolowa	Ebolowa
		Advanced Institute of Maritime Studies (AIMS) Kribi	Kribi, South-Region
			Buea, South West Region
36.	Equatorial Guinea	Regional Maritime University (RMU)	The RMU is a tertiary institution with diplomatic status in Accra, Ghana. Founded by the Republics of Cameroon, The Gambia, Ghana, Liberia and Sierra Leone.
37.	Sao Tome and Principe	None	
38.	Gabon	Norden	
		Maritime Africa	
39.	Congo	None	
40.	Angola	Centro De Formação Maritima De Angola (CFMA)	
		Angola Maritime Training Center	
		OMITC Angola Academy	Luanda and Cabinda

Appendix 2: List of selected MET institutions and their maritime-related programmes in Africa

Eastern Africa: Kenya

Institution	Programme	Levels
Bandari Maritime Academy (BMA)	Nautical Science	Diploma and Craft Certificate
	Marine Engineering	Diploma and Craft Certificate
	Maritime Transport Logistics	Diploma and Craft Certificate
	IMO Short Courses	STCW Basic Safety Training (Mandatory)
		STCW Basic Safety Training (Revalidation)
		Coxswain Level III
		Elementary First Aid
		Personal Survival Techniques
		Fire Prevention & Fire Fighting
		Personal Safety & Social Responsibility
		Security Awareness Course
		Designated Security Duties
		Proficiency in Survival Craft and Rescue Boat (PSCRB)
		Advanced Fire Fighting
		Maritime Domain Awareness
		Illegal, Unreported and Unregulated fishing (IUU)
		Marine Pollution (Basic Marine Pollution)
		Marine Pollution – Advanced
		Search and Rescue (SAR)

Eastern Africa: Tanzania

Institution	Programme	Levels
Dar es Salaam Maritime Institute (DMI)	Naval Architecture and Offshore Engineering	Basic Technician Certificate, Diploma, Bachelor degree,
	Marine Engineering	Technician Certificate, Ordinary Diploma, Bachelor degree,
	Mechanical and Marine Engineering	Bachelor degree and Master's degree
	Marine Operation	Basic Technician Certificate
	Maritime Transport and Nautical Science	Technician Certificate, Ordinary Diploma, Bachelor degree and Master's degree
	International Trade and Maritime Law	Master's degree
	Shipping and Logistics Management	Basic Technician Certificate, Technician Certificate, Ordinary Diploma, Bachelor degree
	Shipping Economics and Logistics	Master's degree
	Transport and Supply Chain Management	Basic Technician Certificate, Technician Certificate, Ordinary Diploma, Bachelor degree, and Master's degree
	IMO Short Courses	Chief Engineer Officer and Second Engineer Officer
		Officer in Charge of an Engineering Watch
		Officer in Charge of an Engineering Watch on Ships less than 750kW
		Master Near Coastal on Ships less than 500GT

Southern Africa: South Africa

Institution	Programme	Levels
Durban University of Technology (DUT)	Maritime Studies	National Diploma (ND)
	Maritime Studies (Foundation)	National Diploma (ND)
	Nautical Studies	Diploma (DIP)
	Shipping and Logistics	Diploma (DIP)

Southern Africa: Namibia

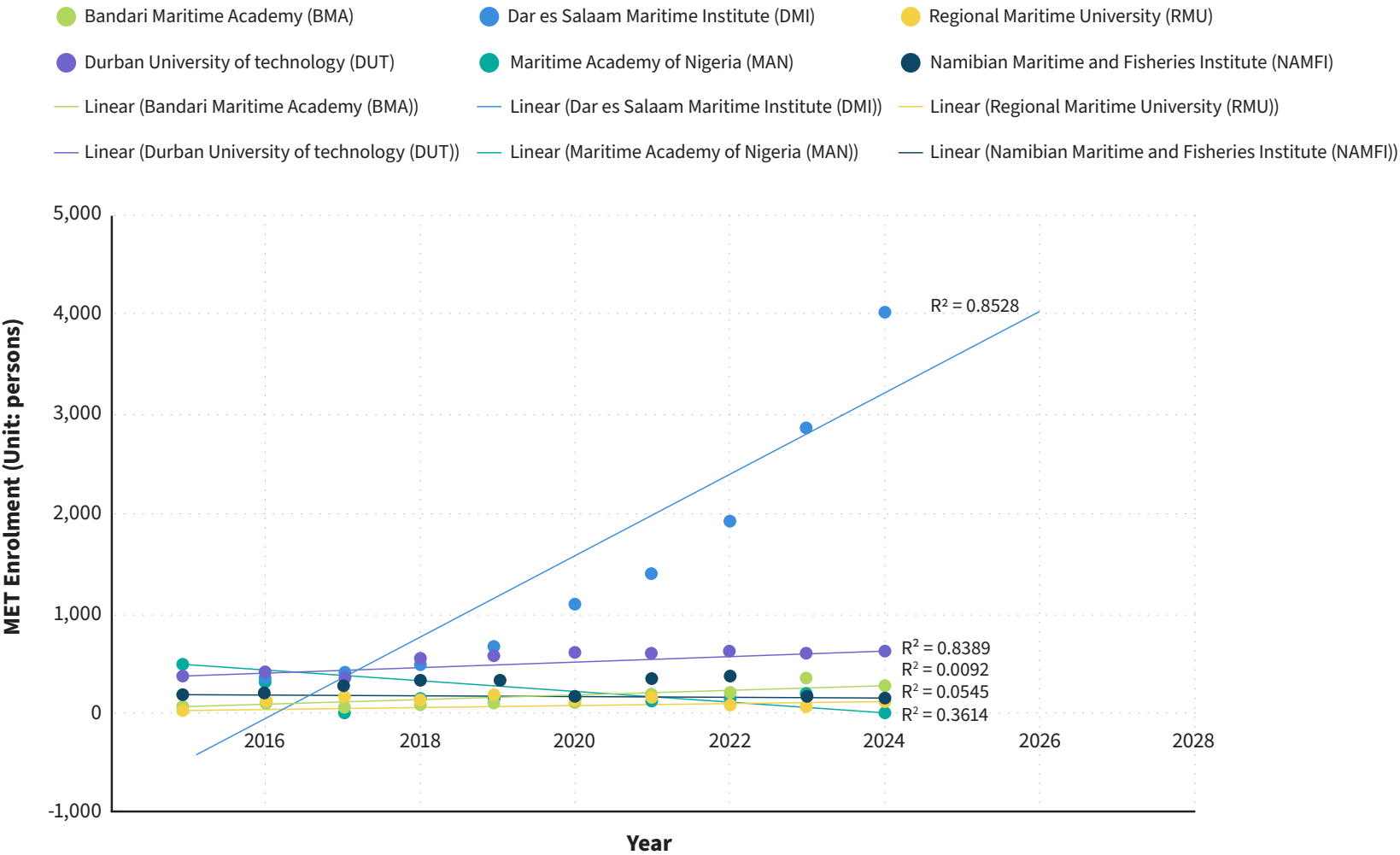| Institution	Programme	Levels
Namibian Maritime and Fisheries Institute (NAMFI)	Deck Officer	Class 5 and Class 6
	Marine Engineering	Class 4, Class 5 and Class 6
	IMO Short Courses	Fisheries Inspector and Observers Course (FIOC)
		Fitter and Turner Levels 1, Level 2 and Level 3
		Air Condition and Refrigeration Levels 1, 2 and 3
		Instrumentation and Control Levels 1, 2 and 3
		Welding and Metal Fabrication (CBET), Level 2 and Level 3

Western Africa: Ghana

Institution	Programme	Levels
Regional Maritime University (RMU)	Information Technology	Diploma, Bachelor degree
	Electrical/Electronic Engineering	Diploma, Bachelor degree
	Nautical Science	Diploma, Bachelor degree
	Ports and Shipping Management	Diploma
	Ports and Shipping Administration	Bachelor degree
	Accounting	Bachelor degree
	Computer Science	Bachelor degree
	Computer Engineering	Bachelor degree
	Marine Engineering	Bachelor degree
	Mechanical Engineering	Bachelor degree
	Logistics Management	Bachelor degree
	Renewable Energy Engineering	Master's degree
	Environmental Engineering	Master's degree
	Maritime Safety, Security and Risk Management	Master's degree
	International Shipping and Logistics	Master's degree

Western Africa: Nigeria

Institution	Programme	Levels
Maritime Academy of Nigeria (MAN)	Maritime Transport and Business Studies	National Diploma
	Maritime Transport and Business Management	Higher National Diploma
	Marine Engineering	National Diploma, Higher National Diploma
	Nautical Sciences	National Diploma, Higher National Diploma
	Electrical/Electronic Engineering	National Diploma
	Boat and Ship Building	National Diploma
	IMO Short Courses	Certificates of Proficiency under STCW (Chapter IV, V, VI)
		Ratings Forming Part of a Navigational Watch (STCW Reg. 11/4)
		Able Seafarer Deck (STCW Reg. 11/5)
		River Master
		Quarter Master
		Marine Engineer Assistant
		Coxswain

Appendix 3: Enrolment trends and future projections in each of the selected MET institution in Africa

Legend:
- Bandari Maritime Academy (BMA)
- Dar es Salaam Maritime Institute (DMI)
- Regional Maritime University (RMU)
- Durban University of technology (DUT)
- Maritime Academy of Nigeria (MAN)
- Namibian Maritime and Fisheries Institute (NAMFI)
- Linear (Bandari Maritime Academy (BMA))
- Linear (Dar es Salaam Maritime Institute (DMI))
- Linear (Regional Maritime University (RMU))
- Linear (Durban University of technology (DUT))
- Linear (Maritime Academy of Nigeria (MAN))
- Linear (Namibian Maritime and Fisheries Institute (NAMFI))

$R^2 = 0.8528$
$R^2 = 0.8389$
$R^2 = 0.0092$
$R^2 = 0.0545$
$R^2 = 0.3614$

Seafarer sustainability

WORLD MARITIME UNIVERSITY

Appendix 4: Institutional initiatives (good practices) and challenges for MET and seafarers in Africa

No.	Category	Initiatives (good practices)	Challenges
1.	Access and affordability	• Reduced fees for maritime courses to support needy students	• Insufficient scholarships and funding opportunities for students • High cost of training and certification, especially in Ghana e.g., $16,000 for a degree
2.	Industry collaboration	• Partnering with industry for internships, sea-time and further training opportunities • Inviting guest speakers for insights	• Scarcity of appropriate berths for mandatory onboard training • Lack of professional manning agencies understanding seafaring jobs
3.	Gender inclusion	• Gender inclusion programmes e.g., grants for female students	• Limited accommodation for female seafarers on ships, hindering career progression • Low female enrolment in maritime courses
4.	Facilities and equipment	• Hands-on training with simulators, boats and workshops • State-of-the-art simulator rooms for training	• Limited training infrastructure, including training ships and simulators • Lack of practical onboard work experience opportunities
5.	Staffing and retention	• Involvement of industry experienced faculty for mentorship	• Difficulty attracting and retaining critical staff due to wage disparities between academia and industry
6.	Curriculum development	• Regularly updated curricula in collaboration with industry stakeholders • Integration of green and digital skills	• Balancing curriculum updates with rapidly evolving standards
7.	Policy and regulation	• Advocacy for national support and scholarships • Collaboration with policymakers for infrastructure funding	• Weak enforcement of Maritime labour Conventions leaves seafarers vulnerable to exploitation • Lack of penalties for unprofessional agents
8.	Recruitment and awareness	• Outreach to high schools and communities to promote maritime careers • Use of alumni success stories for recruitment	• Reputation issues, for example perceptions that Ghanaian seafarers are less disciplined or experienced • Airline restrictions for Ghanaian seafarers e.g., transit visa demands
9.	Career support	• Career counselling and placement services tailored for maritime careers • Mentorship programmes for students	• A significant number of trained seafarers remain unemployed due to limited shipping companies operating under certain flags
10.	Working conditions	• Not mentioned	• Reports of poor onboard living conditions, long hours and lack of internet access • Isolation and psychological stress due to prolonged periods at sea
11.	Certification and recognition	• Pursuit of international accreditations for MET programmes	• Non-recognition of Nigerian seafarers' certificates by some jurisdictions • Slow promotion rates for Ghanaians in shipping lines
12.	Funding and sustainability	• Partnerships with MPS and governors to fund scholarships for students	• Inadequate funding for maritime academies e.g., Bandari Academy's reliance on internal revenue
13.	Post-education opportunities	• Collaboration with alumni for networking and mentorship	• Challenges in securing sea-time placements post-training • Very slow promotion rates for seafarers from some regions
14.	Pension and post-career support	• Not mentioned	• Lack of dedicated pension schemes for seafarers in countries like Ghana
15.	Community engagement	• Nationwide maritime awareness campaigns e.g., Ghana's "Go to Sea" campaign	• Not mentioned

Appendix 5: Seafarer figures by ranks/positions in the selected African countries

Table A5-1: Distribution of Seafarers by positions (from lowest to highest rank) in Nigeria

No.	Rank	Category	Total number in register	License
1.	Deck Ratings	Ordinary Seafarer	4,379	Basic Mandatories
		Able Seafarer	4,709	STCW Regulation III/5
2.	Deck Officers	Master	688	NCV/Unlimited
		Chief Mate	585	NCV/Unlimited
		Second Mate	271	NCV/Unlimited
		Officer in Charge of Navigation Watch (OOW)	1,325	STCW Unlimited
3.	Engine Ratings	Oiler	862	STCW Regulation III/5
		Able Seafarer Engine	820	STCW Regulation III/4 & 5
		Rating Forming Part of Engineering Watch	664	STCW Regulation III/4
		Electro Technical Rating	450	ETR Class 1,2,3
		Welder/Fitter	368	Welder/Fitter Class 1,2,3
4.	Engine Officers	Chief Engineer	411	Unlimited/Limited
		Second Engineer	688	Unlimited/Limited
		Third Engineer	1,743	Unlimited/Limited
		Electro Technical Officer	107	ETO
5.	Catering	Chief Cook	281	
		Assistant Cook	1,142	
		Steward	508	

Table A5-2: Gender and position distribution of Seafarers (from lowest to highest rank) in Kenya

No.	Position/Services	Total number of Seafarers	Male seafarers	Female Seafarers
1.	Seafarers CDC Booklets Issued FY 24/25	1,265	813	452
2.	Rating Officers Navigational Watch	41	38	3
3.	Rating Officers Engine Watch	37	33	4
4.	COC Officers of the Watch – Engine	33	32	1
5.	COC Officers of the Watch – Deck	17	14	3

Table A5-3. Number of active seafarers in South Africa by positions

No.	Qualification	Position	Total number of seafarers in Deck Department _STCW	Position	Total number of seafarers in Engine Department _STCW
1.	CEC	Chief Mate	20	Chief Engineer	55
		Master	69	Chief Engineer (<3000 Kw)	2
		Officer in Charge of Navigational Watch (OOW)	51	Electro Technical Officer	4
				EOOW	44
				Second Engineer	1
2.	COC	Chief Mate	123	Chief Engineer	162
		Chief Mate (<3000GT)	20	Chief Engineer (<3000 Kw)	1
		Master	249	Electro Technical Officer	27
		Master (<200GT Near coastal)	38	EOOW	589
		Master (<200GT)	30	Marine Motorperson Grade 1	224
		Master (<3000GT)	32	Marine Motorperson Grade 2	159
		Master (<500GT Near-Coastal)	45	Marine Motorperson Higher Grade	67
		Master (<500GT)	2	Second Engineer	140
		Officer in Charge of Navigational Watch (OOW)	697	Second Engineer	23
		Officer in Charge of Navigational Watch (OOW)– (<500GT Near-Coastal)	20		
		Officer in Charge of Navigational Watch (OOW)– (<500GT)	2		
3.	COP	Able Seafarers Deck	438	AS. Engine	212
		Ordinary Seafarers Deck	390	Electro-Technical Rating	29
				OS. Engine	181

Table A5-4. Number of seafarers in South Africa by gender

No.	Department	Position	Number of Males	Number of Females (%)
1.	Deck	Chief Mate	131	12 (8.4%)
		Master	308	10 (3.1%)
		Officer in charge of a navigational watch	605	143 (19.1%)
2.	Engine	Chief Engineer	216	1 (0.5%)
		Chief in Charge of Engineering Watch or Designated duty Engineer	579	54 (8.5%)
		Second Engineer	139	2 (1.4%)

Table A5-5: Number of Seafarers by Race in South Africa

Department	Position	Race	Number of Males	Number of Females
Deck	Master	Asian	79	0
Deck	Master	Black	35	4
Deck	Master	Coloured	27	1
Deck	Master	White	167	5
Deck	Chief Mate	Asian	26	1
Deck	Chief Mate	Black	26	5
Deck	Chief Mate	Coloured	16	0
Deck	Chief Mate	White	63	6
Deck	Officer in Charge of a Navigational Watch	Asian	77	6
Deck	Officer in Charge of a Navigational Watch	Black	342	117
Deck	Officer in Charge of a Navigational Watch	Coloured	78	9
Deck	Officer in Charge of a Navigational Watch	White	108	11

No.	Department	Position	Number of Males	Number of Females (%)
1.	Deck	Chief Mate	131	12 (8.4%)
		Master	308	10 (3.1%)
		Officer in charge of a navigational watch	605	143 (19.1%)
2.	Engine	Chief Engineer	216	1 (0.5%)
		Chief in Charge of Engineering Watch or Designated duty Engineer	579	54 (8.5%)
		Second Engineer	139	2 (1.4%)

Table A5-4. Number of seafarers in South Africa by gender

Department	Position	Race	Number of Males	Number of Females
Deck	Master	Asian	79	0
Deck	Master	Black	35	4
Deck	Master	Coloured	27	1
Deck	Master	White	167	5
Deck	Chief Mate	Asian	26	1
Deck	Chief Mate	Black	26	5
Deck	Chief Mate	Coloured	16	0
Deck	Chief Mate	White	63	6
Deck	Officer in Charge of a Navigational Watch	Asian	77	6
Deck	Officer in Charge of a Navigational Watch	Black	342	117
Deck	Officer in Charge of a Navigational Watch	Coloured	78	9
Deck	Officer in Charge of a Navigational Watch	White	108	11
Engine	Chief Engineer	Asian	59	0
Engine	Chief Engineer	Black	29	0
Engine	Chief Engineer	Coloured	20	0
Engine	Chief Engineer	White	108	1
Engine	Second Engineer	Asian	8	0
Engine	Second Engineer	Black	56	1
Engine	Second Engineer	Coloured	22	0
Engine	Second Engineer	White	53	1
Engine	Officer in Charge of Engineering Watch or Designated Duty Engineer	Asian	48	2
Engine	Officer in Charge of Engineering Watch or Designated Duty Engineer	Black	342	46
Engine	Officer in Charge of Engineering Watch or Designated Duty Engineer	Coloured	83	4
Engine	Officer in Charge of Engineering Watch or Designated Duty Engineer	White	106	2

Table A5-5: Number of Seafarers by Race in South Africa

Appendix 6: BIMCO/ICS estimated seafarer figures in the selected African countries

Table A6-1: BIMCO/ICS estimated numbers of seafarers in selected African countries (extracted from BIMCO/ICS, 2021)

Country	Officers	Ratings	Total Seafarers
Nigeria	8,953	16,657	25,610
Sierra Leone	3,953	5,633	9,586
Morocco	1,069	7,012	8,081
Egypt	2,549	4,472	7,021
United Republic of Tanzania	1,728	2,637	4,365
Comoros	1,678	2,511	4,189
South Africa	1,986	1,044	3,030
Cameroon	883	1,310	2,193
Gabon	560	910	1,470
Algeria	560	874	1,434
Tunisia	414	655	1,069
Angola	400	655	1,055
Kenya	19	166	185
Ghana	38	60	98
Namibia	33	56	89

"There is an urgent need to attract fresh talent into the industry and attracting young girls from an early age must become a strategic priority if we are to ensure our industry's resilience and adaptability. Actively engaging them through education, outreach, coaching, mentorship and partnerships, we can build a resilient and diverse workforce for the future of the maritime industry. Africa's high population of talented young, bright people, presents a huge potential for a significant female talent pool for the maritime industry. Governments, shipping companies, crewing managers and training providers must collaborate to encourage and develop diverse talent across our sector."

Nancy Karigithu
Principal Secretary, State Department for Shipping and Maritime in the Ministry of Transport, Infrastructure, Housing, Urban Development and Public Works, Kenya.

"African and female seafarers still face systematic challenges, yet there is a looming global seafarer shortage. It is time to attract, train and retain African agile and female seafarers through equity for sustainable development while still maintaining a competitive edge. This report demonstrates that is no longer business as usual in the maritime sector. Specific consideration of a global set of standards through policy and regulation can upscale the absorption of African and female seafarers. Cooperation and collaboration between government and shipping lines through partnership agreements is essential, especially with the current industry development trends."

Lydia Ngugi
Head of the Maritime Technology Cooperation Centre for Africa (MTCC Africa) in Mombasa, Kenya.