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► Stocktaking Study for the Development of a Sectoral Skills Strategy: Indonesia Seafaring



- ▶ **Stocktaking Study for the Development of a Sectoral Skills Strategy: Indonesia Seafaring**

Table of Contents

Acknowledgements	3
Executive summary	4
Introduction	5
Methodology	5
Sector profile	6
Employment and ships	6
Institutional and regulatory framework	7
Human resources profile	8
Overview	8
Relevant institutions and roles	9
Occupations and skills.	9
Main challenges	10
Educational offer to address human resources needs	11
Certification	11
Current gaps/challenges in terms of educational offer	12
Policy options to address the human resources challenges	13
References	14
Appendices	14
Appendix 1. The trend of number of shipping companies and ships in Indonesia, 2015-2019	14
Appendix 2. General classification of seafarer occupations and required certificates	14
Appendix 3. Number of issued certificates, Indonesia 2022	19
List of tables	
Table 1. Employment in seafaring occupations (point estimates, August 2022)	6
Table 2. Mapping and levels of occupation in the seafaring subsector according to the STCW	9
List of figures	
Figure 1. The flow of seafaring service production in Indonesia	8

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Executive summary

Indonesia is one of the leading global seafarers' providers. Indonesia workforce accounts for about six percent of the total officers and nine percent of the ratings of the world's commercial fleets (UNCTAD, 2022). Despite the importance of the industry, its economic potential is still not yet fully exploited, especially considering the projected increase in the national and global demand over the coming years.

This stocktaking study provides an overview of the current demand for seafarers, institutional arrangements, demand of skills, and the necessary qualifications to supply demand driven skills to reduce current skills mismatches.

The skills mismatches reported by national stakeholders include **the lack of proficient comprehension of maritime language and regulation, the challenges in the comprehension of English marine-related language and transferable skills such as leadership, communication, and work ethics.** In addition, graduates are perceived to hold **limited capacity to adapt to new technology** as their technical knowledge and skills seems insufficient.

In relation to the **educational offer** to address current and future skills needs, several challenges are identified including: (i) the **need for an overarching dedicated skills strategy** combined with effective coordination between all stakeholders (Government, training providers, employers' and workers' organizations, professional associations, and manning agencies), (ii) **the collection, analysis and dissemination of information on student enrolment and seafarers' competencies and skills profile** to be used to design training and provide career guidance, (iii) **funding gaps,** (iv) **relevance of curricula and qualifications,** in particular the limited work-based learning component, (v) **timeline for design and delivery of curricula,** warranting elimination of down time after the completion of the classroom components (vi) **availability of qualified trainers,** (vii) **structure and mandate of the current certification body,** and (viii) **enabling conditions to allow for equal access and participation in training.**

To address the above-mentioned challenges, national stakeholders interviewed propose a **several interventions.** Those include **the establishment of suitable coordinating bodies and mechanisms mandated to develop and implement sectoral skills strategies,** amongst other, as well as to periodically review and update **curricula based on collection and analysis of labour market information, reforms in the minimum qualifications for teaching** (i.e., master degree) and the **establishment of schemes for recognition of prior learning (RPL) for practitioners** allowing them to become, once retired, qualified teachers.

Introduction

As an archipelago country with a longstanding seafaring tradition, Indonesia has become one of the leading global seafarer providers. Indeed, it supplies to the world's fleets about six percent of the officers and nine percent of the ratings (UNCTAD, 2022). Strengthening seafaring human capital is essential to improve its potential contribution to Indonesia's gross domestic product (GDP) or, rather, gross national product (GNP)¹ and to ensure the leading position in the world is maintained.

This stocktaking study based on the ILO Skills for Trade and Economic Diversification, or STED methodology aims to catalogue the demand for seafarers' and the associated skills, while illustrating the current educational options to address the industry's needs. It concludes summarizing the interventions proposed by national stakeholders to better respond to the market demand.

Seafarers are workers recruited to work on merchant vessels (not on fishing boats or family-owned traditional Indonesian vessels) while those vessels perform economic activities classifiable as belonging to different industries. The International Standard Classification of Occupation (ISCO 08)² is somehow specific to identify occupations performed by seafarers.³ For this study and the whole STED exercise, the seafaring labour market is considered referring to the Government Regulation on Seamanship (No. 7/2000) which defines Seafarers as *'any person who has a qualification or expertise or skill as a crew' (Article 1 Sub article 3), the crew itself being defined as 'a person who works or is employed on board by a shipowner or operator to do assignments on board according to the position stated in the national seafarer's book' (article 1, sub article 2)* and the proposed seafaring skills strategy development is shaped according to the preferences and needs of national stakeholders.⁴

The study includes six sections. Following the introduction, the first section introduces the methodology. Sector profile, human resource profile, and the analysis of the educational offer to address human resources needs in the seafaring follow next. A section with proposed interventions to address present challenges concludes.

Methodology

The ILO Skills for Trade and Economic Diversification or STED, is a sector focused methodology that assists in the **formulation of skills development policies/strategies** intended to help countries' competitiveness and economic diversification. While directing the attention on the skills and human resources aspects of sectoral development, the methodology combines research (diagnostic), policy analysis, and consultation via social dialogue with the aim to define a concerted strategy ready for implementation.

In the case of Indonesia's seafaring subsector, STED was implemented in stages. A first workshop was held in August 2022⁵ with the goal of highlighting the main barriers to sectoral development, whether skills specific or systemic ones, of identifying the most required skills, and of agreeing on an initial set of proposed actions to address existing gaps. Following the first meeting, a dedicated desk review was produced to structure the available information and provide a detailed profile of the national maritime logistics subsector, its business operations and related occupations in demand and skills gaps. The desk review allowed to match proposed future interventions against available data and structured the former accordingly. A final workshop held in May 2023 allowed participants to review the ensemble of the gathered data and, once considering the latest development, agree on proposed actions to address existing gaps.

1 GNP considers the output of a country's citizens regardless of where the economic activity took place a distinction extremely relevant for workers who may be producing value outside of national boundaries like seafarers.

2 See ILO (2012).

3 ISCO 08 Minor Group 835 includes "ships' deck crews and related workers", an occupational category almost entirely corresponding to the seafarer one. There are however other categories which, depending on the adopted boundaries may or may not cover the seafarer category. For instance, ISCO 08 3152 includes 'Ships' Deck Officers and Pilots' or, more loosely, ISCO 08 '5120' or '5131' or '8182' are occupational groups such as 'cooks' or 'waiters' or 'Steam Engine and Boiler Operators' which include workers performing aboard of ships.

4 National stakeholders included different technical ministries, industry associations, workers organizations and educational institutions.

5 Coordinating Ministry of Maritime Affairs and Investment, BAPPENAS, Ministry of Manpower, Consortium of Indonesian Manning Agency, Indonesian Merchant Marine Officers (IKKPNI), Workers Organizations, Politeknik Maritim Negeri Indonesia (Polimarin), Sekolah Tinggi Ilmu Pelayaran (STIP).

It is important to highlight that in addition, to the drafting of a common strategy, applying the STED methodology to the seafaring subsector allows/ed to reach a series of broader in scope and longer lasting objectives such as (i) developing a common understanding of the seafaring vision and challenges; (ii) facilitating the social dialogue amongst stakeholders to support the National Logistics Ecosystem, (iii) building the sense of ownership toward the subsector development instrumental to then implementing the proposed recommendations.

Sector profile

Employment and ships

Given the uncertainty in rigidly defining the sector, the quantitative identification of employment within it poses challenges. In addition, there remain obstacles specifically linked to measuring employment via survey instruments.⁶

- ▶ UNCTAD (2021)⁷ reports that the number of Indonesian seafarers that operates the world merchant fleet was 143,702 by 2021 distributed between ratings and officers. The country is the third largest seafarer-supplying country in the world.⁸
- ▶ Figures from the Ministry of Transportation show that between 2020 to 2022, the number of Indonesian seafarers holding a seamen book increased from 1.1 to 1.3 million (Indonesia, Ministry of Transportation, 2023).⁹
- ▶ Additional data provided by the National Board for Placement and Protection of Indonesian Migrant Workers reports that in May 2022, Indonesian seafarers who embarked on cruise ships were 2,724 (Indonesia, Migrant Workers protection Agency 2022).¹⁰ These figures suggest that the number of seafarers to both domestic and global markets has increased steadily, with a small fraction of them working on cruise ships.
- ▶ Data from the Indonesia's labour force survey (SAKERNAS) presented in table 1 below show that the total number of workers employed as ship crew is roughly consistent with UNCTAD data (143 thousand vs 111 thousand), with the discrepancy likely due to Indonesian seafarers not officially residing in the country (anymore). Note that amongst the workers in the sector, SAKERNAS data indicate that about 28 per cent are officers and pilots (vs 35 per cent for UNCTAD 2022). Noteworthy also the fact that the overwhelming majority of seafarers are men (over 99 percent).

Table 1. Employment in Seafaring Occupations (Point Estimates, August 2022)

Total employment ISCO 8350 (Ships' Deck Crews and Related Workers), ISCO 3152 (Ships' Deck Officers and Pilots).	Total	111,290
	Total Men	110,130
	Total Women	1,160 (Unreliable)
As % of employed workforce	Total	0.08
	Men	0.13
	Women	0.001 (unreliable)

Source: Own elaboration on the basis of Sakernas 8/2022 microdata

⁶ Availability of seafarers to answer survey questions is hindered by the very nature of the job and proxy respondents may likely not be fully aware of many occupational details.

⁷ UNCTAD (2022) indicates that the figures are based on the BIMCO-International Chamber of Shipping Manpower Report 2015 <http://www.ics-shipping.org/free-resources/manpower-report-2015> and BIMCO- International Chamber of Shipping Seafarer Workforce Report, 2021 (<https://www.ics-shipping.org/publication/seafarer-workforce-report-2021-edition>).

⁸ See UNCTAD (2021: xx)

⁹ After discussion with national stakeholders, we assume data presented on the Ministry of Transportation website (Ministry of Transportation, 2023) under the heading "Number of Seafarers by Genders" refer to the cumulative total of seamen books issued.

¹⁰ Within the 2017-2018 biennium, the crew departed for cruise ships from PT. 'Ratu Oseania Raya' ranged from 1800 to 2500. During the pandemic, the number decreased to only 220 people. In 2021 and 2022, the total reached over 1,000 crews per year.

During consultations, national stakeholders indicated that an emerging and unforeseen opportunity to engage more in the global market comes from the conflict between Ukraine and Russia that affects the international supply of seafarers. There was consensus that Indonesia has excellent capability to supply not only skilled and experienced seafarers but also entry-level ones.

The seafaring subsector is growing as the number of shipping companies and ships is increasing. According to Ministry of Transport data the number of shipping companies in Indonesia increased from 2,821 in 2015 to 3,327 in 2019 while the number of ships categorised as operating under seafaring or shipping services increased from 14,204 to 27,367.¹¹ In addition, there is also an increasing trend of total ships used for special shipping as shown in Appendix 1 (Indonesia, Ministry of Transportation 2020).

Institutional and regulatory framework

Over the years, many regulations have set out the scope of seafaring, regulated the seafaring ecosystem's management, and proposed standards for the seafarers' competencies.

- ▶ The Presidential Regulation Number 7 of 2000 on Seamanship (No. 7/2000) describes the seafaring ecosystem and management.
- ▶ Regulation Number 17 of 2008 by Ministry of Transportation about ship-based transport/sea voyage (pelayaran) defines the role of captain and crew calling for them to comply with national qualifications and competencies as a necessary condition for hiring.
- ▶ Presidential Regulation Number 34 of 2022 on Plan of Action for the 2021-2025 Indonesia's Maritime Policy, specifically emphasizes the importance of marine and fisheries education.
- ▶ Seafarers working abroad are legally considered migrant workers, as regulated by Law Number 18 of 2017 (Law on Protection of Migrant Workers)
- ▶ In 2021, the Government of Indonesia (GoI) enacted the Government Regulation Number 31 of 2021 to strengthen the administration and organization of Indonesia's ship-based transport/sea voyage (pelayaran).
- ▶ Internationally, seafaring is regulated by the Maritime Labour Convention (MLC) 2006 which ensures comprehensive worldwide protection of the rights of seafarers while establishing a level playing field for countries and shipowners. In 2016, the Government of Indonesia ratified the MLC 2006 and turned it into Law Number 15 of 2016.

While describing the seafaring ecosystem national stakeholders concurred to consider the Government not only as the regulator but also as an intermediary along with the manning agencies.¹² As such the Government can/should play a role in the link-and-match function, assessment of required competencies, and marketing (promoting Indonesia's seafarers to the industry, domestically and abroad).

Concerning the manning agencies¹³, there are currently at least 163 active ones in Indonesia¹⁴ playing a crucial role in recruitment and placement. Noteworthy and highlighted by national stakeholders their central role in disseminating labour market information beyond the available vacancies specifically regarding skills requirements and trends and salary by occupation.

11 Three state-owned enterprises, namely PT. Pelni, PT. Djakarta Lloyd, and PT. Bahtera Adhiguna own 65 ships in total.

12 International Chamber of Shipping (2021) describes manning agencies as dedicated employment intermediaries for seafarers executing functions such as vacancy advertisements, matching of vacancies and workers, arranging necessary bureaucratic, medical and visa requirements for outgoing seafarers and is generally understood as providing 'recruitment and placement services' as referred to in the MLC, 2006.

13 Manning agency's role is officially stated in Government Regulation Number 31 of 2021 (article 49).

14 Based on the membership of Consortium of Indonesian Manning Agencies (CIMA) by March 2023.

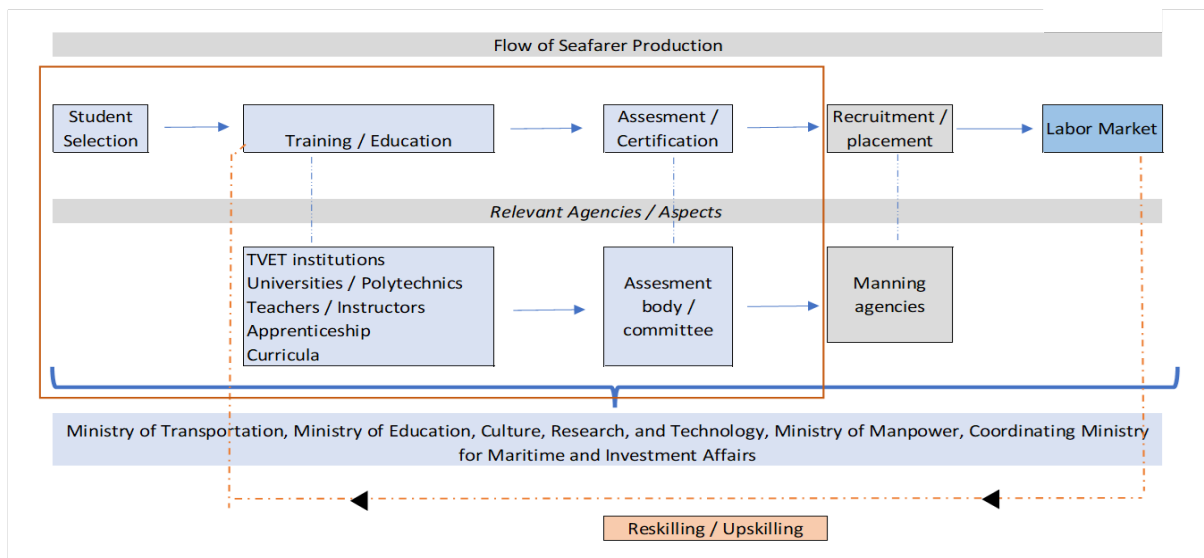
Human resources profile

Overview

The seafaring subsector is primarily a service-oriented industry. The industry human resource development cycle is itself relatively well-established (figure 1) with the education related steps (red box in figure 1 below SEE FIGURE1) clear to all national stakeholders:

- ▶ Future seafarers normally enter the cycle via Technical and Vocational Education and Training (TVET) institutions. Those need to ensure that teachers, curricula, and apprenticeships respond to the industry needs.
- ▶ Once the studies are concluded, the following step is the assessment (and certification) of competences by a mandated assessment committee.¹⁵
- ▶ To enter the labour market, new graduates must then undergo the recruitment and placement process. At this stage the manning agencies play an important role in linking the supply and demand (industry) side. These agencies, at times, also provide induction courses for new graduates as well as the existing seafarers in the job market.
- ▶ Seafarers could repeat the process throughout their work life by enrolling in education or training institutions for reskilling and upskilling.
- ▶ Note that every seafarer must comply with the standards set by the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) issued under the aegis of the International Maritime Organization (IMO).

Figure 1. The flow of seafaring service production in Indonesia



Source: Author's compilation

¹⁵ Ratings normally hold an Indonesian National Work Competency Standards (SKKNI) certificate issued upon successful completion non-STCW (see below) Training Institutions linked to their trade of operation.

Relevant institutions and roles

- ▶ The Ministry of Transportation (MoT) and Ministry of Education Culture, Research, and Technology (MoECRT) both oversee seafaring oriented vocational high schools, higher education institutions, and training institutions.
- ▶ The Ministry of Transportation is mandated to ensure the IMO standards are applied throughout the education process.
- ▶ MoECRT is responsible for setting the Education National Standard (Government Regulation Number 57 of 2021).
- ▶ The Ministry of Manpower supervises the certification process through the Professional Certification Body (LSP), and the issuance of foreign working permit through the Indonesian Migrant Workers Protection Agency (BP2MI).
- ▶ The Coordinating Ministry for Maritime and Investment Affairs provides general oversight and regulatory function.

Occupations and skills

This section looks at the occupational structure within seafaring/naval industry and briefly presents the most common jobs together with the associated skills and qualifications. To be noted that generally, the type of work required on board is similar between ships with few exceptions.

Table 2 presents the main occupations in the seafaring subsector categorised by functional area, name, job title (according to the STCW) and the occupation name as listed in the MoT regulation number 62 of 2022.

Table 2. Mapping and levels of occupation in the seafaring subsector according to the STCW

Functional areas	Occupation (officer/rating)	Job title according to STCW	Name of occupation equivalent as listed in the MoT Regulation 62/2022.
All areas	Master	Captain / master (Management)	Nakhoda
Deck	Senior officers	Chief officer (Management)	Mualim I
		Watchkeeping officer (Operational)	Mualim II, III, or IV
Engine	Senior officers	Chief engineer (Management)	Kepala kamar mesin
		Second engineer officer (Management)	Masinis II
		Watchkeeping engineer officer (Operational)	Masinis III, IV V
Deck	Junior officer	Electro-technical officer (Operational)	Electro-technical officer
Engine	Junior rating	Electro-technical rating (Operational)	Electro-technical officer
Radio	Radio operator	Radio operator, Global maritime distress and safety System radio operators (Operational)	

Functional areas	Occupation (officer/rating)	Job title according to STCW	Name of occupation equivalent as listed in the MoT Regulation 62/2022.
Deck	Rating	Able seafarer deck (Support)	Able seafarer deck
		Helmsman (Support)	Juru mudi
		Ordinary sailor (Support)	Kelasi
		Ship's cook (Support)	Juru masak
		Mess boy (Support)	Pelayan
Engine	Rating	Able seafarer engineer (Support)	Able seafarer engineer
		Welder (Support)	Welder
		Fitter (Support)	Fitter
		Wiper (Support)	Wiper
		Plumber (Support)	-
		Oiler	Juru minyak

Source: Own elaboration.

To be employed, all seafarers are required to fulfil minimum requirements for competence and standards established by the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (1978) (and its amendments over time). In Indonesia those are embedded within Government Regulation of Republic of Indonesia Number 7 of 2000 and by the Ministry of Transportation Regulation Number 62 of 2022 defining the seafaring subsector's major occupations and standards of competence. The credentials needed vary according to the seafarers' respective competency levels, tasks, and the type of vessels they operate on.

Certification of skills associated with each occupation is warranted through the completion of certificates, namely the Certificate of Competency (CoC) and the Certificate of Proficiency (CoP). In addition, subject to the requirements of national authorities for different types of vessels, Indonesian seafarers may also have to hold the certificate of Endorsement (CoE)¹⁶ and Certificate of Recognition (CoR).¹⁷ CoE is mandatory for seafarers who work on Indonesia flagged vessels, and CoR is only provided for the Captain/Master/Nakhoda, Chief Mate, Chief Engineer, and Second Engineer Officer. Appendix 2 summarizes the seafarer's occupation rank profile and relevant CoC and CoP for each occupation and level.

Main challenges

National stakeholders agreed that while Indonesia has a comparative advantage regarding the number of (qualified) seafarers, challenges reflecting their skills and competencies do exist. Notwithstanding the generally recognised '*attitude and tenacity*' of Indonesia's seafarers upgrading their capabilities and skills is a must to enable them to compete globally. Specifically, the possible target for a dedicated skills strategy consists in:

- ▶ The (lack of) proficient comprehension of maritime English language and regulation. Basically, all occupations require Maritime English comprehension.¹⁸
- ▶ The improvable mastering of transferable skills such as leadership, communication, and work ethic.

¹⁶ i.e. a document issued by an administration X as an official recognition of the validity of a certificate issued by another administration Y.

¹⁷ Recognizing the skills already holding a certification for.

¹⁸ Also reflected in the formal 'Marlin' English Certificate.

- ▶ The limited capacity to adapt to new technology. The introduction of new technology requires higher level of expertise, notably to cope with digital innovation and eventually automation and with “unmanned or autonomous vessel”, already a reality in many countries.
- ▶ The fragmented and overlapped regulation and the need to bolster coordination among government agencies or line ministries. Addressing those issues could help the industry to cope with issues such as low and unstandardized fees for seafarers, poor protection of seafarers’ welfare, limited skills, and experience in adapting to the latest technology needed, and character gap.
- ▶ The global¹⁹ competition driving the need to strengthen Indonesia’s seafaring subsector’s ecosystem.

Educational offer to address human resources needs

Providers. Currently, 94 education and training institutions for seafarers are accredited by the Ministry of Transport. Among them, 49 secondary education institutions and 25 higher education institutions are managed by the MoECRT²¹, while eleven are directly managed and supervised by the Human Resource Development of the Ministry of Transportation (Badan Pengembangan Sumber Daya Manusia Perhubungan/BPSDM) MoT for seafarers (Indonesia, Ministry of Education, Culture, Research and Technology 2022a; Indonesia, Ministry of Education, Culture, Research and Technology 2022b; Indonesia, Ministry of Transportation 2022c).²⁰

During the school year 2021-2022, there were more than 11,700 students enrolled in secondary education and 15,700 students are in higher education, as registered in MoECRT database.²¹

Within the training providers one should also mention that the Ministry of Manpower (MoM) runs 303 Vocational Training Centre (Balai Latihan Kerja/BLKs) (Mahdiyah 2019). Many BLKs provide technical training relevant for ship’s deck or engine support—such as cook, waiter, housekeeper, hotel manager, waiter, welder, fitter, and carpenter—in which the student must take a certification of proficiency, and among others, the basic safety training (BST), to become a seafarer.

In addition to the educational institutions mentioned above, there are also other training establishments providing induction courses for seafarers under the aegis of the five seafaring associations, namely Ikatan Korps Perwira Pelayaran Niaga Indonesia (IKPPNI), Praktisi Maritim Indonesia, CMIMA, Perkumpulan Pekerja Pelaut Indonesia, Indonesian National Shipowners Association, and Maritime Committee of Lembaga Kajian Nawacita.

Certification

Indonesian seafarers can obtain international and national certifications. International ones, governed by the STCW are issued by the Ministry of Transport. The latter, under Minister of Transportation Regulation Number 70 of 2013 concerning Education and Training, Certification and the Seafaring Watchkeeping, has the right to issue both certificates of competence and certificates of proficiency.²² Regarding national ones, there are eight Professional Certification Bodies (Lembaga Sertifikasi Profesi/LSP) holding license from the National Professional Certification Agency (Badan Nasional Sertifikasi Profesi/BNSP) to carry out seafaring certification (Indonesia, Badan Nasional Sertifikasi Profesi 2022).

19 Stakeholders focused on the regional level competition noting how in recent years, neighbouring countries such as Cambodia and Myanmar have also shown a growing interest in seafaring.

20 Not all existing institutions are officially accredited by the MoT.

21 MoECRT database—namely the Education Main Database (Data Pokok Pendidikan/Dapodik) for vocational education and Higher Education Database (Pangkalan Data Perguruan Tinggi/PDDikti) for higher education—can provide the information of trends on student enrolment by program in a certain period (Indonesia, Ministry of Education, Culture, Research and Technology 2022c; Indonesia, Ministry of Education, Culture, Research and Technology 2022d).

22 Not all existing institutions are officially accredited by the MoT. MoECRT database—namely the Education Main Database (Data Pokok Pendidikan/Dapodik) for vocational education and Higher Education Database (Pangkalan Data Perguruan Tinggi/PDDikti) for higher education—can provide the information of trends on student enrolment by program in a certain period (Indonesia, Ministry of Education, Culture, Research and Technology 2022c; Indonesia, Ministry of Education, Culture, Research and Technology 2022d).

23 Unfortunately, the data that can be accessed is accumulative and there is no trend data available.

MoT reports that by 2022, the total number of certifications issued by the ministry was 5,567,406, consisting of 558,297 certificates of competency (CoC), 4,798,921 certificates of proficiency (CoP), 188,073 certificates of endorsement, and 22,115 fish vessel certifications (Ministry of Transportation 2022d). Particularly, the CoC are varying in level among officers and ratings as shown in the Appendix 3.²³

Current gaps/challenges in terms of educational offer

Stakeholders concurred on several elements preventing the current educational offer from fully reflecting the market needs. Those are:

- ▶ *No dedicated skills strategy available.* Although Indonesia already has a national policy and strategy for the development of maritime sector, the latter does not sufficiently address the needs of the seafaring subsector. Holding STCW and IMO as the framework of reference there is room for designing a dedicated skills strategy focusing on the needs of seafarers.
- ▶ *Limited access to comprehensive information on student enrolment and seafarers' competencies and skills profile.* Having quality and non-patchy data about student enrolment, graduation, and certification from all providers, together with tracer studies and systemic evaluations of labour market outcomes should be a starting point to inform any dedicated skills strategy.
- ▶ *Funding (and adoption of technology) issues.* Currently, many education and training providers are struggling to meet financial needs. This reflects on the below market wage of the instructors (eventually affecting the quality of the teaching) and on supporting infrastructures and facilities (generally outdated). The latter negatively impacts the adoption (and development of competencies) linked to digitalization and automation. Note that both state-funded (under the MoT or MoECRT) and private funded providers are, reportedly, underfunded.
- ▶ *Relevance of curricula and ensuing qualifications.* Curricula do not necessarily/always match current market and industry needs. For example, the limited knowledge and understanding of the English maritime language is identified as the single most hindering factor limiting the access of graduates to the labour market. The absence of practice sessions or internships are reported to also be a meaningful limitation to graduate readiness for the job market. In addition, the lack of English proficiency is deemed to hamper working opportunities particularly in the international market.
- ▶ *Timing of curricula delivery.* Stakeholders reported that it has become harder to ensure students maintain necessary motivation or interest throughout the cursus of study. Part of the problem is linked to the long waiting time between the conclusion of the school-based curriculum and the boarding of an available ship for the on-the-job part (internship or on the job training). Overall, however, internship opportunities are limited in number.
- ▶ *Trainers/teachers.* Current teachers are considered to need more training for reskilling or upskilling, especially for English proficiency and knowledge of new practices linked to automation and blockchain. In addition, some stakeholders questioned the requirement that instructors must have at minimum a master's degree. The latter is particularly damaging in the case of practitioners wishing to become teachers as very few of them have a Master degree. Compounding the situation is the absence of schemes for recognition of Prior Learning (RPL) which could potentially substitute the degree requirement.
- ▶ *Certification body.* Another complexity arises from the assessment body who authorizes the seafarers' qualification. The committee for seafarer qualification (Pelaksana Ujian Keahlian Pelaut/PUKP) under the Ministry of Transportation is the authoritative body that examines the seafarer's competency and issues the certificates. National stakeholders expressed the preference to ensure a diverse participation within the committee to allow for evaluation reflecting different experiences in the industry and examiners to originate from institutions different than the ones providing the training.
- ▶ *Inclusivity.* Data shows that there is low enrolment from female student or certificate holders. While this is most likely due to the stigma associated with seafaring occupations there could be measures adopted to establish a more enabling environment for women students.
- ▶ *Educational and career guidance.* There is no systematic dissemination of the information regarding competencies and skills profile needed in the industry or the career opportunities (placement, salary, duration working conditions) to inform future students.

- **Coordination.** The process of qualifying and placing the seafarers is spread across various line ministries, education and training institution, seafarer associations and manning agencies. This reflects a complex ecosystem requiring increased coordination and collaboration among parties to function properly.

Policy options to address the human resources challenges

Upon the three-days STED workshop facilitated by the Coordinating Ministry for Maritime Affairs and Investment and the ILO which took place in August 2022, and attended by representatives of government, employers' and workers' organizations and TVET institutions, the following challenges and possible solutions were identified and proposed by participants.

CHALLENGES	POSSIBLE INTERVENTION
1. The lack of skills strategy has limited the improvement of human resources capacity in seafaring to respond to industry's needs.	1a. A comprehensive skill needs assessment to identify the skills and qualification needs is a prerequisite for the design of an informed seafaring skills strategy.
2. Limited funds available and funding limit the quality of educational offer.	2a. Collaboration between vocational education and training institutions with the industry to bolster on-the-job training and provide opportunities for the instructors to acquire first hand industry experience, and through this address the limited availability of qualified instructors and equipment.
3. Longer duration of study programmes caused by the waiting time to get ship available for the work-based learning or on-the-job training impacts students' motivation.	2b. Strengthen the efforts on technology adaptation within training institutions to match industry needs.
4. Limited relevance of curricula and qualifications for the industry.	4a. Review and update curricula periodically. Such process shall not be limited to the specific competencies needed to fulfil the work tasks in each occupation, but also to enhancing skills such as English language, marine-related language, and marine-based interpersonal skills. Capacity development of teachers, and inclusion of experienced professionals in teaching should also be an integral part of the process.
5. Barriers for practitioners to enter academics and become teachers because of mandatory qualification requirements (e.g. holding a master degree).	5a. Review the mandatory requirement of minimum degree for practitioners to become teachers. 5b. Develop the Recognition of Prior Learning (RPL) for the practitioners.
6. Graduating the students with the skills required by the industry has been an issue as the examiner of the seafaring skills exam (Pelaksana Ujian Keahlian Pelaut/PUKP) comes from a specific party related to the certification exam and does	Establish an independent, or more open examiner or assessment body.

CHALLENGES	POSSIBLE INTERVENTION
not have any appraisal from other parties. Thus, there is a need for an independent agency that runs the assessment process.	
7. Coordination issues between relevant stakeholders involved in the process of assessing, certifying, and placing the seafarers.	7a. Establish a body (e.g., sectoral skills council) consisting of different government agencies and other stakeholders such as industry, training providers, manning agencies, and workers' organizations to coordinate and ensure good governance of maritime-related policies and programmes.
8. Limited access to comprehensive information on student enrolment and seafarers' competencies and skills profiles.	8a. Collect, analyse, and disseminate data on graduates (including tracer studies and dedicated evaluation) in relevant disciplines as well as data on placement and career options. Ministry of Transportation, Ministry of Education, Culture, Research and Technology and manning agencies to ensure protocol for homogenous and timely data sharing is produced and dissemination

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Appendices

Appendix 1. The trend of number of shipping companies and ships in Indonesia, 2015-2019

	2105	2016	2017	2018	2019
Number of total shipping companies	2821	2875	2980	3077	3327
Number of state-owned enterprises	3	3	3	3	3
Number of ships for shipping services	14204	21866	21644	23622	27367
Number of ships for special shipping	1911	2180	2179	1937	3458
Number of state-owned ships	52	75	70	64	65

Appendix 2. General classification of seafarer occupations and required certificates

Level of occupation by education & experience	Level of occupation by tasks	Certificate requirements (CoC)	Certificate requirements (CoP)
Master	Captain/ Master	Ahli Nautika Tingkat I / II GMDSS radio operators	Basic certificate: Basic Safety Training (BST), Specific certificates: Medical First Aid (MFA), Medical Care (MC), Survival Craft and Rescue Boats other than Fast Rescue Boats (SCRB), Advanced Fire Fighting (AFF), Bridge Resource Management (BRM), Simulator Radar, Simulator ARPA, ECDIS, Ship Security Officer (SSO), health, and certificates for specific type of ships.
Senior Officers	Chief Mate	Ahli Nautika Tingkat I / II, GMDSS radio operators	Basic certificate: Basic Safety Training (BST), Specific certificates: Medical First Aid (MFA), Medical Care (MC), Survival Craft and Rescue Boats other than Fast Rescue Boats (SCRB), Advanced Fire Fighting (AFF), Bridge Resource Management (BRM), Simulator Radar, Simulator ARPA, ECDIS, Ship Security Officer (SSO), health, and certificates for specific type of ships.

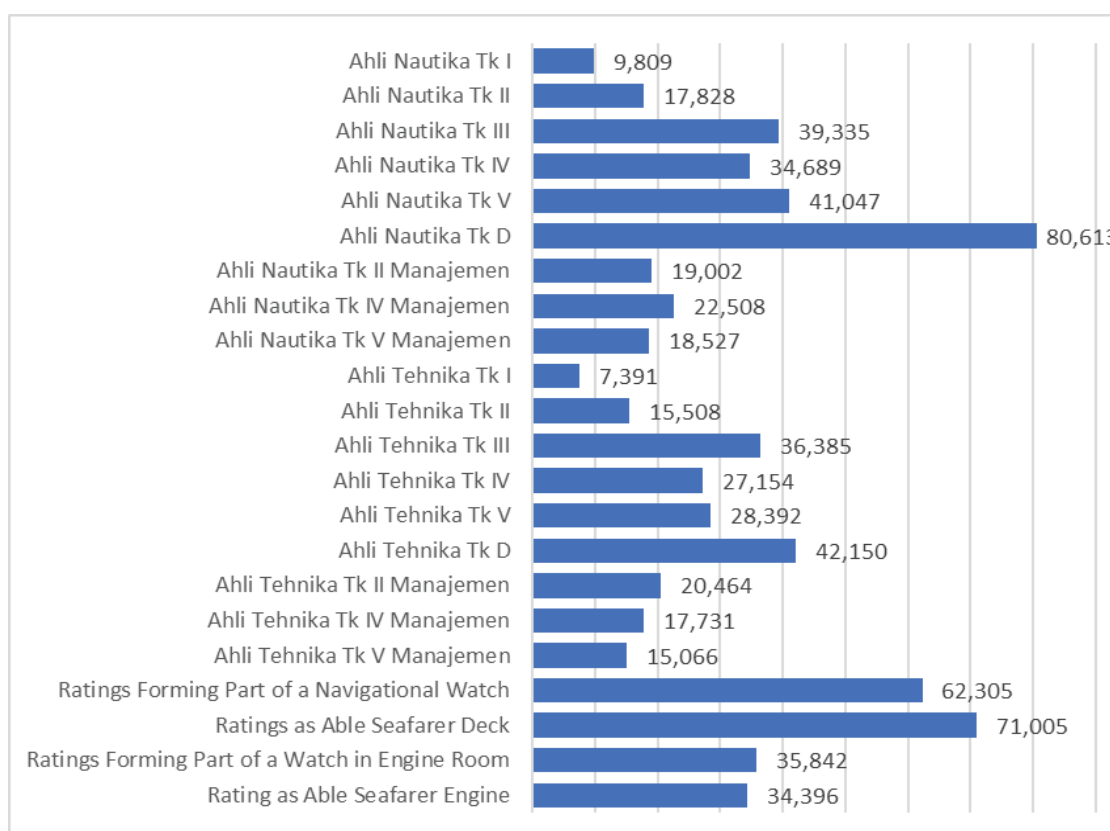
Level of occupation by education & experience	Level of occupation by tasks	Certificate requirements (CoC)	Certificate requirements (CoP)
	Watch-keeping Officer	Ahli Nautika Tingkat III / IV / V / Dasar, GMDSS radio operators	Basic certificate: Basic Safety Training (BST), Specific certificates: Medical First Aid (MFA), Medical Care (MC), Survival Craft and Rescue Boats other than Fast Rescue Boats (SCRB), Advanced Fire Fighting (AFF), Security Awareness Training (SAT), Security Training for Seafarers with Designated Security Duties (SDSD), Bridge Resource Management (BRM), Simulator Radar, Simulator ARPA, ECDIS, Ship Security Officer (SSO), health, and certificates for specific type of ships.
Senior officers (Perwira Senior)	Chief Engineer	Ahli Teknik Tingkat I / II	Basic certificate: Basic Safety Training (BST), Specific certificates: Medical First Aid (MFA), Medical Care (MC), Survival Craft and Rescue Boats other than Fast Rescue Boats (SCRB), Advanced Fire Fighting (AFF), Engine Resource Management (ERM), Health, and certificates for specific type of ships.
	Second Engineer Officer	Ahli Teknik Tingkat I / II	Basic certificate: Basic Safety Training (BST), Specific certificates: Medical First Aid (MFA), Medical Care (MC), Survival Craft and Rescue Boats other than Fast Rescue Boats (SCRB), Advanced Fire Fighting (AFF), Engine Resource Management (ERM), Marine High Voltage, Health, and certificates for specific type of ships.
	Watchkeeping Engineer Officer	Ahli Teknik III / IV / V / Dasar	Basic certificate: Basic Safety Training (BST), Specific certificates: Medical First Aid (MFA), Medical Care (MC), Survival Craft and Rescue Boats other than Fast Rescue Boats (SCRB), Advanced Fire Fighting (AFF), Security Awareness Training (SAT), Security Training for Seafarers with Designated Security Duties (SDSD), Engine Resource Management (ERM), Health, and certificates for specific type of ships.

Level of occupation by education & experience	Level of occupation by tasks	Certificate requirements (CoC)	Certificate requirements (CoP)
Junior Officer	Electro-Technical Officer	CoC for Electro Technical Officers (ETO)	Basic certificate: Basic Safety Training (BST), Specific certificates: Medical First Aid (MFA), Medical Care (MC), Survival Craft and Rescue Boats other than Fast Rescue Boats (SCRB), Advanced Fire Fighting (AFF), Security Awareness Training (SAT), Security Training for Seafarers with Designated Security Duties (SDSD), Engine Resource Management (ERM), Marine High Voltage, Health, and certificates for specific type of ships.
Junior Rating	Electro-Technical Rating	Ahli Teknik III / IV / V / Dasar	Basic certificate: COP rating forming part of engine watch, Basic Safety Training (BST), Specific certificates: Medical First Aid (MFA), Survival Craft and Rescue Boats other than Fast Rescue Boats (SCRB), Advanced Fire Fighting (AFF), Security Awareness Training (SAT), Security Training for Seafarers with Designated Security Duties (SDSD), health, and certificates for specific type of ships.
Radio Operator	Radio Operator, Global Maritime Distress and Safety System Radio Operators	GMDSS radio operators	
Rating	Able Seafarer Deck	GMDSS radio operators	Basic certificate: COP rating as able seafarer deck, Basic Safety Training (BST), Specific certificates: Medical First Aid (MFA), Medical Care (MC), Survival Craft and Rescue Boats other than Fast Rescue Boats (SCRB), Advanced Fire Fighting (AFF), Security Awareness Training (SAT), Security Training for Seafarers with Designated Security Duties (SDSD), health, and certificates for specific type of ships.

Level of occupation by education & experience	Level of occupation by tasks	Certificate requirements (CoC)	Certificate requirements (CoP)
	Helmsman	-	Basic certificate: COP rating forming part of navigational watch, Basic Safety Training (BST), Specific certificates: Medical First Aid (MFA), Medical Care (MC), Survival Craft and Rescue Boats other than Fast Rescue Boats (SCRB), Advanced Fire Fighting (AFF), Security Awareness Training (SAT), Security Training for Seafarers with Designated Security Duties (SDSD), health, and certificates for specific type of ships.
	Ship's cook	-	Basic certificate: Ship's cook certificates, Basic Safety Training (BST), Specific certificates: Medical First Aid (MFA), Survival Craft and Rescue Boats other than Fast Rescue Boats (SCRB), Advanced Fire Fighting (AFF), Security Awareness Training (SAT), health
	Ordinary sailor		
Rating	Able Seafarer Engineer	-	Basic certificate: Ship's cook certificates, Basic Safety Training (BST), Specific certificates: Medical First Aid (MFA), Survival Craft and Rescue Boats other than Fast Rescue Boats (SCRB), Advanced Fire Fighting (AFF), Security Awareness Training (SAT), health
	Welder	-	Basic certificate: Basic Safety Training (BST), Specific certificates: Medical First Aid (MFA), Survival Craft and Rescue Boats other than Fast Rescue Boats (SCRB), Advanced Fire Fighting (AFF), Security Awareness Training (SAT), health
	Fitter		
	Wiper		
	Plumber		
	Wiper		

Level of occupation by education & experience	Level of occupation by tasks	Certificate requirements (CoC)	Certificate requirements (CoP)
	Oiler	-	Basic certificate: COP rating forming part of engine watch, Basic Safety Training (BST), Specific certificates: Medical First Aid (MFA), Survival Craft and Rescue Boats other than Fast Rescue Boats (SCRB), Advanced Fire Fighting (AFF), Security Awareness Training (SAT), Security Training for Seafarers with Designated Security Duties (SDSD), health, and certificates for specific type of ships.

Appendix 3. Number of issued certificates, Indonesia 2022



Source: Indonesia, Ministry of Transportation 2022d



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