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13.1.1. – Report by the IALA Secretariat adopted from 116th session of IMO Council meeting on Trends, Developments and Challenges facing IMO in the period (2018-2023)

1. 2030 AGENDA FOR SUSTAINABLE DEVELOPMENT

In September 2015 the United Nations' 193 Member States unanimously adopted the 2030 Agenda for Sustainable Development, consisting of 17 Sustainable Development Goals (SDGs) and 169 targets addressing the needs of people in both developed and developing countries, emphasizing that no one should be left behind². The Agenda emphasizes the need for the three dimensions of sustainable development: social, economic and environmental, to go hand-in-hand as each depend on the others and are linked to peace, justice and effective institutions. Goals and targets to realize the Agenda will be defined in relation to people, planet, prosperity, peace and partnership.

The United Nations system is currently formulating a mechanism to support the achievement of the 2030 Agenda based on the combined expertise and strengths of each entity within the system, where each entity plays its role with mutual recognition of respective contributions. The increased collaboration is intended to eliminate duplication and fragmentation within the United Nations system.

The world today relies on international shipping and benefits from its smooth operation, by which food, raw materials, energy and consumer goods are moved across the globe at low cost, in a reliable and effective way. Therefore, international shipping is central to the functioning of global trade by connecting countries, manufacturers and consumers. International shipping provides access to markets and as such provides a way for Member States to enhance trade with other Member States.

2. WORLD TRADE AND CHANGE IN THE SHIPPING SECTOR

The growing volume of trade also places pressure on necessary infrastructure, such as ports and land transport links as well as a quick clearance of ships by the relevant authorities. Increased shipping volumes can also lead to congestion in specific geographical areas, bringing about the need for better and smoother navigational flows. Furthermore, if the growing volume of goods cannot be moved by the existing fleet, new ships will have to be built to respond to the demand.

Shipping has adapted over the years to cater for the growth in trade, and developed new systems and technologies to provide the necessary services to the world at large. An example of this is containerization, which completely changed the way goods could be shipped (figure 5). For most goods, shipping operates according to the just-in-time principle meaning that the need for storage is reduced, but it also means that the logistics chain is highly complex, and any disruption to trade routes can have serious ramifications for the individual shipping company, if not the whole transport chain.

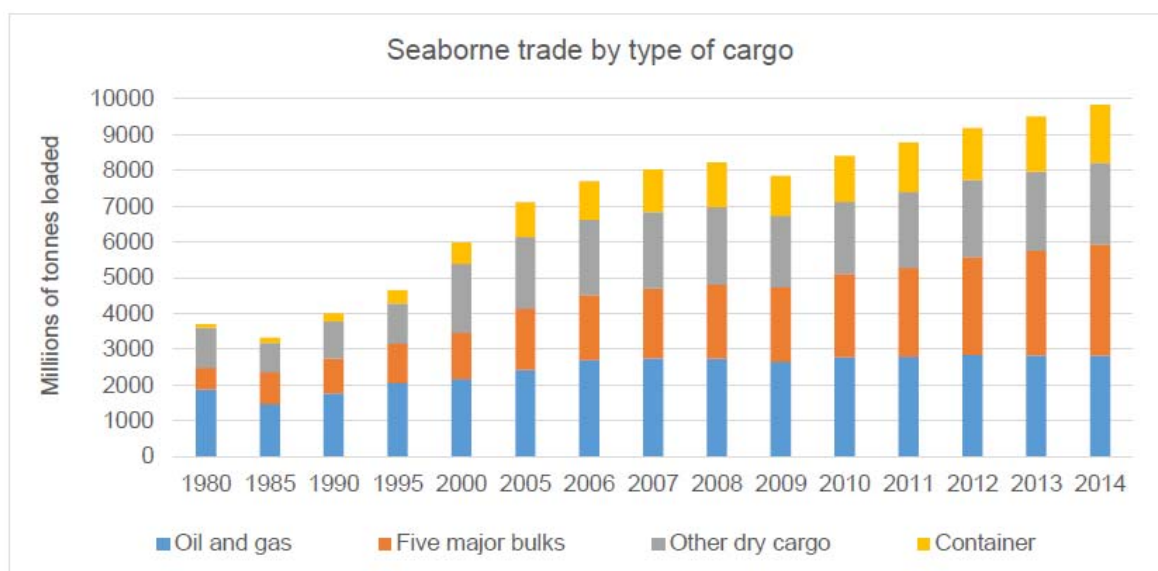


Figure 5 – Seaborne Trade by Type of Cargo

In view of the expected growth of seaborne trade, changing trading patterns and the resulting increase in traffic as well as taking into account the associated risks and threats related to these trends, IMO and the maritime community have to adopt a forward looking approach to prepare shipping for the future and strengthen the maritime community's position in global trade.

3. INTERNATIONAL SHIPPING

3.1. Technological advances

The advent of modern technology has significantly changed the world, especially demonstrated by how information and communication technology has impacted the way we live and interact with each other.

Technology development is accelerating and will continue to do so. Over the next decades, new technologies will significantly impact shipping, creating a more connected and efficient industry that is closely integrated with the global supply chain.

Within the international shipping industry, all parts of the sector have already seen changes in the way they are built and operated due to new technologies. Shipyards are using enhanced materials for the construction of ships and ship designs have become more complex. Equipment installed on board and ashore to navigate, operate and communicate has also changed, ensuring greater accuracy, but also adding burdens on the ship's crew and managers.

As technological advances present both opportunities as well as threats to the maritime community, the introduction of a new technology needs to be considered carefully, as does the regulatory approach to these emerging technologies. There is a need to ensure an appropriate balance between regulatory predictability for those being regulated and ensuring that regulations do not interfere with innovation and advances of new ideas.

While technological development will continue, the responses of the Organization will need to be fit-for-purpose in the long term and place particular emphasis on the human element, as seafarers roles continue to evolve and change. The successful adoption of new technologies will depend on an effective regulatory framework, technical standardization on a global scale and cooperation between all maritime stakeholders



3.2. Security

Of additional concern is the risk of cyberattacks by pirates. Pirates might exploit weaknesses in the shipping company's cybersecurity to track the movement of vessels or target orders for specific cargoes. For example, pirates could use their access to refineries to detect which vessel is carrying the fuel they are interested in and use the Automatic Identification System (AIS) information to locate and hijack the vessel. For example, there has already been one reported incident of Somali pirates that have hacked a shipping company's system to identify vessels passing through the Gulf of Aden with valuable cargoes and minimal on board security, which lead to the hijacking of a vessel.

The challenges for the maritime industry are to balance security and facilitation policies to improve the operational efficiency and effectiveness of procedures in the maritime supply chain. Additionally, new and emerging security issues, for example the increase of piracy in South East Asia and the threat of cyberattacks by pirates or terrorists, have to be monitored and measures to address these emerging issues need to be developed. The challenge for IMO is to support and enable the maritime community's efforts and provide a forward-looking perspective especially in the context of threats related to the usage of new technologies.

The operational complexities of dealing with larger ships; the need to manage congestion; the need to do more with less space, the continued pressure to enhance safety and security in and around port areas and to embrace greener technologies (for example port reception facilities) and working practices, are among the specific developments that the entire supply chain needs to address. So too are the need to reduce the administrative burden on ship masters, seafarers and shipping companies, and to reduce the time scales of the ships and cargo at ports. The port infrastructure, support facilities, and the human capital throughout the maritime industry need to be further developed to enable ports to offer a more efficient service.

The main challenge for the maritime community is to assess and acknowledge the relevance of ports and port facilities for international shipping. A significant challenge for the Organization is to identify means to deal with the economic, environmental and social challenges facing ports in recognition of their vital link in the maritime transport chain, keeping in mind the significance of ports beyond issues of facilitation, i.e. the environmental as well as the safety and security impact of ports. A first step to strengthen the cooperation with ports could entail a closer cooperation and strengthened information sharing with port State control (PSC) regimes.

3.3. Safe ship operation and navigation

In the current connected world, news of maritime disasters is communicated faster. Although safety of shipping has increased significantly over time, which can be observed by the decrease of total losses of vessels by 45% over the past decade (figure 19). Nevertheless, the public's response to fatal accidents at sea has placed the industry under increased scrutiny, demanding action from regulators to introduce new requirements to improve safety. Avoiding accidents and ensuring the safety of on-board personnel and passengers presents one of the most complex challenges faced by the shipping industry as, unlike mechanical or technical systems, safety systems must account for the seemingly infinite variables of human behaviour.

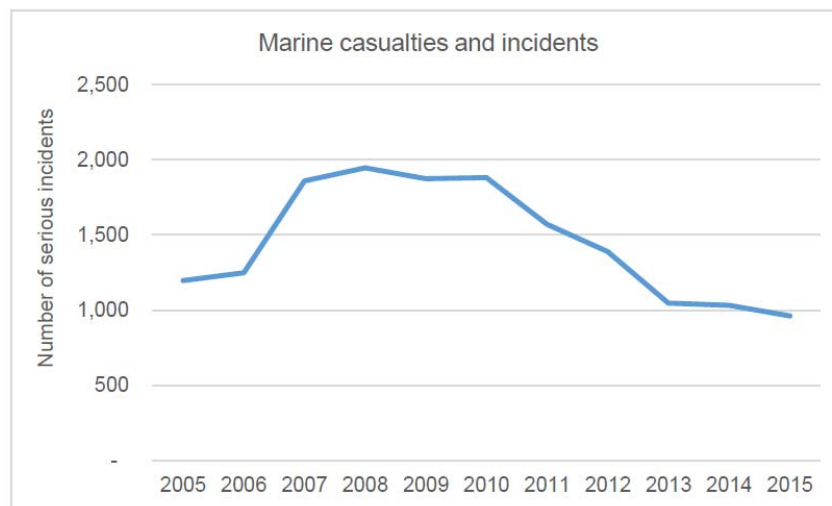


Figure 19 – Marine Casualties and Incidents
(IMO, 2016d)

Today, increasingly ergonomic and integrated bridge control systems are available. The development of global standards and principles, i.e. IMO's e-navigation strategy, covering ergonomics and improved integration of bridge controls is already underway, helping to ensure better coordination between design and operations. Also, a more standardized bridge will reduce the time needed for personnel to familiarize themselves with bridge controls and eventually lead to the development of best practices that can be applied throughout the industry. At the same time, technologies developed by other industries (e.g. aviation) are being applied to shipping to help reduce port congestion and collision risk. Today, some of the world's busiest ports utilize satellite technologies to track and monitor vessel traffic (Vessel Traffic Service, VTS).

4. HYDROGRAPHIC SURVEYS AND NAUTICAL CHARTS

The main challenge for the maritime industry is to acknowledge and be aware of the deficiencies of hydrographic surveys and nautical charts as well as ensure that their personnel on board and ashore are aware of these deficiencies. The challenges for coastal States are to improve the hydrographic surveys and nautical charts within their territorial waters and to improve cooperation between states for surveying international waters, in particular the arctic region. The main challenges for the Organization is to recognize and promote hydrography as an important tool for efficient maritime navigation and to assist in global capacity-building initiatives to expand hydrographic surveying.

5. AIR POLLUTION AND ENERGY EFFICIENCY

In order to enable an increased energy efficiency, in 2011 IMO adopted the Energy Efficiency Design Index (EEDI) and Ship Energy Efficiency Management Plan (SEEMP) and in 2013 the EEDI and SEEMP entered into force. By setting increasingly stringent energy efficiency requirements for new ships, the EEDI is intended to stimulate the development of more energy efficient ship designs, leading to a reduction of operational CO₂ emissions on a ship by ship basis. The SEEMP, is designed to stimulate the increased utilization of energy efficient operational practices for shipping vessels (figure 31).

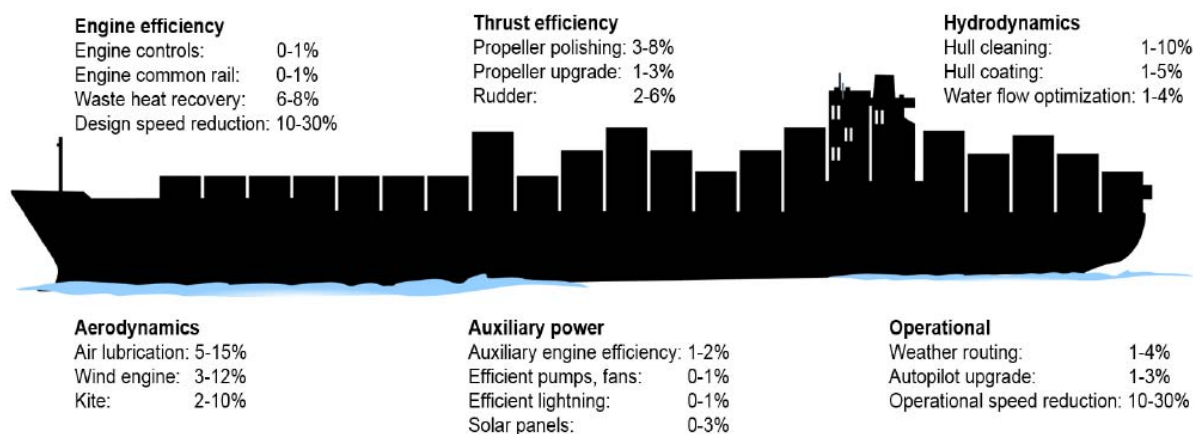


Figure 31 – Potential Fuel Use and CO₂ Reductions from Various Efficiency Approaches (ICCT, 2013)

However, with the expected growth of world trade over the next 20 to 30 years, these instruments might contribute to the lowering of the emission growth rate, but not to an absolute decrease in emissions (figure 32). Therefore, further measures might be needed for the shipping industry to contribute to the overall reduction of GHG emissions.

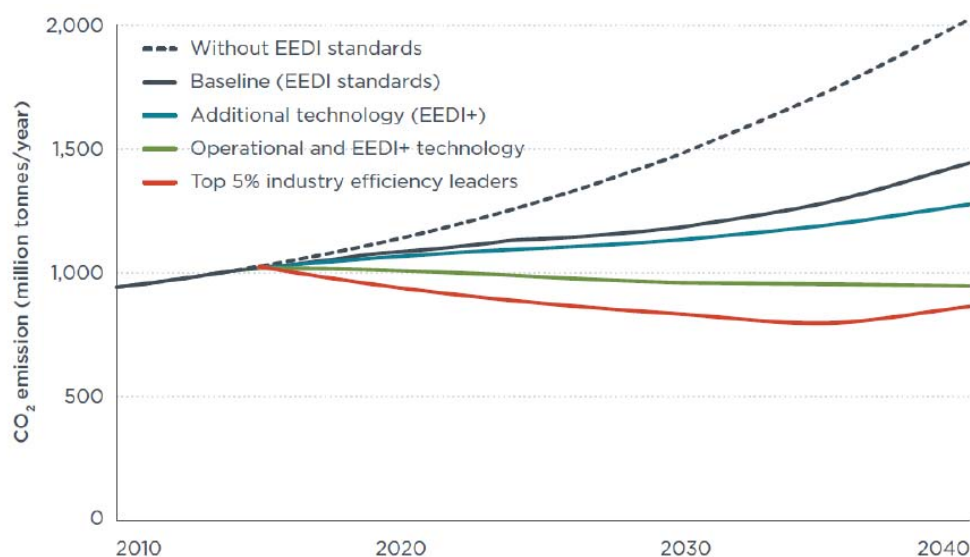


Figure 32 – Potential Reductions in CO₂ Emissions from Various Efficiency Standards, Use of Best Available Technologies and Best Practices (ICCT, 2013)