

De La Salle University

Animo Repository

Center for Business Research and Development

11-2022

The Maritime Transportation Sector: Addressing Key Challenges towards Sustainable Development

Rayan Dui

De La Salle University, Manila

Follow this and additional works at: https://animorepository.dlsu.edu.ph/res_cbrd



Part of the [Transportation and Mobility Management Commons](#)

Recommended Citation

Dui, R. (2022). The Maritime Transportation Sector: Addressing Key Challenges towards Sustainable Development. *DLSU Business Notes and Briefings*, 10 (5) Retrieved from https://animorepository.dlsu.edu.ph/res_cbrd/12

This Article is brought to you for free and open access by Animo Repository. It has been accepted for inclusion in Center for Business Research and Development by an authorized administrator of Animo Repository.



The Maritime Transportation Sector: Addressing Key Challenges towards Sustainable Development

Written by:

Rayan Dui

MAD Graduate Studies Program Coordinator

RVR - College of Business

De La Salle University

2401 Taft Avenue, Manila, Philippines 1004

Phone: 632 8524 4611 local 137

Email rayan.dui@dlsu.edu.ph

Abstract

The present business landscape expects sustainability from the most diverse organizations. However, sustainability issues in maritime transportation have taken a lower priority among its stakeholders. The different maritime stakeholders have started to become aware of their sustainability responsibility as interest in sustainable shipping has grown among retailers and their shipping vessels, leading to cost-efficiency in their operations and compliance with regulations and conventions set forth by the IMO (Lister, 2015). It must be noted that the maritime transportation sector is central to the worldwide economy as it is responsible for transporting products of all kinds and accounts for approximately ninety percent of world trade (Richter, 2016). With all these changes, this research wants to determine the barriers confronting the maritime transportation sector in their aspiration to become sustainable. In addition, the research wants to identify those enablers that will clear the way towards a Sustainable Maritime Transportation. The Essential Dimensions of Sustainable Maritime Transportation System (Jeon, 2007, cited in Chatzinikolaou & Ventikos, n.d., p.6) framework will be used in assessing what comprise a sustainable maritime company. A deliberate assessment of the framework and applying it to the maritime transportation sector revealed the barriers confronting the maritime stakeholders in pursuing sustainable initiatives.

The first of these is the barrier in environment sustainability which pertains to the existence of poor seafaring schools and training providers which hinder their competitiveness in pursuing environmental sustainability for their respective organization. The second is the barrier in Socio-Cultural Sustainability which suggests that Filipino seafarers continue to suffer social maltreatment when they are not given an equal opportunity to be selected as a crew member of a particular manning agency specifically in those instances when manning agencies select seafarers without standard procedures. The third is the barrier in economic sustainability where Filipino seafarers are having a very difficult time processing the paperwork required by the various international port states because of the long processing times of the certificates issued by the government.

The following recommendations are intended to guide management and other shipping stakeholders in addressing issues that have proven to be necessary avenues for the development and fostering of a sustainable shipping sector. An enabler of environmental sustainability is to ensure that the maritime education institutions and training centers it accredited were able to pass CHED's stringent guidelines and comply with the latest 2010 STCW Convention Code for Maritime Education. Maritime education and training centers could also include sustainability topics and subjects in the curriculum of their students. Hence, by the time they start working, they are already inclined to pursue sustainability initiatives. The next recommendation will be an enabler of socio-cultural sustainability in which the government, through MARINA and with the support of various maritime sectors, ensure that the recommendations of the 2006 Maritime Labor Convention are implemented in all maritime sectors. This gives seafarers the confidence to carry out their duties on board, knowing that they have a right to safe work that respects decent living and working conditions. The last recommendation will be an enabler of economic sustainability which suggests that streamlining MARINA's processes and seafarer requirements will enable seafarers to meet all the requirements necessary to pursue a seafaring career or be included in their manning agency's line-up. This should not just be a call to the maritime transportation sector, it should be a call to all maritime stakeholders. These are the challenges we are grappling with today, and they require not just band aid solutions, but they require serious cooperation from all stakeholders. After all, we are talking about the modern heroes of our country.

Introduction

In today's environment, most organizations are guided by sustainability practices that support them in their decision-making process to gain a competitive advantage (Batista & de Francisco, 2018; Nathan, 2018). They understand that among the factors to consider in achieving success is sustainability. Specifically, these organizations enact sustainable policies in their operations' environmental, economic, and social aspects. The sustainability initiatives of these organizations were further supported by the 2030 Agenda for Sustainable Development, including the 17 Sustainable Development Goals (SDGs). Sustainability has three interdependent systems comprising environmental, economic, and social dimensions requiring concrete strategies to address issues concerning these areas.

Sustainability has become a complex system that incorporates these dimensions and is no longer limited to its classical description, which relates to environmental apprehensions. Aside from issues of nature and ecology, sustainability now subsumes economic concerns, as well as societal well-being that is likewise integral to the continued survival of our planet, resulting in more organizations paying closer attention to environmental, economic, and social goals (Kang et al., 2012; Myung et al., 2012; Singal, 2014). In addition, it also pertains to the capacity to generate more income and employment opportunities for the population's sustenance and safeguard the conditions of human well-being. Once these organizations can formulate and sustainable and, therefore, a contributor to the overall success of their industry (Tommasetti et al., 2018). Thus, the conceptualization of an organization's strategies for sustainability is gaining significant consideration in today's business environment, particularly in these areas.

However, though the present business landscape expects sustainability from these organizations, sustainability issues in the maritime transportation sector have taken a lower priority among its various stakeholders. The likely reason for this is that this industry has less communication with cities owing to the sea-based nature of its operation, unlike aviation and land transportation (Lee et al., 2019a). In addition, the maritime industry's understanding of a sustainable paradigm appears to be falling apart. According to (Prylipko, 2013), their vision of sustainable development focuses mainly on producing qualified and competent seafarers and maritime experts, disregarding the difficulty of participating in sustainable development practices.

As more organizations become aware of their responsibility to be sustainable, the different maritime transportation stakeholders have begun to do so. Interest in sustainable shipping has grown among retailers and their shipping vessels, leading to cost-efficiency in their operations and compliance with regulations and conventions set forth by the IMO (Lister, 2015). Specifically, in her research, Lister said that "retailers and their shipping carriers have a growing interest in greener shipping as a competitive strategy to keep ahead of pending regulation and sustain market advantage mainly through energy savings and less waste" (p.4).

It must be noted that the maritime transportation sector is central to the worldwide economy as it is responsible for transporting products of all kinds and accounts for approximately ninety percent of world trade (Richter, 2016). In addition, she said that "seafarers play a key role in sustaining both the efficiency and stability of the maritime sector as a whole" (p.1). Thus, the sustainable growth of the world's economy will not be possible without a similar growth in the shipping sector and hence the whole maritime industry. Therefore, the cooperation of the different maritime stakeholders, particularly the maritime transportation sector, is necessary.

The International Maritime Organization (IMO), acting as the assigned agency by United Nations (UN) to handle all maritime affairs, was able to develop significant protocols and regulations due to its involvement with the United Nations Convention on the Law of the Sea (UNCLOS) to address this issue. Unfortunately, only the environmental aspect is extensively adopted in the literature concerning maritime shipping and port activities (Lee et al., 2019b). It is also empowered to develop and carry out specific maritime policies to meet the essential needs of all its country members at national and international levels (IMO and Sustainable Development, n.d.). Integrated here will be the introduction of better navigation procedures, enhanced technology, and more efficiency in handling operating costs, which can be considered a significant milestone in the sustainable development of the maritime transportation sector (J. J. Smith, n.d.).

The idea of sustainable maritime transportation can be traced back to when the term sustainability was first developed in 1987. The World Commission on Environment and Development (WCED), headed by then Norwegian Prime Minister Gro Harlem Brundtland, presented a report to establish a shared understanding of what is meant by this term. This report was referred to as the Brundtland Report, called "Our Common Future." It was published in 1987 by the WCED to introduce the concept of sustainable development.

The report stated, "Sustainable development meets the needs of the present without compromising the ability of future generations to meet their own needs" (Keeble, 1988).

Identifying the challenges in the shipping industry are examined along with assumptions about future demand for maritime professionals. Most importantly, conceptualizing sound management practices that encourage the maritime stakeholders to engage and contribute to the sustainable development of the maritime shipping sector will also be discussed.

Defining a Sustainable Maritime Transportation company

For this sector, the most common definition of sustainable maritime transportation is derived from the core objective of reducing carbon air emissions from its global shipping operations and discovering energy efficiency solutions from a technological and operational assessment (Chatzinikolaou & Ventikos, n.d.). However, they added that the initial Brundtland report resulted in a different understanding of its definition resulting in various descriptions of the concept. Many studies intended to answer what comprises sustainable maritime transportation rather than how to make existing shipping companies sustainable (Chatzinikolaou & Ventikos, n.d.). Their research also suggests that a standard set of principles mentioned in describing the maritime transportation sector to be sustainable is that (1) there is accessibility, (2) acceptance of resource constraint, (3) and equity (p.4). Accessibility refers to the ability to get resources at any time, acceptance of resources constraint acknowledges that there will always be inadequacy in the availability of resources needed to perform specific tasks. Lastly, equity pertains to the equal distribution of available resources between the current and future generations (Chatzinikolaou & Ventikos, n.d.). Their proposed operational definition of sustainable maritime transportation is that "maritime transportation is sustainable when it can maintain non-declining and efficient accessibility in time" (p.6). Thus, the above-stated definition of sustainable maritime transportation was adopted for this research. Literature on the subject suggests how a growing number of organizations are noticing this shift and have started to consider sustainability-related strategies to be competitive in their industry (Kiron et al., 2012). Specifically, their research said that "more respondents than ever before say their companies are putting sustainability on their management agendas" (p.70). Figure 1 presents the essential dimensions of a sustainable maritime transportation system as suggested by Chatzinikolaou & Ventikos.

Figure 1: *Essential Dimensions of Sustainable Maritime Transportation System* (Jeon, 2007, cited in Chatzinikolaou & Ventikos, n.d., p.6)



Barriers Confronting the Maritime Stakeholders in pursuing sustainable initiatives

Pursuing sustainable activities in the maritime transportation sector is easier said than done. Most sustainable strategies necessitates behavioral change by individuals and to effect such change, individuals must recognize the importance of sustainability (Eccles et al., 2012). Employee engagement consists of "actions a company takes to secure the interest and attention of employees in their sustainability efforts" (p.47). On the other hand, the role of these ship owners is also vital if a company wants to pursue sustainability activities for its organization. According to (Kiron et al., 2012), at the organizational level, a typical sustainable organization or harvester organization is different because of the presence of the four dimensions: organizational support, efficiency in operations, collaboration, and willingness to change the organization's business model in response to sustainability-related considerations.

In addition, they said, "Specifically, harvester organizations have distinctive organizational mindset and design that supports sustainability" (Kiron, 2012, p.72). Therefore, applying this to the maritime sector, as part of the shift to become a sustainable maritime organization, they are required to comply with and follow new environmental regulations and policy measures that may be implemented in the maritime industry and it may also result in embracing a new cultural identity which encompasses activities that are not the custom of the organization (Eccles et al., 2012). The study of Casey and Sieber supported the idea of the difficulty of adapting to these changes. They suggested that different organizations

find it difficult to effect sustainable initiatives as this entails a continuing commitment to activities and business process modifications (Casey & Sieber, 2016).

Based on the IMO Secretary-General's report on Oceans and the Law of the Sea, the International Maritime Organization (IMO) was designated by the United Nations (UN) as the sole agency in charge of all maritime situations in 1959. Part of its responsibility is to ensure cooperation among governments in supervising practices involving different shipping companies. the primary role of IMO involves developing and implementing a governing framework for the maritime transportation sector that is reasonable, beneficial, and collectively adopted and carried out by all member states in the world. The United Nations (UN) also assigned the IMO as its lead agency, which will be tasked to oversee the international standards in protecting, assuring, and maintaining a clean and cost-effective maritime transportation sector. It also has a crucial role in ensuring that the 2030 Agenda for Sustainable Development, encompassing the Sustainable Development Goals (SDGs), is attained successfully (IMO and Sustainable Development, n.d.).

According to Zollo et al. (2018), organizations trying to address sustainable development challenges may necessitate changes in their employees' capability to anticipate and embrace the enduring effect of their decisions and behaviors on the organization's stakeholders. With increasing global challenges, more maritime stakeholders would like to contribute to sustainable development by adapting their behavioral patterns toward their professional activities and pursuing activities to preserve the planet. Referring to the framework conceptualized by Jeon (2007), of what constitute a sustainable maritime transportation (Jeon, 2007, cited in Chatzinikolaou & Ventikos, n.d.), it seems that the current situation of this sector is faced with a lot of hindrances towards achieving what can be termed as a sustainable maritime transportation.

Barriers in Environmental Sustainability

The MARINA Administration was designated by the government as the sole maritime administration in charge of ensuring that the "1978 International Convention on Standards of Training, Certification, and Watchkeeping for Seafarers" as amended, will have the full authority on the functions of the different government agencies such as Professional Regulation Commission (PRC), the Commission on Higher Education (CHED), TESDA, the Department of Health (DOH) and the National Telecommunications Commission) about all required

documents needed for all seafarers and other activities relating to IMO's strict guidelines and standards in training (LMIR 2017 - The Philippine Maritime Industry Through the Years, 2017). According to the Philippine Maritime Industry Development Plan (MIDP) for 2019-2028, "the maritime sector is classified into sea-based and land-based sub-sectors which encompass the country's core capabilities in shipping (including passenger and cargo shipping, and maritime tourism services) and fishing (both at commercial and municipal scales) operations; and support capabilities in shipbuilding and ship repair (SBSR), port management, maritime ancillary business, maritime education and training, and maritime administration, respectively" (p.5).

In addition, the Maritime Education and Training Institutions (METIs) are academic institutions and training centers providing maritime education and training to students who want to become seafarers. These METIs cater to Filipino seafarers and reward them with the degree necessary to attain a certain rank or position and training modules that adhere strictly to the recently revised STCW'95 amendments. This training allows these seafarers to improve their navigational and engineering skills and make them experts in any situation that may arise at sea. Problems arises as referenced from MARINA reports that the European Union's European Maritime Safety Agency (EMSA) has announced that the Philippines is no longer considered to comply with the International Convention on Standards of Training, Competence and Watchkeeping for Seafarers (STCW).

Environmental Sustainability is threatened when MARINA becomes too lenient in the accreditation of these maritime schools and training centers. This has even been noted by representatives of the Philippine Seafarers and Maritime Labor Union as many schools fail to provide quality education. According to Kraiger (2002), the effects of training on employee behavior and job skills can lead to improved employee performance and further environmental sustainability. If more maritime schools and maritime training centers are qualified and competitive to train seafarers, this will be reflected in the performance of seafarers on board, and more foreign principals will be favoring them over other the other nationalities. However, a deep-rooted problem facing seafarers in this regard is the existence of poor seafaring schools and training providers which hinder their competitiveness in pursuing environmental sustainability for their respective organization.

Barriers in Socio-Cultural Sustainability

Ship management according to the research of Lindgren and Nilsson (2011), pertains to how an organization can manage and employ its seafarers. Examples of ship management are

the different MARINA accredited manning agencies where the seafarers report for work. These agencies usually hire and manage these seafarers to be commissioned to different international and domestic vessels. They demand thousands of experienced and motivated seafarers from diverse countries and cultural backgrounds (Lindgren & Nilsson, 2011). Issues arise when these crew agencies select seafarers without standard procedures. As seafarers mentioned, some crewing managers choose applicants who have relatives who work for seafarers' agencies, especially if they are seafarers. A seafarer who is not competent or knowledgeable in performing his tasks onboard can be detrimental to a maritime transportation particularly if said seafarer is not exposed to sustainable practices of the organization. There are reports suggesting that a large number of Filipino seafarers (ratings) are having difficulty being employed by accredited Manning agency. Thus, depriving them of the opportunity to work onboard ships. There are also instances that the chosen seafarers are relatives of those people working in the manning agency, which is the reason why they are given such preference. This is a major problem in the maritime industry since these people did not undergo the required screening process prior to selection. As Guy (2018) suggests, social equity is rooted in the idea that all people are equal and have inalienable rights and that there must be fairness and impartiality to all. It has been observed that in some cases Filipino seafarers continue to suffer social maltreatment when they are not given an equal opportunity to be selected as a crew member of a particular manning agency.

Barriers in Economic Sustainability

One pressing problem facing seafarers is the long processing times for Certificates of Competence (COC) and Certificates of Competence (COP) by MARINA. Many of them complain that it takes hours or even days to receive these documents. Failure to complete the required documents on time may result in their removal from the roster prepared by their manning agency. Governments play an important role in ensuring that seafarers can process their documents quickly and in a timely manner. This is to avoid corruption and great inconvenience to the seafarers and increase their chances of getting a job on board. Unfortunately, many of Filipino seafarers have a very difficult time processing the paperwork required by the various international port states. If seafarers have incomplete seafarer training or certification, they can be easily replaced by other foreign seafarers. You cannot work on board without the required certificates and documents. These documents demonstrate that the seafarer can comply with government regulations through her MARINA and other port state control bodies. If the

government will not be able to fast track the certification of the training certificates of the seafarers, then this may have significant implications to the economic development since many of them might not be able to continue their profession while others might be replaced by other nationalities for lack of documentation needed in the international port states.

In addition, most seafarers must comply and be certified with the standards of training certification and watchkeeping (STCW). These certifications confirm that they were able to undergo those maritime training programs required for their position as mandated by the IMO's standards and regulations for training. Filipino seafarers are very aggressive in applying to any opportunities presented, as the seafaring profession can also be their way out of poverty. According to research by Amante (2003), most want to pursue a seafaring career to ease their family out of hardship and give them a better life (Amante, 2003). From the Philippine Overseas Employment Administration (POEA) records, Filipino seafarers continue to be a significant workforce services provider on board worldwide. It should be noted that China has surpassed the Philippines as the principal supplier of maritime officers. However, the country is still the leading provider for the rating position. "Their conspicuous consumption, their reputation as hyper-masculine adventurers, and their ability to endure hardships, all give Filipino seafarers a chance to transform a marginalized and subordinate masculinity on the job into a model of exemplary masculinity at home, emphasizing the ideals of fatherhood, economic provision, sacrifice for one's family, and the 'machismo of manual work'" (Mckay, 2007, p.630). One of the threats to sustainable development is seafarers who are content with their current status and have no higher career aspirations. As long as they can adequately support their families, they will no longer be able to work hard or attend other training courses in order to be promoted to the next rank or strive for more. There were several crewing managers who suggest that some of their seafarers are already content with their positions and do not want to be promoted to higher ranks because that means more training and testing on board and more responsibility for them. This will result to a stagnant growth in their contribution to economy if they do not want to improve. Some of these seafarers might not even be provided with contracts by their manning agency if they do not adhere to their requirements to participate in more maritime trainings.

The maritime stakeholders are expected to be a catalyst in cultivating the behavior of their people to embrace a sustainability mindset that will help them address concerns in the three areas of sustainability. The way that different organizations are adopting sustainable development is changing noticeably. Most leaders of these organizations are

involved passionately in plans that strive to promote a new way of thinking, seeking to expand their efforts in pursuing economic, social, and environmental activities. Unfortunately, according to the qualitative research of Visser and Crane (2010), many still do not adhere to these efforts such that the motivations of their actions are still unclear, resulting in people working in the organization feeling fascinated or in doubt. They stated, "specifically, we have almost no knowledge of how sustainability-related work contributes to job satisfaction and personal meaning" (Visser & Crane, 2012, p.2).

The maritime transportation sector is beginning to comprehend its social and environmental responsibilities linked with sustainability principles as stated in the SDG goals and has committed to amplifying its sustainability initiatives to attain greater sustainability. "Sustainable maritime transportation is a crosscutting issue and, as such, is an important enabler for most of the SDGs" (IMO and Sustainable Development, n.d., par.5).

The Road to a Sustainable Maritime Transportation Sector

The following recommendations and suggestions are intended to assist and guide management and other shipping stakeholders in addressing issues that have proven to be necessary avenues for the development and fostering of a sustainable shipping sector.

Enablers of Environmental Sustainability

The practical application of maritime education and training has a positive effect on the performance of duties on board ships and ensures a high level of motivation for workplace engagement among seafarers. "The most important person in any shipping company is the seafarer. They manage assets, they are there to solve problems, they are in trouble spots, they meet customers, and they are on board." (Ole Stene, President of the International Association of Ship keepers). Seafarers play an important role for the success of the maritime transportation sector. Therefore, their level of competence should translate into good job performance ratings by their crewing managers to ensure a long-lasting career in the shipping industry.

MARINA should also do its best to ensure that the maritime education institutions and training centers it accredited were able to pass CHED's stringent guidelines and comply with the latest 2010 STCW Convention Code for Maritime Education. To ensure this, more MARINA personnel are needed to investigate these substandard maritime schools

and training centers. They also need additional time to monitor and audit the various nautical schools and training centers to ensure they are up to standards.

Maritime Education and Maritime Training Center need to include sustainability topics in their module with the end goal of developing their emotional intelligence, which will trigger their perceived behavioral control. Fairfield (2018) posited that it should be the responsibility of educational institutions and maritime training centers to include sustainability topics and subjects in the curriculum and modules of their students. Hence, by the time they start working, they are already inclined to pursue sustainability initiatives, which can be a source of competitive advantage for their company in the performance of their different functions (Fairfield, 2018). Fairfield (2018) pointed out that educating the students to develop a sustainability mindset is a mission and may take some time to attain. Important topics recommended by the author to cultivate a sustainability mindset may include comprehension of eco-literacy, changes in the environment, issues confronting the world, and how their organization can contribute to addressing these problems.

There is also a need to train and reorganize the technological skills of Filipino seafarers to adapt to the rapidly changing technological environment of the maritime sector. Over the last few decades, technology has improved significantly, especially regarding how seafarers are trained by various maritime educational institutions. Despite all these innovations in shipbuilding and new training methods, seafarers are still an integral function of the ship, and are primarily responsible for commanding and piloting these ships for legitimate purposes. Today, the development of maritime education and training systems is a dynamic process under the pressure of rapid improvement in maritime technology (Albayrak and Ziarati, 2010, p. 11). Finding a way is a never-ending task that all major stakeholders must pursue in order to adapt to these changing times. With the advent of computer-based technologies such as the use of simulators, the internet, software, etc., classrooms are equipped with different tools for knowledge acquisition and proof of knowledge resulting to better sustainable development comprehension.

Finally, there is a need for more partnership and collaboration among manning agencies, government, maritime education institutions, and other stakeholders. Forming alliances, partnerships, and collaborations among manning agencies, and other stakeholders in the maritime sector can pave the way for investing in the development of more maritime training facilities for the Filipino seafarers. This maritime training facility will provide our seafarers with all the

knowledge and skills needed to perform their tasks on board in a sustainable manner. Some of these maritime stakeholders may even look for partnership with foreign ship owners who may want to invest in putting up a training facility in the country or donating modern equipment and machines to different maritime schools which again will expose these aspiring seafarers on how to utilize these in the actual performance of their tasks on board.

Enablers of Socio-Cultural Sustainability

According to research by Lindgren and Nilsson (2011), ship management refers to the way an organization manages and employs seafarers. In the maritime sector, it has already been noted that the strategies of social partner groups are closely intertwined with the global bargaining power of the unions, shipowner, and other international associations. The government, through MARINA and with the support of various maritime unions, should ensure that the recommendations of the 2006 Maritime Labor Convention are implemented in all maritime sectors. This gives seafarers the confidence to carry out their duties on board, knowing that they have a right to safe work that respects decent living and working conditions, including safety standards, fair conditions of employment where they are given equal opportunity to be selected, and social protection such as medical care, health protection, and welfare.

Enablers of Economic Sustainability

For the government, streamlining MARINA's processes and seafarer requirements will enable seafarers to meet all the requirements necessary to pursue a seafaring career or be included in their manning agency's line-up. Many seafarers are already dissatisfied with having to go through a lengthy process to obtain a Certificate of Competency, Certificate of Proficiency, Certificate of Endorsement, and SIRB, which are some of the documents required from MARINA. Speeding up the process and requirements for seafarers before they go on board will save seafarers a lot of time and money. Developing and paving the way for seafarers' careers should be an important goal of MARINA. It would also be helpful if MARINA could regulate the fees for these maritime training courses. This can also be a heavy burden for many Filipino seafarers. Many of them never fulfilled their dream of becoming a seafarer, and some are unable to board a ship because they do not have the funds to pay for the training costs. Various crew agencies can also help solve this problem if they can negotiate with their foreign principals to cover these costs on behalf of their seafarers. Various maritime training centers may also develop their own payment systems

(ex. extension of payment terms, giving discount to certain courses, and offering special packages for certain courses, etc.).

This should not just be a call to the maritime transportation sector, it should be a call to all maritime stakeholders. These are the challenges we are grappling with today, and they require not just band aid solutions, but they require serious cooperation from all stakeholders. After all, we are talking about the modern heroes of our country. Seafarer education is a long-term process and needs to be well planned to keep up with new global trends and sustainable practices and this is by no means an easy task. It requires a lot of effort and coordination with domestic laws and international conventions. To reassure Filipino seafarers that additional education and training is in their best interest if they wish to advance their careers and remain competitive in the international market, governments, manning agencies, nautical schools, and maritime training center must unite if we want to ensure the sustainability of the maritime transportation sector.

References

- Albayrak, T., & Ziarati, R. (2010). Training: Onboard and Simulation Based Familiarisation and Skill Enhancement to Improve the Performance of Seagoing Crew. <https://doi.org/10.13140/2.1.1863.0081>
- Amante, M. S. V. (2003). Philippine Global Seafarers: A Profile.
- Batista, A. A. da S., & de Francisco, A. C. (2018). Organizational sustainability practices: A study of the firms listed by the Corporate Sustainability Index. *Sustainability (Switzerland)*, 10(1). <https://doi.org/10.3390/su10010226>
- Casey, D., & Sieber, S. (2016). Employees, sustainability and motivation: Increasing employee engagement by addressing sustainability and corporate social responsibility. *Research in Hospitality Management*, 6(1), 69–76. <https://doi.org/10.2989/rhm.2016.6.1.9.1297>
- Chatzinikolaou, S. D., & Ventikos, N. P. (n.d.). Sustainable maritime transport: An operational definition. Laboratory for Maritime Transport. School of Naval Architecture & Marine Engineering, National Technical University of Athens (NTUA), Athens, Greece., 1–8.
- Eccles, R., Perkins, K., & Serafeim, G. (2012). How to Become a Sustainable Company. In *MIT Sloan Management Review* (Vol. 53, Issue No.4, pp. 43–51).
- Fairfield, K. (2018). Educating for a Sustainability Mindset. *Journal of Management for Global Sustainability*, 6(1), 21–44. <https://doi.org/10.13185/jm2018.06102>
- Guy, M., & McCandless, S., (2012). Social Equity: Its Legacy, Its Promise, *Public Administration Review*, Vol. 72, Iss. S1, pp. S5–S13, 2012, The American Society for Public Administration. DOI: 10.1111/j.1540-6210.2012.02635.x
- IMO and Sustainable Development. (n.d.).
- Kang, K. H., Stein, L., Heo, C. Y., & Lee, S. (2012). Consumers' willingness to pay for green initiatives of the hotel industry. *International Journal of Hospitality Management*, 31(2), 564–572. <https://doi.org/10.1016/j.ijhm.2011.08.001>
- Keeble, B. R. (1988). The Brundtland Report: "Our Common Future." *Medicine and War*, 4(1), 17–25. <https://doi.org/10.1080/07488008808408783>
- Kiron, D., Kruschwitz, N., Haanaes, K., & von Streng Velken, I. (2012). Sustainability Nears a Tipping Point. In *MIT Sloan Management Review* (Vol. 53, Issue No.2, pp. 69–75). <https://doi.org/10.1108/sd.2012.05628gaa.012>
- Kraiger K. (2002). Decision-based evaluation. In *Creating, Implementing, and Maintaining Effective Training and Development: State-of-the-Art Lessons for Practice*, ed. K Kraiger, pp. 331–75. San Francisco, CA: Jossey-Bass
- Lee, P. T. W., Kwon, O. K., & Ruan, X. (2019a). Sustainability challenges in maritime transport and logistics industry and its way ahead. *Sustainability (Switzerland)*, 11(5). <https://doi.org/10.3390/su11051331>
- Lee, P. T. W., Kwon, O. K., & Ruan, X. (2019b). Sustainability challenges in maritime transport and logistics industry and its way ahead. *Sustainability (Switzerland)*, 11(5), 1–9. <https://doi.org/10.3390/su11051331>
- Lindgren, N., & Nilsson, J. (2011). Filipinos Sailing on the Seven Seas - A Qualitative Study of Filipino Seafarers Working on International Vessels. University of Boras.
- Lister, J. (2015). Green Shipping: Governing Sustainable Maritime Transport. *Global Policy*, 6(2), 118–129. <https://doi.org/10.1111/1758-5899.12180>
- LMIR 2017 - The Philippine Maritime Industry Through the Years. (2017).
- yung, E., McClaren, A., & Li, L. (2012). Environmentally related research in scholarly hospitality journals: Current status and future opportunities. *International Journal of Hospitality Management*, 31(4), 1264–1275. <https://doi.org/10.1016/j.ijhm.2012.03.006>



- McKay, S. C. (2007). Filipino sea men: Constructing masculinities in an ethnic labour niche. *Journal of Ethnic and Migration Studies*, 33(4), 617–633. <https://doi.org/10.1080/13691830701265461>
- Nathan, M. L. (2018). “Keeper of the fire”: human resource management’s role in the organisational development of an employee sustainability mindset. *International Journal of Sustainable Strategic Management*, 6(1), 38. <https://doi.org/10.1504/ijssm.2018.10014261>
- Prylipko, A. (2013). The paradigm of sustainable development in maritime education and training.
- Richter, L. (2016). The Impact of the Maritime Industry on the Philippine Economy.
- Singal, M. (2014). The Link between Firm Financial Performance and Investment in Sustainability Initiatives. *Cornell Hospitality Quarterly*, 55(1), 19–30. <https://doi.org/10.1177/1938965513505700>
- Smith, J. J. (n.d.). Inspirations from Sustainable Maritime Development.
- Tommasetti, A., Singer, P., Troisi, O., & Maione, G. (2018). Extended Theory of Planned Behavior (ETPB): Investigating customers’ perception of restaurants’ sustainability by testing a structural equation model. *Sustainability (Switzerland)*, 10(7), 1–21. <https://doi.org/10.3390/su10072580>
- Visser, W., & Crane, A. (2010). Corporate Sustainability and the Individual: Understanding What Drives Sustainability Professionals as Change Agents. *SSRN Electronic Journal*, February. <https://doi.org/10.2139/ssrn.1559087>
- Zollo, M., Dodich, A., Vastola, V., Canessa, N., Crespi, C., Martinez, D., & Cappa, S. (2018). Developing sustainability mindsets: a set of cognitive training and meditative practices on sustainable decision-making and related neuro-psychological traits. *Academy of Management*, 1–30. <https://doi.org/10.5465/AMBPP.2018.15848abstract>