

WORKSHOP ON GREEN GROWTH IN SHIPBUILDING

of the Council Working Party on Shipbuilding (WP6)

NORWAY – GREEN GROWTH IN SHIPBUILDING

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Environmental impacts of ship yard activities

The Norwegian government has adopted a maritime strategy with a vision is that the maritime industry, consisting of ship owners, ship yards, maritime service and equipments providers, RDI and educational institutions will provide the most innovative and environmentally friendly solutions for the future. In the strategy the environmental challenges are regarded holistically. The aim is to incorporate environmental considerations and green growth into all parts of the maritime value chain.

The Norwegian maritime industry has been described as one of the most complete maritime clusters in the world covering almost all segments of the international maritime value chain. In addition the maritime industry is closely interlinked with developments in the offshore petroleum and fishing and fish farming sectors. In shipbuilding the mutual interdependence between these sectors in Norway has resulted in the development of complementary and specialized skills and knowledge. This provides a strong technological basis also for Norwegian yards, which in an international context are relatively small and specialized. Increased environmental awareness and international environmental conventions, i.a. the IMO, have increased the demand for environmentally friendly solutions. Given Norway's international environmental commitments, and the growing market for maritime environmental technology, one of the main challenges facing the maritime industry is to develop technology that can reduce emissions in all parts of the maritime industry's activities.

The Government will contribute the Norwegian Maritime industry becoming the leading supplier of innovative and environmentally friendly solutions for the future. Environmental projects are therefore given priority in governmental R&D support programs available to the maritime industries through Innovation Norway and the Research Council of Norway.

At the request of the Norwegian Minister of Trade and Industry, the Norwegian maritime industry developed a holistic research and innovation strategy towards 2020 century, called "Maritime 21". The strategy emphasizes the importance of interaction between maritime policy, the education sector, existing knowledge and RDI infrastructure, as well as of commercial business development. The strategy is implemented by industry and research institutes through joint research projects partly financed by the Research Council of Norway and Innovation Norway.

With reference to report "Environmental and climate change issues in the shipbuilding industry", issued by the WP6 secretariat prior to the WP6 meeting 2-3 November 2010, Norway agrees that the climate challenges in the shipbuilding industry must be met by a life- cycle approach. The aim of which is to evaluate the environmental impact of the ship throughout its entire lifespan:

1. The time of construction, maintenance and repair,
2. The time of operation
3. The time of dismantling and recycling.

Accordingly, a life cycle approach requires excellent lines of communication and co-operation between ship designers, ship owners, ship builders, equipment suppliers, research environments and the authorities.

Construction, maintenance and repair

Construction, maintenance and repair of a ship is energy intensive and entails the use of a number of toxic materials, fumes and fluids. Due to their location, outdoor activities and their use of process equipment and materials, such as sand blasting and coating with anti fouling paint, ship yards have a potential for polluting the surrounding area (land, water, sediments and air. Reduced environmental impact in production processes is often connected to more efficient and reduced use of materials and energy. This will not only serve the environment but also reduce costs and create a win win result.

The cleansing of waste and pollution in shipyards from previous times is another difficult topic. In Norway the Climate and Pollution Agency (Klif) has surveyed the pollution status around ship yards,

with the purpose of doing clean up operations in high risk areas (on land and in sediments). In 2004 Klif mapped existing and disused shipyards in Norway, and the potential sediment contamination was considered. From over 5000 sites about 109 were prioritized for further examination and action programs are now being developed for the sites where a need for action was identified.

Operation

A ship has an operational phase of more than 20 years. This entails a need for developing future oriented environmentally friendly and safe ships. Ships must therefore be designed, built, equipped so that emissions, such as SO_x, NO_x, CO₂, particles, etc, are kept at a minimum and to the extent possible enable retrofitting of improved equipment. In order to achieve this it is essential that ship owners play an active role by ordering ships with environmental friendly specifications. In Norway the industry has taken measures to meet the environmental challenge. I.e the Norwegian Shipowners' Association has a zero-emission vision. This is an important and ambitious vision. The vision is linked to the development and use of new technology and efforts to put in place improved international emission rules that contribute to maintaining a level playing field.

In general there have been few incentives for the shipping industry to choose environmentally friendly solutions that exceed the present standards laid down in international regulations. Therefore international rules and regulations must continuously be improved through higher environmental standards. This will inspire ship owners to invest in new vessels and act as an incentive and create a market for the whole maritime community to develop environmentally friendly technology and solutions for use in vessels. Such rules and regulations are best achieved by global mandatory regulations through the United Nations specialized agency IMO- the International Maritime Organization (IMO). Norway has therefore, in close co-operation with other members, taken a leading position in developing higher environmental standards internationally through the IMO.

A number of new and improved regulations are already in place but awaiting entry into force. For instance Norway ratified the International Convention for Control and Management of Ship's Ballast water on March 29th 2007, thereby encouraging the maritime community to invest in new technology for cleansing ballast water. All technology to be used aboard vessels shall be certified. Prior to certification can be awarded, thorough tests shall be carried out in accordance with IMO specifications. The Norwegian Institute for Water Research (NIVA) has prepared a procedure with dedicated laboratories and cultivation systems to carry out the test. Several Norwegian companies, such as Norwegian Oceansaver and OptiMarin have developed a concept for the cleansing of ballast water.

Other means may also be utilized to encourage investments in green technology. Therefore in addition to the work on purely technical requirements, it is also useful to develop and adopt economic measures that will encourage investment in and operation of environmentally friendly solutions. The work on market based solutions regarding CO₂ emissions from shipping is one example in this direction. The introduction of "green port fees" where less polluting vessels are rewarded is another example already in use in some Norwegian and other ports around the world.

Increased environmental focus and concern among the customers of the maritime industry and shipping companies will also spur and reward improved environmental standards and performance. When calculation the ecological footprint of a product the contribution of maritime transportation will also be part of the equation considered. This trend will create more business opportunities for those who are able to meet the demand for more sustainable and environmentally friendly transport solutions.

On 14 December 2010, 15 Norwegian Business Organisations and the Ministry of the Environment signed a new Environmental Agreement on NO_x 2011–2017, which is a continuation of the 2008-2010 NO_x Agreement. Undertakings that are party to the agreement shall, as an alternative to paying NO_x tax to the government, pay a smaller fee to a fund operated by the industry. In parallel the NO_x

the fund will finance measures to reduce emissions of NO_x in accordance with a predetermined environmental target. The Agreement entered into force 1st January 2011, upon approval by EFTA Surveillance Authority.

Recycling

At the end of their operational lives ships are "scrapped" and recycled.

Recycling of ships involve handling and removal of a number of potentially polluting and harmful materials, as well as a risk of accidents and harm to workers. It is therefore essential that these activities are undertaken in a safe and controlled manner. Especially that the workers have the necessary competence and experience and are provided with protective equipment.

The ship recycling industry has a dubious reputation, mostly due to a lack of safety and environmental standards. Traditionally vessels have been sold often through middle men and to the highest bidding recycling facility. Often the recycling facilities yards have invested the minimal amounts in training, equipment and facilities. A very large proportion of vessels demolished today still end their life cycle on polluted beaches in South East Asia.

A normal practice has been to conceal the identity of the vessels before they reach the demolition yard in an attempt to protect the yard from disreputable recycling methods. The last days of a ship can be in stark contrast to its operating life, during which it receives the best care and maintenance whilst upholding all safety standards. With a little effort and the right choices, the situation can be very different.

Only a few of the demolition yards world-wide serving international shipping clients are of a standard considered acceptable according to modern regulations for safety and environmental standards. There are vast differences amongst the recycling yards in the most active countries.

This is why Norway, in close co-operation with other IMO members, has had a leading role in the work on the IMO Convention on Safe and Environmentally Sound Recycling of Ships (the Hong Kong Convention). The Convention regulates the use of hazardous substances in new buildings and applies to new buildings with keels laid in 2013. It applies to all the components of the ship, and requires manufacturers to minimize or completely eliminate harmful substances from their products. Any unavoidable residual substances must be entered in an Inventory of Hazardous Materials (IHM) issued by the shipyard based on declarations from its suppliers. The Convention is aimed at ensuring that ships, when being recycled after reaching the end of their operational lives, do not pose any unnecessary risks to human health, safety and to the environment.

The convention shall enter into force 24 months after the following conditions are met:

- no less than 15 states have either signed it without reservation as to ratification, acceptance or approval, or have deposited the requisite instrument of ratification, acceptance, approval or accession;
- the combined merchant fleet of these states constitute no less than 40 % of the GT of the world's merchant fleet;
- the combined maximum annual ship recycling volume of these states during the preceding 10 years constitutes no less than 3 % of the GT of the combined merchant shipping of these States.

It is difficult to predict its entry into force, but hopefully this will take place not long after 2015.