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Sub-sectoral Skills Priorities for Indonesia's Maritime Economy

Sub-sectoral Skills Priorities for Indonesia's Maritime Economy

Summary reports from skills analysis and consultations across the shipbuilding, seafaring and maritime logistics sub-sectors.

Forward

The following summary reports are the outputs of a series of capacity building activities delivered in collaboration with the Coordinating Ministry of Maritime Affairs and Investment (Kemenko Marves) and the Coordinating Ministry of Human Development and Culture (Kemenko PMK) under the Skills for Prosperity Programme, which was delivered by the ILO and funded by UK government.

The Skills for Prosperity Programme 2020 - 2023, set out to improve skills development policies and systems to respond to Indonesia's growing maritime skills demands and job opportunities; taking targeted action to promote skills for employment for young women and men, including those from disadvantaged groups.

The implementation of the Skills for Prosperity programme is aligned with two important government priorities: The development of a sustainable Blue Economy Agenda and Roadmap, which weas launched during Indonesia's presidency of the G20 in 2022; and the Revitalization of the National Skills System (Presidential decree no 68, 2022), which launched the Technical Vocational Education and Training (TVET) national strategy (Stranas Vokasi) in February 2023.

The development human capital lies at the centre of both priorities. Under the Blue Agenda, this focuses on Indonesia's maritime economic potential, whilst addressing the imperatives to protect and improve the health of ocean and coastal ecosystems and improve the livelihood of coastal cities and communities. New skills are required to remain globally competitive in Indonesia's maritime sectors such as shipbuilding, food production and coastal tourism. Meanwhile innovation and research collaborations will be needed to drive forward Indonesia's potential in emerging sectors such as offshore renewable energy generation and deep-sea exploration.

In the case of the Revitalization of the National Skills System, the Presidential decree marks a paradigm shift in transitioning from the current supply-driven skills system, led and influenced through a number of government ministries; to a demand-led skills system, which will establish an inter-ministerial Steering Committee to co-ordinate a skills system that responds to industry needs at the sectoral level. The national strategy is perceived as being critical in maximizing skilled employment opportunities for all, especially young people, as the nation approaches a peak in the ratio of working age population that can provide the anticipated demographic dividend.

The summary reports that follow, directly address these national priorities. They bring forward the results of a series of structured dialogues on the skills demands, constraints and emerging priorities of three maritime sub-sectors of Shipbuilding, Maritime Logistics and Seafaring.

Senior stakeholders representing government, industry and worker representatives, TVET providers and academic experts representing each of the three sub-sectors, were convened through the Skills for Prosperity programme on multiple occasions between January 2022 and May 2023. The objectives were to establish a constructive dialogue between these stakeholders, intended to establish an industry-informed mapping of skills demand and supply constraints in these maritime sub-sectors; and then to form consensus on skills priorities for inclusive and sustainable economic growth. Activities took place through single day focus groups, high level policy exchanges, reflection and validation meetings, and two capacity building workshops taking place over several days.

Contributors and participants included representatives of ten different government ministries and agencies; industry and worker representatives representing the three subsectors; maritime polytechnics and universities; as well as professional consultants and facilitators.

The ILO STED methodology (Skills for Trade and Economic Diversification) was used as the guiding framework for the process. This industry foresight tool has been developed by ILO for international use and is designed to support diverse stakeholders representing an industry in articulating skills demands and supply constraints in their respective sector or sub-sectors.

The series of activities undertaken describes a journey for these diverse stakeholder groups in each of the three sub-sectors. For most of the stakeholders present, these meetings were the first opportunity to discuss skills relating to the specific sub-sector with ministry, industry and academic partners present. This meant that the topics and challenges were thoroughly reviewed and debated through government, regulatory, industry, academic and skills development lenses. This process encouraged participants to refine their initial views and move towards consensus positions about the skills priorities and potential solutions within the sub-sectoral skills ecosystem.

Several common themes emerged from the process. Participants from all three sub-sectors concluded that a dedicated national skills strategy was urgently needed to align skills supply and demand. In all cases this would require:

- Development of standardized and disaggregated data on skills demand and supply-side capacity, which would need to be collated from multiple sources
- A systematic review and update the competency standards, qualification frameworks and certification mechanisms in operation across each sub-sector
- Review and updating of curriculum content and assessment methods, alongside industrial upskilling for vocational teachers
- Consideration of the sub-sector workforce demographic, including measures to widen participation in study programmes relating to maritime sub-sectors, upskilling programmes for existing workers, and the proposal of new career transition

pathways from industry to teaching for specific groups of experienced industry professionals

- Improvement of careers advice and guidance that is informed by labour market intelligence and regularly updated through inputs from relevant industry

Importantly, these sub-sectoral representatives viewed themselves as being part of the solution process. All agreed that the skills dialogues added value and enhanced their strategic perspective on the role of human capital development in the maritime sector. A central component of the development of national skills strategies would be:

- The formation of sectoral skills committees, consisting of industry, workers, government, academic and TVET representatives

Although each of the above points are addressed to some extent within the Stranas Vokasi launched in February 2023; the important point here is that these priorities emerged organically through industry-led dialogue with government and academic partners - in each case as responses to the skills constraints directly experienced by Indonesia's maritime industries.

As such these dialogues have been effective in forming working groups of senior stakeholders that have coalesced around shared skills visions in these critical maritime sub-sectors. These sub-sectoral skills forums are now ready to formalize as part of the national skills infrastructure to be implemented under the Stranas Vokasi under the newly established TVET Steering Committee.

Acknowledgements

The ILO thanks the coordinating ministries, Kemenko Marves and Kemenko PMK who collaborated with the Skills for Prosperity Programme on this work; as well as our partner polytechnic Batam State Polytechnic (Polibatam), Maritime State Polytechnic (Polimarin), and The Shipbuilding Institute of Polytechnic Surabaya (PPNS) and their associated Industry Advisory Boards who contributed to this work.

Special thanks for their ongoing support and coordination with the wider maritime sector goes to representatives of the Indonesian Chambers of Commerce (KADIN), Indonesian Association of Ship and Offshore Industries (IPERINDO), Consortium of Indonesian Manning Agencies (CIMA), Chartered Institute of Logistics and Transport (CILT), and the Indonesian Hotel and Restaurant Association (PHRI), and all the stakeholders who generously gave their time and contribution.

Thank you to our authors: Dr. Agnes Tuti Rumiati, MSc; Janti Gunawan BSc., MEng, Sc., MCom., PhD; and Associate Professor Padang Wicaksono, University of Indonesia; and to ILO staff Bolormaa Tumurchudur-Klok, Diego Rei and Jordi Prat-Tuca for their technical guidance.

Our sincere appreciation goes to all stakeholders who participated and generously gave their time and insights to the process. We aim that the development activities under the Skills for Prosperity programme have laid the foundations for the formalization of industry-led sectoral skills committees that will benefit the maritime industry and its workforce for years to come.

Finally, we offer our gratitude to the UK government as the programme donors, and the British Embassy Jakarta for their support and advocacy throughout our collaboration.

Mary Kent

Chief Technical Advisor, ILO Skills for Prosperity Programme

Shipbuilding sub-sectoral skills priorities

Overview

The shipbuilding industry is **a strategic one for Indonesia**. As a result of the extensive value chain linkages, its growth can trigger positive economic developments for other relevant sectors and benefit the whole Indonesian economy. Acknowledging and pursuing the importance of industry's development, the President issued Presidential Instruction No. 5 of 2005 on the Empowerment of the Shipbuilding Industry in Indonesia to support the growth of cooperatives and businesses operating in the sector. The instruction calls for the implementation of several measures with the potential for job creation such as developing design and research centres, standardizing the dimensions of ship components, developing the industry of raw materials and ship components, and providing incentives to national shipping companies that build and/or repair ships domestically and/or procure ships from abroad.

In 2022, there were approximately 250 shipyards in the country with a production capacity of up to one million dead weight tonnage (DWT) per year for new ships and up to 12 million DWT per year for ship repairs. These shipyards can produce various types of vessels, including passenger, cargo and special purpose ships, with the largest graving dock facilities capable of handling up to 150,000 DWT.

Industry representatives consider that the shipbuilding industry confronts several challenges ranging from import duty policy (for import of intermediate goods, components, and materials), taxation and access to capital, skills of human resources (managerial and technical competence along with core skills), lack of national planning, and weak governance and coordination. In addition, the sourcing of domestic products to support the development of the industry (as mandated by Presidential Instruction Number 2 of 2009) is only partially effective due to challenges in the access to supply chains.

Skills mismatches exist in various phases of the productive process, including: (1) technical skills related to the manufacturing process; (2) skills on occupational health and safety; (3) environmental awareness and climate literacy; (4) ICT-related skills such as those necessary to apply "internet of things" (IoT) and artificial intelligence (AI) processes concerning the automation of electrical processes (cable routing and installation, reading of electrical diagrams and drawings, planning for any electrical work) and, lastly, (5) skills and competencies of dock masters (responsible for overseeing all operations at a marina or dock). In addition, the sector requires more qualified engineers across the value chain.

A total of fifteen universities and ten polytechnics in Indonesia offer tertiary and technical education study programmes related to ship building and repair. For instance, the PAL Indonesia Training Centre in Surabaya (PUSDIKLAT PAL Indonesia) is the largest ship industry training institution in Southeast Asia. In addition, some non-specialized training institutions such as Kampuh Welding, Briktru Training Institution, and ALKON Training Institution also offer elements of ship building training.

Industry representatives raised their concern about the supply of skills from national academic institutions, which they argue do not match the demand of skills required by ship-building companies. The existing collaboration between universities/polytechnics and the shipping industry is yet unable to reduce the skills mismatches and it is impacting the growth and competitiveness of the industry.

Therefore, to allow the shipbuilding industry to realize its full employment potential, national stakeholders agreed on a number of priority interventions, including: (1) focused study programmes in universities and polytechnics on developing or strengthening competencies for employment in occupations such as Ship Senior Designer (Naval Architects), AI/IoT Engineer, Dock Master, Health and Safety Engineer, Automation Engineer, and Project Manager; (2) Upskilling of teachers to meet the upcoming new standards and curricula development; (3) Production and dissemination of complete labour market information, notably concerning career opportunities and job requirements, possibly via a dedicated Career Information Centre; (4) increased collaboration and cooperation between the government, private companies, education and training providers, and; (5) improved governance and institutional arrangements for the shipbuilding industry, which could be addressed through the formalization of the Shipbuilding Sectoral Skills Committee.

ILO Skills for Trade and Economic Diversification (STED) Shipbuilding Industry Foresight Workshops

The initial shipbuilding workshops were facilitated by I Putu Arta Wibawa ST., MT., PhD (PPNS) and Tauvik Muhammad, MPA (ILO). Dr. Agnes Tuti Rumiati, MSc. provided the preparatory sectoral research and the final report.

Participants and Contributors

Government Representative:

- Ministry of Industry
- Directorate of Manpower
- BAPPENAS

- PUSAT PASAR KERJA Indonesia (Pasker.Id)
- Coordinating Ministry of Economic Affairs
- Coordinating Ministry of Human Development and Cultures Affairs

Industries Association, Professional Associations and Industries:

- Ikatan Perusahaan Industri Kapal dan Lepas Pantai Indonesia (IPERINDO)
- Indonesian Association of Maritime Technology Engineers (IATMARIN)
- PT PAL INDONESIA
- PT ADILUHUNG SARANASEGARA
- DOK BAHARI NUSANTARA
- PT DUMAS Tanjung Perak Shipyard
- Batam Shipyard and offshore Associations (BSOA)

Trade Union Representatives:

- Konfederasi Serikat Buruh Seluruh Indonesia (KSBSI)
- Kesatuan Serikat Pekerja Nasional (KSPN)
- Dok Bahari Union

TVET Institutions Representatives:

- Program Studi Kapal, Politeknik Negeri Batam
- Program Studi Teknik Perkapalan, Teknik Mesin Universitas Indonesia (UI)
- Politeknik Perkapalan Nasional Surabaya (PPNS)
- Lembaga Pelatihan Kerja Swasta (LPKS) KAMPUH WELDING
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- SMK Teknik PAL Surabaya

Summary skills challenges and proposed interventions

Following the research, consultations and validation process that took place between January 2022 and May 2023, the following were confirmed by participants as being the priority skills challenges and proposed areas for intervention.

Priority Skills Challenges (Shipbuilding)	Proposed Intervention (Shipbuilding)
1. Competency standards for Shipbuilding require updating in traditional occupations and do not respond to the competencies required for new occupations.	Updated a comprehensive Skill Competence Standard (SKKNI) specifically for the shipbuilding competence, in collaboration with industry experts, educational institutions, and government agencies. This standard should outline the skills and competencies required for various roles within the industry and serve as a benchmark for design of training programmes and certifications. The current competency certification schemes in the shipbuilding industry are still based on the construction sector. Having a clear and comprehensive SKKNI will provide guidance on the development of demand driven training programmes and certifications and reduce skills mismatches.
2. Limited number of Professional Certification Agencies (LSP - P3). (Note that data on LSP – P1 and P2 was difficult to ascertain)	2a. Develop the capacity of the Professional Certification Agencies (PCAs) to provide more options for workers to get certification and recognize their skills. This requires greater specialization of the existing PCAs to certify skills for occupations in the shipbuilding industry. In addition, it is necessary to improve the coordination with the objective to avoid overlaps between the roles and responsibilities of certification agencies under different ministries
3. There is a lack of inter-ministerial coordination between ministries regarding certification.	3. Establish a task force or working group comprising key public and private stakeholders to coordinate efforts and ensure alignment in certification standards and requirements. Additionally, the government could consider incentivizing training, upskilling and certification through skills development funding, which could be to be co-managed by industry and government.
4. The adoption of innovative technology by employers is limited due to the workforce lack of relevant skills	4. Investment required in innovative collaborations, technology and equipment to improve efficiency and productivity in the shipbuilding industry. This requires collaboration between the skills system and equipment manufacturers to develop training programmes for workers and providing access to new technologies through partnerships.

Priority Skills Challenges (Shipbuilding)	Proposed Intervention (Shipbuilding)
5. Not all skills needed by shipbuilding companies are available due to mismatch between education curricula and needs of the shipbuilding industry.	5. Strengthen the collaboration between universities and Technical and Vocational Education and Training (TVET) institutions with the shipbuilding industry to ensure that the curricula and learning processes are aligned with the industry's needs. This could involve: • The creation of dedicated industry-led advisory boards to provide guidance on curriculum development based on industry skills needs along with regular industry lectures for students to better understand industry requirements. • The increase/creation of work-based learning in the form of structured apprenticeships for students and trainees, and capacity development of teachers through industry attachments. • The promotion of enterprise-based training for the existing workforce with the objective to support career development whilst improving enterprises' productivity. The enterprise-based training programme require a process of assessment and certification to ensure this adds value to both the individual and the industry.
6. Workers and companies in the shipbuilding industry may not be aware of the training programmes and resources available to them. This can lead to a lack of investment in training and career development support and limit opportunities for career advancement	6a. A centralised training and resource hub may be developed, hosting information about available training programmes and resources, specific to the shipbuilding sector 6b. Employers' organizations and labour unions to collaborate in the design dissemination of information about available training programmes and resources for their members. 6c. Provide incentives for employers and workers to boost attendance in the training programmes offered. 6d. Build monitoring mechanisms into training programmes, tracking the impact on productivity to help improve these programmes over time; and enabling industries to make data-driven decisions about future training investments.
7. Lack of coordination between government, industry and workers' representatives and TVET stakeholders..	7a. Strong case for the establishment of a Sectoral Skills Committee for the shipbuilding sector mandated to implement the proposed strategy as well as (i) reduce gaps on demand and supply in shipbuilding both in terms of quantity and quality; (ii) strengthen cooperation between

Priority Skills Challenges (Shipbuilding)	Proposed Intervention (Shipbuilding)
	industry and Universities/TVET in various fields including human resource development and technology development, (iii) review and update the existing National Ship building Industry Roadmap 2012 to 2025, to support longer-term employment and productivity growth.
Inclusiveness and outreach	
8. Gender equity and inclusion of people with disabilities remains a challenge. The current shipbuilding workforce is male dominated and the employment of people with disabilities is limited.	8a. Develop micro credentials (shorter learning) focusing on skills needed for specific roles within the shipbuilding industry that help under-represented groups access employment opportunities where the skills need is most acutely experienced by industry. 8b. Design and implement targeted outreach and recruitment strategies to reach underrepresented groups, including women and girls, people with disabilities, and people from lower-income backgrounds in collaboration with TVET and community organisations.
9. Lack of sector specific career information and advice.	9a. A dedicated career information centre serving students, teachers and workers who want to continue their education or undertake RPL (Recognition of Prior Learning). Such centres can also become matching platforms allowing industry to look for qualified human resources.

Maritime Logistics sub-sectoral skills priorities

Overview

Maritime logistics is an industry critical for Indonesia's economic and social development. The industry includes the sea-based movement of goods to meet the demand of the over 275 million people living in the country and businesses operating across the more than 17,000 islands. As Indonesia is an open economy located on major international shipping routes, the movement of goods from, via or to Indonesia has international relevance calling for a consistent approach in the development of businesses and human resources catering to the national and international market.

In 2021, the Indonesia's Ministry of National Development Planning launched the Blue Economy Development Framework for Indonesia's Economic Transformation. Recognizing the potential of the maritime sector to create jobs and reduce inequalities between regions and the women and men living there, the framework shines light on how human resources and skills mismatches in the maritime related subsectors are a key challenge for increased prosperity and sustainability; alongside the development of infrastructure and the coordination of activities across supply chains.

In spite of significant improvements over the past decade facilitated by the implementation of national programmes including the Sea Toll and the National Logistic Ecosystem, Indonesia's maritime logistics industry; the nation's comparative logistics performance is no higher than average on many international indicators, trailing other ASEAN nations including Singapore, the Philippines, Malaysia, Vietnam and Thailand.

The representatives of Indonesia's international logistics industry and stakeholders view the main strengths and enabling factors of the sector as being Indonesia's geographic positioning with regard to international trade routes, and the nation's maritime orientation. International trade relationships and agreements, the progressive shift to digital logistics through improving internet connectivity and the endowment of national ports are also considered assets. Conversely, these stakeholders cite weaknesses and barriers to development of the sector as including the unequal distribution of resources and logistics capabilities across the country's geography; together with key skills deficits and mismatches. Specifically, leadership and management skills, digital skills and English language proficiency were reported as the most critical skills shortages experienced by the sector.

The opportunities for the future growth of the sector were listed as being an expected increase in domestically-traded products through sea routes, recovery in the tourism sector, and the potential to improve the competitiveness of international logistics through initial higher-level skills training and upskilling and reskilling for the existing workforce

The differences in the pace of development of ports and infrastructure across the Indonesian archipelago, the risk of being 'left behind' in global competitiveness due to technology and skills deficits, and the risk of 'brain drain', where skilled graduates and workers find preferred employment opportunities overseas, are considered as the main threats that the sector will need to respond to.

In relation to the human resources development needs, the occupation map of logistics and supply chain sector launched by the Ministry of National Development Planning in 2021 in collaboration with key stakeholders in the maritime logistics sector is the starting point to identify future skills needs, occupations, and pathways for career development in the logistics industry. The map was updated to address specific profiles of maritime logistics in the framework of the present exercise. Occupations predicted to be in demand in coming years were

1 Manpower Ministerial Decree Number 170/2020

identified and prioritised by the stakeholders, who gave their commitment to work on the detailed skills requirements and competency standards. New specific requirements were introduced by PPJK/custom brokers, while participants recognized that new job profiles such as distribution centre planner, biosecurity officer, logistic system integrator, will require the development of new competency standards.

The national stakeholders also identified a number of cross-cutting skills required for all levels of occupational profiles. These include: (i) *Technical maritime logistics* skills, (ii) Communication skills (including English language), (iii) Digital skills and (iv) Global compliance skills, (i.e. those required to ensure compliance with health and safety, biosecurity, and marine security standards). These cross-cutting skills complement the set of skills identified by the Ministry of Manpower (2020)[1] as basic skills required to work in the transportation and logistics sector (competency in transport safety, digital literacy, and foreign language skills).

In 2022, there were 547 maritime vocational schools in Indonesia, and 47 of them offered logistics programmes. At the higher level of education, there were a total of ten polytechnics and universities offering degrees in logistic. Both vocational training schools and higher education institutions are heavily concentrated on the Java Island. Therefore, geographical disparity along with the overall limited number of training providers is perceived as one of the most important barriers for meeting the skills demands of a growing and technologically advanced logistics sector. In addition, the current offer of qualifications and degrees in logistics is considered very limited by the national stakeholders.

Other barriers to be addressed include design of competency-based curricula, limited on-the-job training, teachers' capacities, limited and geographically concentrated access to certification of competencies, lack of skills upgrading opportunities for currently employed workers and obstacles in the transition from school to work due to absence of suitable job brokering agents and work-based learning opportunities for future graduates.

To address current and future needs national stakeholders defined the framework of a sectoral skills strategy by prioritising interventions as short (up to one year), medium (up to three years) and long term (more than three years). Short term interventions focus on enhancing the maritime logistics occupational map (occupations, skills, competency standards) and defining modalities for recruitment of workers with necessary skills possibly via third party brokerage. The medium-term objectives include establishing mechanisms to provide timely information on labour market trends, employment-responsive career guidance and defining incentives for access to training of already employed workers. The long-term objective looks at the establishment of a national digital platform allowing for immediate connection between local and international businesses to ensure timely response to client needs.

ILO Skills for Trade and Economic Diversification (STED) Maritime Logistics Industry Foresight Workshops

The initial maritime logistics workshops were facilitated by Jimmy Febriadi (INCREASE – Inclusive Creative Social Enterprise). Janti Gunawan BSc., MEng, Sc., MCom., PhD. Provided the preparatory sectoral research and the final report.

Participants and Contributors

Government Representative:

- BAPPENAS
- Central Bureau of Statistics (BPS)
- Ministry of Manpower
- Ministry of Finance
- Indonesia Professional Certification Authority (BNSP)

Industries Association, Professional Associations and Industries:

- Kamar Dagang dan Industri Indonesia (KADIN)
- Asosiasi Logistik dan Forwarder Indonesia (ALFI)
- Asosiasi Logistik Indonesia (ALI)
- Asosiasi Ahli Kepabeanan Indonesia (ATAK)
- Chapter Institute for Logistics and Transport Indonesia (CILT Indonesia)
- Women in Logistics (WiLAT)
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Trade Union Representatives:

- KPI Tanjung Priok

TVET Institutions Representatives:

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- Politeknik Negeri Batam
- Politeknik Pos Indonesia, Bandung
- Politeknik APP Jakarta
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- SMK KAL 1, Surabaya

Summary skills challenges and proposed interventions

Following the research, consultations and validation process that took place between January 2022 and May 2023, the following were confirmed by participants as being the priority skills challenges and proposed areas for intervention.

Priority Skills Challenges (Maritime Logistics)	Proposed Intervention (Maritime Logistics)
1. Lack of awareness about occupations and career opportunities in maritime logistics. For example, relatively few young people explicitly plan to pursue careers in maritime logistics, in comparison with better-known disciplines such as finance, engineering or ICT. Women and people with disabilities tend to be under-represented.	1a. Joint promotion, updates and awareness raising of the logistics and supply chain occupation map (tripartite) by ensuring that the occupational map website is a living and well disseminated document (https://petaokupasi.bappenas.go.id/) with updated links to the demand and supply of skills and occupations by national stakeholders. Promote competency certificates as requirements for initial recruitment and career development. 1b. Analysis of occupational trends and dissemination of labour market information by the maritime logistics association, including future demand of skills and occupations. 1c. Use of corporate social responsibility funds to raise aspirations about logistics careers. E.g. maritime logistics companies returning value to their communities by offering scholarships for students to enrol in logistics-related training prorammes especially in the coastal regions. 1d. Inviting maritime related training providers to expand their offer of logistics courses in collaboration with industry.[2]
2. Lack of human resources development in small and medium sized maritime logistics businesses.	2a. Assist small and medium businesses to develop the career and skills training plan for their workforce by partnering with industry associations and larger maritime logistics providers. 2b. Provision of subsidies for small and medium business for training the current workforce including formal certification and recognition of prior learning.

2 E.G. Joint Skills Training signed by ATAK and PoliBatam on Custom brokerage and export/import.

Priority Skills Challenges (Maritime Logistics)	Proposed Intervention (Maritime Logistics)
3. Lack of availability of logistics training providers locally and/or at affordable price and/or availability for delivery of training at different times.	3a. Expanding the current offer of maritime vocational school programmes and open university to include maritime logistics courses and degrees. 3b. Support work-based competency assessment and certification for workers in the maritime logistics sector for them to become engaged as an instructor for local training providers. 3c. Develop curricula based on demand driven skills and competencies required in the occupational map. 3d. Develop a career plan post retirement age (56+) for workers from maritime logistics company to become trainers or lecturers.
4. Lack of coherent and efficient ways to implement the competency requirements relevant to industrial needs and introduce combined and innovative ways to ensure workforce qualifications	4a. Integrate workforce competency certification within the process of licensing companies. e.g. ensure all truck drivers operating within and for seaports are certified in driving within port premises, ensure all freight forwarder companies can provide proof of workforce certification in order to renew their operational licenses, and establish conditions to the issuance of insurance to verification of competency certification. 4b. Integrate maritime logistics skills requirement in the current operations of all related businesses. For example, workers entering a port should have a port pass – which can be obtained by attending a training in security at port, cargo handling, etc. depending on the job. Requirements may vary across occupations, but minimum levels of knowledge about port operations, including safety and security may be implemented through this mechanism.
5. Lack of publicly available and integrated data about maritime logistics, up to 4 digits as per relevant ISIC and ISCO.	5a. Ensure collection, analysis and dissemination of labour market information for skills and employment planning from labour force survey (Sakernas) and other sources of data. 5b. Develop fully-fledged maritime logistics labour market information, to be available for long term planning and skills forecasting in the sector.

Priority Skills Challenges (Maritime Logistics)	Proposed Intervention (Maritime Logistics)
6. 'Friction' in labour market transitions / poor responses to recruitment needs, which can cause critical bottlenecks in supply chain processes.	6.a Encourage existing employment agencies to extend their services to include maritime logistics, jobs training, assessment, and placement in coordination with the forthcoming sector skills committee.
7. Lack of coordination regarding long term skills strategies between ministries, private enterprises and national skills planning and policy.	7a. Activate the maritime logistics sector skills committee (SSC), as per the Stranas Vokasi through a dedicated team. The SSC should lead coordination on (i) defining the missing skills and competency standards within the occupational map (ii) updating the occupational map to respond to changing skills needs, (iii) reporting quarterly to members, (iv) supporting training providers to engage with industry in design of the occupational map.
8. Limited offer of higher education and logistics training courses.	8a. In coordination with Ministry of Education, Culture, Research and Technology, industry, and local government, establish further D3/D4 study programmes on logistics in response to skills demand and locations proximal to port activities and multi-modal logistics hubs. 8b. In coordination with private sector, develop more industry-based and work-based curricula and learning activities to ensure the graduates are equipped with skills required by industry.

Seafaring sub-sectoral skills priorities

Overview

Indonesia is one of the leading global seafarers' providers. Indonesia's 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 current importance of this industry in Indonesia, and considering the projected increase in the national and global demand over the coming years, its economic potential is still to be fully realised.

The skills deficits and 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. National stakeholders also reported that fresh graduates seemed to struggle to adapt to new technology, which was perceived to be due to an insufficient foundation in the technical knowledge and skills required.

In relation to the educational offer to address current and future skills needs, several challenges and limiting factors are identified including: (i) the lack of overarching skills strategy combined with effective coordination between all stakeholders: government, training providers, employers' and workers' organizations, professional associations, and manning agencies; (ii) difficulty in accessing information on skills supply in the sector, e.g. student enrolment and graduation data, seafarers' competencies and skills profiles, etc.; (iii) limited relevance of curricula and qualifications, in particular the work-based learning component; (iv) availability of qualified trainers; (v) sub-optimal timings of curriculum delivery leading to 'down time' and potential attrition of trained individuals to alternative employment, between the completion of the classroom components and seafaring recruitment cycles; (vi) misalignment in the structure and mandate of the current certification body, and (vii) enabling conditions to allow for equal access and participation in training.

To address the above-mentioned challenges, the national stakeholders consulted proposed several interventions. Those include the establishment of suitable coordinating bodies and mechanisms mandated to develop and implement sectoral skills strategies, as well as to periodically review and update curricula based on systematic stakeholder consultation and analysis of labour market information, reforms in the minimum qualifications for teaching (i.e. masters degree) and the establishment of schemes for recognition of prior learning (RPL) for practitioners allowing them to become, qualified teachers following their retirement.

Upon the three-days STED workshop facilitated by the Coordinating Ministry for Maritime Affairs and Investment and the International Labour Organization (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

ILO Skills for Trade and Economic Diversification (STED) Seafaring Industry Foresight Workshops

- The initial maritime logistics workshops were facilitated by. Firman Ibnusina (Coordinating Ministry of Maritime Affairs and Investment). Associate Professor Padang Wicaksono and team (University of Indonesia) provided the preparatory sectoral research and the final report.

Participants and Contributors

Government Representative:

- Coordinating ministry of Maritime Affairs
- Ministry of Manpower
- BAPPENAS
- Indonesia Professional Certification Authority (BNSP)

Industries Association, Professional Associations and Industries:

- Consortium of Indonesian Manning Agency (CIMA)
- Ikatan Korps Perwira Pelayaran Niaga Indonesia (IKKPNI)
- Lembaga Kajian Nawacita - Komite Maritim
- PT Ratu Oceania Raya
- Perkumpulan Pekerja Pelaut Indonesia (P3I)

Trade Union Representatives:

- Konfederasi Serikat Buruh Seluruh Indonesia (KSBSI)
- Kesatuan Pelaut Indonesia (KPI)
- Sarbumusi
- Konfederasi Serikat Pekerja Seluruh Indonesia – (KSPSI CAITU)

TVET Institutions Representatives:

- Politeknik Maritim Negeri Indonesia (Polimarin)
- Sekolah Tinggi Ilmu Pelayaran (STIP) Jakarta
- Sekolah Tinggi Ilmu Maritim Jakarta

Summary skills challenges and proposed interventions

Following the research, consultations and validation process that took place between January 2022 and May 2023, the following were confirmed by participants as being the priority skills challenges and proposed areas for intervention.

Priority Skills Challenges (Seafaring)	Proposed Intervention (Seafaring)
1. Lack of a coordinated planning to match the supply of competent qualified seafarers to meet the current demand, and future growth potential of this sector.	1a. Prioritise a comprehensive national demand and supply assessment as a prerequisite for the design of an informed seafaring skills strategy. For the supply side, the collaboration and consistency in data collated between Ministry of Transport, Ministry of Education, Culture, Research and Technology, and manning agencies will be essential.
2. Limited relevance of education and training, due to shortage of teaching staff with relevant industry experience; and lack of access to new technology.	2a. Collaboration between vocational education and training institutions with the industry to bolster on-the-job training and provide opportunities or the instructors to acquire first hand industry experience, and through this address the limited availability of qualified instructors and equipment. 2b. Strengthen the efforts of technology adaptation within training institutions to match industry needs.
3. Time lag and attrition risk between classroom study and work-based learning / on the job training due to long waits for training opportunities	3a. Strengthen links between training institutions and industry, for example through Industry Advisory Boards; 3b. Explore solutions at the national level such as strategic engagement with manning agencies, permitting flexible timing of internships within study programmes, etc.
4. Limited relevance of curricula and qualifications for the industry.	4.a Review and update curricula periodically. Such process should 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 experienced practitioners to become teachers due to the mandatory qualification of holding a masters degree.	5a. Review the mandatory requirement of minimum degree for practitioners to become teachers; 5b. Consider providing ongoing teacher training to supplement industry-based experience and help them progress toward a masters level qualification. 5c. Develop the Recognition of Prior Learning (RPL) for the practitioners.

Priority Skills Challenges (Seafaring)	Proposed Intervention (Seafaring)
6. Reported lack of credibility of seafaring skills exam (Pelaksana Ujian Keahlian Pelaut/ PUKP), due to the absence of an external or independent oversight body.	6a. Establish an independent examination and assessment or oversight body to ensure transparency and credibility of the skills examination process.
7. Lack of coordination between relevant stakeholders involved in the process of assessing, certifying, and placing the seafarers.	7a. Establish a body, e.g., sectoral skills committee, with the capability to convene different government agencies alongside industry and worker representatives, manning agencies, and training/certification bodies; to propose measures to improve governance in the certification and coordinate the transition to placement of seafarer.

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