



Shipping: Advancing from Green to Greener

***Presentation at OECD Workshop on Green Growth on Shipbuilding
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Abstract

Ship design and ship building are very sophisticated processes. The product of this process, the ship is a complex system with more attributes than any other means of transportation.

Due to many attributes, including the economy of scale they offer, ships have been, still are, and will remain the most efficient means of transportation. Consequently, reported to the service they provide to the society and with an extremely limited and rare number of accidents at sea, ships are bound to be the most environmentally-friendly means of transportation.

While it is a fact that shipping is a Green mode of transportation, there is no question in the industry that shipping can still become more environmentally-friendly and thus it can advance from Green to Greener. Many issues like Ballast Water, reduction of onboard generated waste and reduction of various air emissions like SO_x, NO_x, VOCs and Greenhouse Gasses (GHG) are current top priorities for the shipping industry.

This paper attempts to provide INTERTANKO members' views on the questions which the organisers have indicated in the Workshop Structure.

Introduction

INTERTANKO is honoured to be invited to present its opinions and views at this Workshop and I wish to thank the organisers and OECD for giving us such an opportunity. We believe this kind of meeting is essential to attempt to establish a common platform of understanding of relevant facts and criteria for achieving a green growth of shipbuilding and shipping in general.

For those not familiar with INTERTANKO, we represent the interests of over 250 independent tanker owners from 45 countries operating more than 3200 crude oil, oil product, gas and chemical tankers. These numbers represent some 70% of the current World tanker fleet and close to 80% of the tanker fleet eligible for the INTERTANKO membership. INTERTANKO's work is dedicated to safety of tankers and to their environmental performance. INTERTANKO's various Committees develop best practices for use by its membership. We do support and assist IMO, Regional and National authorities when they develop regulations for shipping, and sometimes we do promote our own suggestions for regulatory improvement.

Back to the subject of this Workshop, let me say that ship design and ship building are very sophisticated processes. The product of this process, the ship is a system with a much more complex structure and with numerous and complex installations than any other means of transportation. Ships do transport goods but each ship is also "home" for the members of the crew who need comfort and associated facilities. Ships are exposed to adverse environmental conditions which they have to safely sustain because many times, unlike cars and aircrafts, there is no alternative to seek shelter. Ships also have to have onboard waste treatment

plants to avoid polluting the oceans as they have no alternative to pull over to the next gas station or to an airport terminal and deliver the waste. I believe it is important to mention all these because while people drive cars, take trains and often use aircrafts, almost no person outside the industry has too much of a clue about commercial ships.

I decided that the best way to respect the time limit and efficiently contribute to the debate is to answer and present our views on some of the selected questions which were addressed by the organisers. Any further details could be provided during the Q&A session.

Questions for Ship owners and operators

- What are the perspectives of ship owners and ship operators with respect to Green Growth principles and shipping?

Tanker owners are all supportive and actively involved in promoting measures which make tankers Greener. Due to the nature of the cargo, tanker owners have no alternative than being actively involved and actively promote safe and sound practices on both safety of the ship and its crew and for the protection of the environment.

Ship owners' and ship operators' collective annual fuel bill is over US\$ 200 billion and it represents 60% to 80% of ships' operational expenses. There is no question that they are all searching for means to reduce ships' fuel consumption. There is a myth that, for long-term contracts the cargo owner pays the fuel and therefore the ship owner has less interest in efficiency. This is completely wrong as the charterers have their own selection criteria and have an interest to choose the most efficient ship available.

Ship owners do their best to reduce fuel consumption through operational measures. Ships are run in trading pools which have successfully improved the logistics in terms of higher usage of each ship for cargo transportation. Two weeks ago, OCIMF and INTERTANKO launched a new initiative called Virtual Arrival. It is a cooperation between ship owner, cargo owner, terminal and port authority to run the ship at an economical speed by coordinating the ship's arrival time with the time the terminal is available to receive the cargo. That would save fuel and reduce CO₂ emissions without any impact on the market.

However, best efficiency improvements can be achieved through new and innovative design and technologies on new ships. Therefore, ship designers and ship builders would have a major responsibility for such achievement.

- Are there commercial advantages with green, environmentally-friendly vessels?

Yes, by all means. Fuel efficiency is a win-win for the ship owner's operational expenses and for the protection of the environment. In addition, a better quality and cleaner fuel will, on one hand be more expensive, but, on the other hand, will bring significant savings to quality of operations, significant reduction of onboard generated waste, less energy consumption as there is no need for onboard fuel treatment and opportunities for a radical improvement on engine efficiency. Retaining oil cargo's gas boil off (volatile organic compounds), which has 25 times greater impact as a Greenhouse Gas (GHG) than CO₂ is also a commercial benefit.

- How can shipping be further promoted as a "green" transport mode? (

Shipping is THE greener transportation mode. Promoting this fact requires that the industry itself has to present solid evidence of current achievements. The industry should also be in the driving seat promoting innovation and new thinking. It is exactly what the tanker industry does. All this comes at a cost (money and involvement) but "standing still" is not an option.

Progress will never come free of charge. By the nature of its meaning, progress implies improvement and improvement will eventually bring commercial benefits.

I prepared a couple of examples to illustrate the huge efficiency of the shipping industry. The examples do not intend to score against other means of transportation but to put things in perspective in layman's terms.

A regular car uses 1 liter of fuel to move a few persons and luggage for 20 km. A VLCC, uses one liter of fuel to move one tonne of cargo for 2,500 km, thus doing a useful work.

According to its manufacturers, Toyota Prius emits 89 grams of CO₂/km. A VLCC emits between 2.5 grams and 3 grams of CO₂ for moving a tonne of cargo one nautical mile which is close to 2 km. A VLCC is 47 times more energy efficient than Toyota Prius! Yet, there is no EEDI imposed on cars!!!

This remarkable performance is not an excuse to avoid improvements as we are often criticised. To the contrary, the industry continues to make efforts to improve such performances further. We hope that the examples given would help the society understand the level of tankers' current performance, the small margin left for further improvement and the efforts required to minimise the carbon foot print of shipping as related to the service the society expects ships to deliver.

- Should ship owners take the lead to demand greener ships, or should it be the role of shipyards to design and offer such vessels?

Ship owners' participation and involvement are necessary but the role of ship designers and ship builders is essential. Ship owners do promote innovative changes and experiment with different ideas and technologies but only manufacturers could raise the bar across the entire industry. There is a precondition for shipping to become Greener. Ships have to be designed and equipped with systems that make them fit for such a purpose.

Most ships are built today according to shipyards' designs. A number of sister ships are built in series which gives little room for modifications at ship owners' request. Consequently, ship owners are much less involved at the design stage as they were 30 or 40 years ago.

Ships have onboard a large number of engines and installations, each supplied by various manufacturers. Ships' environmental performance is very much linked to the quality and reliability of these systems. These installations are tested and approved by Classification Societies, a technical entity which is specific to shipping with no equivalence to car and aircraft manufacturing. Major activity of Classification Societies is to check and approve installations and equipment onboard ships on behalf of the Flag Administrations which ultimately approve that ships are fit for the performance required. Although the ship owner may be involved in choosing the installation and the manufacturer, it is not possible to predict the installation performance and reliability. Ship owners have to rely on the certificates issued by Classification Societies and by Flag Administrations.

All these details underline that a significant progress can be achieved through innovative and efficient ship design and by using quality onboard ship installations.

- Has there been dialogue between ship owners/ship operators and shipbuilders on building "green" ships (for example, the Maersk 3E vessels)?

Yes, ship owners, ship builders and classification societies have a continuous dialogue and cooperation for building better, safer and greener ships. We call this the "Tripartite Meeting"

which has been initiated since 2002. This cooperation has successfully defined and promoted excellent industry standards, some of them incorporated in the IMO regulations.

Ship recyclers

- *Should shipbuilders take account of the needs of ship recyclers?*

Yes, moving towards the use of less hazardous material at the design stage where possible, will assist the recycling industry in terms of health and safety.

- *What can ship recyclers do to minimise their own impact on their surroundings?*

We would suggest that the focus should be on the implementation and eventual adoption of the IMO's Hong Kong Convention which sets out the basic standards and principles for environmentally and sound ship recycling, providing clear standards for ship recyclers. Today's ships can already be recycled in a safe and environmentally sound manner. It just requires the application of safety and environmental standards of the Convention.

Labour

- *What perspectives do labour interests have with respect to the production, operation and recycling of green ships?*

From a ship crew perspective, less waste generation onboard means a cleaner and safer work environment. That includes minimising the amount of waste brought onboard in the first place.

SESSION 3: What are Green Growth “best practices”?

- *How can “best practices” be judged with respect to meeting Green Growth objectives in the shipbuilding sector?*

Green growth can be achieved through two main actions: greener ships through construction and greener ship operations. Best practices are key to improvements in both instances.

A few specific examples:

- Virtual Arrival developed by OCIMF and INTERTANKO – coordinating ship's speed with the necessary time of arrival at terminal as opposed to transiting at high speed and then waiting until the terminal is available for cargo operations.
- Tanker Energy Efficiency Management Plan (TEEMP) issued by INTERTANKO – a specific and practical guide for tanker operators to develop their SEEMP (Ship Energy Efficiency Management Plan) which may be required by IMO. The result is that, at charterers' request and guided by the TEEMP, most of the tanker operators have developed their energy efficiency management plans even before the IMO adopted the regulations. Actually, INTERTANKO members have used the EEOI since 2005 and all feedback received indicate savings by (a) simple monitoring of the fuel consumption and (b) various measures adopted by ships
- VOCON procedure – an operational procedure developed by INTERTANKO some 10 years ago which can reduce VOC loses into the atmosphere by 60% to 80% during transportation of crude oils at sea The operational concept has been further used by

manufacturers to develop automatic systems which improve the efficiency of the VOC retention even further.

- KVOOC – a modified loading system for cargo oil which also significantly reduced VOC emissions during the loading of the crude oil cargo.

Some of these examples can be included in the standard designs or retrofitted on existing tankers.

- What are the key measurements with respect to Green Growth responses (for example fuel usage, CO₂ and other emissions, use of recycling-friendly materials)?

Currently, there are different schemes developed by different entities to assess the environmental performance of ships. It is INTERTANKO's opinion that the shipping industry should consider a set of criteria which would efficiently make such an assessment. We hope this will be work in progress.

- Is there consistency between government expectations and industry responses?

Industry responds swiftly to sound regulations. Sometimes governments' expectations might be inconsistent with safe practices and sometimes regulations may increase the fuel consumption. All these aspects need to be clarified before the regulations are adopted. Also, the IMO standards for testing and approval of new equipment should become the norm and should be tailored to strictly check the performance of such equipment and its reliability.

- Are rules and regulations sufficient to deal with Green Growth, or does this also require a strong commercial imperative?

Regulations are required to achieve an even and fair enforcement of new standards. Commercial imperatives are important too, as they always move things through a fast track.

- From a Green growth perspective what is the relative ranking of jobs, economic growth, commercial results and environmental protection, and can these co-exist as compatible objectives?

In our views all are essential but, ahead of all should come safety of the ship and its crew. If safety is put at risk through environmental driven regulations, the net result will be detrimental to the environment.

As it comes to the economic growth, the society has to realise that shipping is simply a service provider which transports goods as required by the society. Shipping can do its best to improve its environmental performance through design, technology and operations but the level and intensity of its activity is ultimately dictated by the society itself.

- Does the "whole of life" concept offer a workable approach to deal with green ships, and are there sufficient incentives to encourage co-operation between various actors in the production, operation and recycling of vessels?

One essential element which needs to be revised is a holistic perspective between responsibilities and expectations of each of the stakeholders involved in ship building and ship operations. Ship builders, ship owners and classification societies have created the Tripartite Meetings as a vehicle to find solutions for efficient enforcement of various regulations. In addition, regulators, flag Administrations and port authorities have to better define their expectations and take into account all aspects and all responsibilities required so that enforcement of regulations are transparent, simple to understand and involve stricter

control. The best incentives are clear and predictable/stable regulations and clear assignment of responsibilities.

Conclusions

Although tanker operators' core business is transportation of oil and chemicals at sea, they are confronted with and involved in a large number of new design and construction standards and practices. Transportation of oil and chemicals at sea is safe and environmentally driven. There are good records to prove that the shipping has constantly improved its efficiency over the last four decades. We believe improvements are still possible, but, require new and innovative thinking. The key to success lies quite a lot in the hands of designers, ship builders, equipment manufacturers and other service providers, including class as the certifying body. Innovation and progress in car, truck, train and aircraft industries is entirely triggered by manufacturers. Ship operators also have an obligation to contribute to progress.

A good plan has to include all factual evidence, particularly the recognition that shipping provides a service and it is the society which determines the level of transportation at sea. Therefore, the new standards should be realistic and should be promoted through long term and predictable legislation. Legislation should call for verifiable and certifiable processes of activities and products for all stakeholders involved. It was interesting to listen to The OECD presentation indicating that the result of cutting all governmental subsidies of oil producing would be a 10% reduction of the total man made CO₂ emissions. This is 4 times the total CO₂ emissions from all international shipping. I am not taking sides on subsidies but this fact adds a lot to put things into the right perspective as with the number of factors which should be taken into the total equation.

No matter how things will evolve, our Members will continue to be aggressively proactive to promote best practices and best standards. Any other industry partner who will adopt a similar attitude will always have support from INTERTANKO.

Thank you very much for your attention.

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