

Proposed Trends, Developments and Challenges for IMO

The following are Singapore's inputs to on-going work at IMO to establish the trends, developments and challenges affecting IMO over the next six years. This document details three trends which we feel deserve particular attention by the IMO, and therefore does not preclude other existing or emerging trends.

i) The continued priority to develop a sustainable maritime transportation system

Short description of overall topic: The continued priority in developing a sustainable maritime transportation system, in view of the strong impetus to mitigate global climate change and growing global consensus over sustainable stewardship of oceans resources and maritime activity. .

Narrative of the trends and developments In 2013, the IMO came up with the concept of a Sustainable Maritime Transportation System, which covers 10 goals and actions, among them safety culture and environmental stewardship and ocean governance, among others. Environmental stewardship covers the development and implementation of global standards for pollution prevention and protection of the marine environment. Currently, there is no IMO instrument that directly regulates the reduction of greenhouse gas emissions (GHG) from shipping, unlike other pollutants that are regulated under MARPOL. With the impetus from the adoption of the Paris Agreement at COP 21, the reduction of GHG from shipping is a challenge that the IMO needs to address with greater urgency.

Growth of the global economy and human population intensify the use of the ocean's resources for food, medicine, employment, energy and trade. Overlaying these uses are the ocean's contributions to regulating the global ecosystem, including providing an estimated half of the earth's oxygen, carbon capture as well as heat distribution. Despite the vastness of the world's oceans, there is still competition or conflict for the use of the ocean's resources. The availability and adequacy of governance structures and legal tools are issues that are being grappled with at the international, regional and national levels.

Issues are therefore both over-arching and cross-cutting with the Sustainable Maritime Transportation System. The challenge to the IMO's work is maintaining coherence among UN bodies in global governance, regulations and policies. The other challenge is to ensure a sensible balance between regulation and sustainability in the development of a Sustainable Maritime Transportation System.

Supporting data: The Emissions Gap Report 2015 released by UNEP ahead of COP 21 provided an assessment of the 119 Intended Nationally Determined Contributions (INDCs) submitted to UNFCCC, covering 146 countries and their progress in reducing GHG emissions. The INDCs indicated that the proposed efforts to tackle climate change, including those taken before the Paris agreement and assuming full implementation of said INDCs, could cut up to an additional 11 gigatonnes of CO2 emissions per year in 2030, compared to the earlier projected emissions for 2030. The INDCs demonstrate increased ambition, commitment and urgency by UN member

states to tackle climate change.¹ The Paris Agreement coming out of COP 21, which took into consideration the INDCs, also identified clear goals to reduce global GHG emissions, and the IMO will need to continue to contribute in this area.

On oceans, a consensus was reached at the UN in 2015 to develop a new legal instrument on the conservation and sustainable use of marine biological diversity beyond areas of national jurisdiction (BBNJ) under the UN Convention on the Law of the Sea (UNCLOS). The reaching of the consensus reflected growing international attention on issues relating to BBNJ and to deal with the pressures on marine ecosystems beyond national jurisdiction from activities such as pollution, overfishing, expanded shipping and marine mining.

Further, according to a report by UNEP's Global Environmental Alert Service in 2014, by 2020, 5% of the world's minerals could come from the ocean floors, and this could further rise to 10% by 2030. The global annual turnover of marine mineral mining is expected to grow from virtually nothing to €5 billion in the next 10 years and up to €10 billion by 2030.² All these have led to a rapid increase in activity in deep seabed mining, which may also impact on shipping and other maritime activities.

At the national and regional levels, there has been an increase in the designation of Marine Protected Areas (MPAs) which signifies increase governance and conservation action in marine/sea areas. MPAs are areas designed to protect marine ecosystems, processes, habitats and species. Since 2006, there has been a growth of 10 million km² of new MPAs globally, a nearly four-fold increase over the past decade.³

The challenges facing the maritime community: First, under environmental stewardship, the IMO must continue to work with the relevant stakeholders to contribute to global GHG reduction goals, and support global efforts in climate change mitigation such as using new technologies and renewable energies, adopting energy efficient measures etcetera in the post-COP 21 era.

Second, the IMO must be able to strike a good balance between the efforts to reduce GHG emissions and the economic viability of the shipping industry, and develop regulations that can be implemented effectively and efficiently. Third, after regulations are adopted, the IMO would need to consider how to provide capacity building for IMO Member States, such that all can effectively and efficiently implement a Sustainable Maritime Transportation System.

Next, on ocean governance, ocean issues are being discussed across various different UN agencies and international organisations. The IMO has kept abreast of developments by attending meetings and coordinating with the various agencies and organisations. However, with the increasing intersection of oceans and shipping issues,

¹ Press release by UNEP for Emissions Gap Report which includes quote by UNEP Executive Director Mr Achim Steiner on the INDCs:

<http://www.unep.org/newscentre/Default.aspx?DocumentID=26854&ArticleID=35542&l=en>

Full Emissions Gap Report 2015: <http://uneplive.unep.org/theme/index/13#indcs>

² http://www.unep.org/pdf/GEAS_May2014_DeepSeaMining.pdf

³ <http://voices.nationalgeographic.com/2015/12/16/what-are-we-actually-protecting-in-the-ocean/>

the coordination and coherence between UN agencies would increase and can become challenging.

ii) **Manpower Development:**

Short description of overall topic: Manpower development is key to the future development of the maritime industry at all levels.

Narrative of the trends and developments: The expansion of the world fleet has brought about a shortage of seafaring officers (as opposed to “ratings”). The gap between demand and supply has recently narrowed due to the slowing growth in fleet size, and larger ships providing more shipping capacity with the same number of vessels and hence require less officers. Nonetheless, there remains a shortfall between supply and demand, especially for competent and experienced officers. The shortage of competent and experienced officers has a direct impact on the safe and secure operations of ships, and also the objective of a sustainable maritime transportation system. It has implications with regards to human error and maritime accidents. The main reasons for maritime accidents have been attributed to: i) fatigue, ii) inadequate communication, iii) lack of general technical knowledge, iv) inadequate knowledge of ship’s system, v) automation error, vi) decision based on incomplete information, vii) faulty standards and procedures being followed, viii) poor maintenance and ix) hazardous working environment⁴. Some of these reasons may be alleviated with competent and experienced officers.

Today’s increasing complex global environment and changing landscape also means there is a critical need for developing strong and effective maritime leadership. In addition to needing competent and experienced seafaring officers, maritime leaders also need to be trained and equipped with the necessary skills and mind-set, so as to thrive in the face of change and uncertainties, and lead the maritime industry.

Supporting data: According to a Drewry article dated June 2015, shipping will require an additional 42,500 officers by the end of 2019 to cope with the expected growth in the main cargo carrying fleet.⁵ A Deloitte report dated 2011 on “Challenge to the industry: Securing skilled crews in today’s marketplace” also notes the shortage of competent officers and the challenges faced by the maritime industry.⁶ Finally, a report by Allianz Global and Corporate Speciality, a marine insurer, in 2013 highlighted that human error remains a root cause of most maritime incidents. Fatigue, economic pressures and inadequate training are causes for concern⁷.

The challenges facing the maritime community: The challenges facing the shortage of competent and experienced officers to man ships are many. First, we face a growing reluctance among the general populace to take up a career at sea. The negative perception of a sea career being isolationist and without good long-term prospects has resulted in a decrease in potential applicants. The challenge is to attract more youths to the seafaring career. Second, there is a challenge to balance the need for more officers while ensuring that officers are trained properly and possess the necessary

⁴ <http://www.marineinsight.com/marine-safety/the-relation-between-human-error-and-marine-industry/>

⁵ <http://www.drewry.co.uk/news.php?id=375>

⁶ <http://www2.deloitte.com/content/dam/Deloitte/global/Documents/dttl-er-challengeindustry-08072013.pdf>

⁷ http://www.agcs.allianz.com/assets/PDFs/Reports/AGCS_safety_and_shipping_report.pdf

skills before they obtain the necessary qualifications and promotions. Third, insufficient investments to update training curriculum and the lack of sufficient cadet spaces for training on board ships further compound this problem. The challenge is for the industry to invest more in training and to encourage shipping companies to provide cadet positions on board their ships to help train the new officers.

On leadership training, the challenges for the maritime sector are twofold: i) compared to already existing training standards and certification for crew officers, there are no such equivalent for maritime leadership. There are also limited leadership courses specific for the maritime sector. (ii) Maritime leaders would like be very busy managing their various national administrations and companies. The time available for them to take courses would be limited. Any training courses would have to be flexible enough to accommodate these leaders' schedule.

iii) Increasing use of technology and automation in the maritime sector to close the manpower gap:

Short description of overall topic: Increasing utilisation of technology to close the manpower gap in the maritime community.

Narrative of the trends and developments: The maritime industry has been trying to leverage more on technology to improve safety, security, productivity and efficiency, as well as to close the manpower gap. Examples of such efforts at the IMO are the adoption of the e-navigation implementation strategy to enhance safety and efficiency, the use of e-certificates and the design of a maritime single window to reduce labour burden, paperwork on board ships and the administrative burden on administrations. With greater advances in technology, it is anticipated that the maritime industry will leverage on more technology and automation for better efficiency, greater output and safer and cleaner shipping. However, the different pace of adoption at different maritime nations may create a technology gap, especially if there is a lack of effective technology transfer and training opportunities to use the new technologies.

Supporting data: An article by Information Handling Services (IHS) identified that seafaring must learn new skills and integrate new technology to attract the new generation of seafarers.⁸ A report by DNV in 2014 stated that Information, Communication and Technologies (ICT) will continue to accelerate towards 2050, and its developments will revolutionise shipping. It will result in more automation and remote control to reduce costs and risks associated with human error, generate greater transparency in shipping, improve seafarers welfare, and perhaps even have unmanned vessels.⁹ According to an article by Reuters, the next hacker playground is the open seas¹⁰, while DNV GL had developed a study that reveals the top ten most pressing cyber security vulnerabilities for companies operating offshore in Norway, where a lot of lesser attacks go undetected or unreported as many organisations do not know that someone has broken into their systems¹¹. The Round Table of international

⁸ <https://www.linkedin.com/pulse/ihs-identifies-top-five-trends-2016-shape-global-maritime-hall>

⁹ <http://production.prestogo.com/fileroot6/gallery/DNVGL/files/preview/f37368a971c70637e04385ee5e4d90b1/f37368a971c50637e04385ee5e4d90b1.pdf>

¹⁰ <http://www.reuters.com/article/us-cybersecurity-shipping-idUSBREA3M20820140424>

¹¹ <https://www.dnvgl.com/news/dnv-gl-reveals-top-ten-cyber-security-vulnerabilities-for-the-oil-and-gas-industry-48532>

shipping associations (BIMCO, ICS, Intercargo and INTERTANKO) had recognised this and is developing standards and guidelines to address major cyber security issues faced by the shipping industry.¹²

The challenges facing the maritime community: First, with increasing use of technology in the maritime industry, there is a need to have adequate training for seafarers and crew, offshore and on board on the use of new technologies. Otherwise, the usage of increased technology would not be able to bridge the manpower gap, or achieve greater efficiency in the industry. Second, the challenge is how to facilitate successful technology transfers between countries and increase the take-up of maritime technologies worldwide.

The third challenge is to address the threat of cyber security, and how to stay ahead of constantly improving technologies and methods used by hackers to infiltrate or break into maritime technology systems. There is also a need to consider back-up plans when technology fails. This would include standard operating procedures in such instances.

¹² <http://worldmaritimenews.com/archives/157909/shipping-associations-tackle-cyber-security-threats/>