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PORT MANAGEMENT CHALLENGES IN ADAPTING ACTIVITIES TO NEW ENVIRONMENT REGULATIONS

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ABSTRACT

The primary challenge in the South-Eastern European ports and former industrial areas is to improve their competitiveness to the level of environment protection. Most shipping emissions in ports are estimated to grow fourfold up to 2050. In order to reduce these projected emissions, strong policies responses will be needed. The main output of this paper will be legislative recommendations, at a transnational and national level, on how to improve the freight transportation system around industrial hubs within the urban context.

Keywords: ports, management, environment, legislative recommendations

1. INTRODUCTION

The studies show that, in terms of CO2 emissions, the cleanest transportation means is shipping.

Nevertheless, pollution derived from maritime shipping activities still has significant implications for air or water quality and marine biodiversity.

In the last few decades other means of transport improved in order to protect the environment and their energy performance, becoming more environment-aware.

According to the Maritime Agency for Safety, the shipping sector also needs to become more sustainable. This sector should improve their activity in order to meet the requirements of the European and International legislation.

The European Commission, the Member States and the EU maritime industry have to work together towards the long term objective of 'zero-waste, zero-emission' maritime transport in line with European environmental and transport policy [2].

One of the most heavily regulated industries is the merchant shipping. Also that sector was amongst the first to adopt widely implemented international safety standards, that are developed at a global level.

Ports themselves should clarify their own policy regarding infrastructure development of the, regulation and incentivenes that will contribute to shipping emissions. With these instruments the ship emissions will be significantly reduced [4].

Being an international activity, shipping is subject to international regulations such legislation, crew competence standards, contruction standars etc.

Failure to comply with international regulations would compromise the efficiency of the world trade [1].

At the international level the shipping industry is regulated by the International Maritime Organization (IMO), based in London. Also, in London there are based other

institutions which are responsibile for the development of the labour standards (The International LAbour Organisation- ILO). They develop international standars applied worldwide.

The International Maritime Organization adopted a comprehensive framework of detailed technical regulations, as international diplomatic conventions governing the safety of ships and marine environmental protection. National governments that form the membership of the IMO should implement and enforce these international standards and ensure that vessels of their national flag comply.

The ratification and enforcement of IMO Conventions is generally very high compared to the international standards adopted for land-based industries [1].

As we are quickly approaching the turning point of a new decade, there is much speculation on what would be decided in terms of regulations imposed on shipping activity.

IMO Working Group has analyzed several future strategic opportunities to be introduced in order to combat maritime industry estimated share of 2.5% of the global emissions of greenhouse gases (GHG). This is a priority because, if measures are not taken, an alarming increase in the share of sector emissions by 50-250% could be achieved by 2050. While CO2 is a huge concern, the emission of other pollutants, such as nitrogen and sulfur oxides and particulate matter has been observed.

2. RECENT SITUATION

2018 was a significant year for environmental regulations. Important decisions have been made, the regulations have been finalized and we now have a clearer regulatory landscape than a year ago. In the last two years, the owners have dealt with monitoring, reporting and verifying EU regulations, focusing on CO2 emissions from ships 5000 GT and higher and crossing EU ports of call.

At the beginning of 2019, the IMO-DCS (Data Collection System) will come into effect. It comprises a three-step approach: first, there will be collecting and reporting data on fuel consumption for each type of fuel used on board. There will also be monitored further information on classes being (cred că acest cuvânt este în plus aici) and distance traveled. The data collected will be further analyzed and a decision will be made on the action to be taken [3].

This regulation will have a significant, worldwide impact, forcing all international trips made by large ships to be cleaner. Also, companies will need to develop and validate a SEEMP (Management Plan Ship Energy Efficiency) for each vessel to collect the data set and achieve annual reports to be submitted by the administration or any organization duly authorized by it.

One result of compliance is the issue of a declaration of conformity that the company should take on board and be valid for the calendar year in which it was issued and for the first five months of the following calendar year.

3. WHAT'S NEW TO COME

MEPC (Marine Environment Protection Committee) should develop and agree on an action program for the implementation of the initial strategy of IMO GHG forwarding of ships that have been adopted in April 2018.

An intersessional working group, met last October, MEPC 73, initiated this work and has already focused on some important points.

One problem, as I mentioned, is related to the reduction of the greenhouse gas emission ships. Policy measures on a short, medium and long term have been discussed and will be completed between 2018 and 2023 for short-term, between 2023 and 2030 for mid-term and beyond 2030 for long-term measures.

Another recent focus in the future will be linked to the emissions of sulphur. The application of a current lower limit of sul-

phur in fuel oil will enter into force from 1 January 2020 and is restricted to 0.5% according to the IMO MARPOL treaty in order to ensure improvements to the environment and human health [1].

Maritime transportation in the Black Sea has increased in the last years and requires suitable measures for safe navigation and environmental protection [9].

This restriction has a global coverage, so that the emission control areas (ECA) will be closer to the limit of 0.10%. Most boats are expected to use new fuel mixture that will be produced to reach the limit of 0.50% sulfur in fuel.

Currently, the maximum sulfur content in fuel oil is 3.50% globally (and 0.10% in four ACE). Inconsistent transport fuel tanks are prohibited unless the vessel has a cleaning system exhaust (eg "scrubber"). This last amendment will enter into force on March 20.

In April 2018, IMO agreed on a draft strategy regarding greenhouse gas emissions for shipments, requiring the maritime sector to reduce its emissions by at least 50% by 2050 as compared to 2008, while efforts are being made to remove them gradually as soon as possible. It was agreed that carbon intensity international transport should decrease its CO2 emissions for each paper transport, with at least 40% by 2030, and by 70% by 2050, as compared to 2008 [8].

This will be achieved through a set of measures agreed on a short, medium and long term basis of ongoing negotiations. Candidate term measures include strengthening energy efficiency requirements for existing ships (EEDI), speed and other technical and operational measures. CE Delft has analyzed the impact of the proposed short-term measures on emissions and concludes that only measures that modify operational practices (eg vessel speed), can be achieved by 2030. By themselves, technical measures or measures to remove market barriers carbon intensity will not improve sufficiently to achieve the overall goal of reducing energy intensity of transport by 40% by 2030.

In terms of NOx emissions, Tier III NOx requirements have entered into force in North America Emission Control Areas (ECAS) for ships built in January 2016. Essentially, anyone building a vessel must consider whether the ship will work - or at some point - will work in that area. If so, NOx control technology will be required for the vessel. In addition, MEPC 71 MEPC 70 adopted the agreement for the application level III NOx requirements for vessels operating in ECA sites North and Baltic Sea. This will apply to ships constructed on or after January 1, 2021 [3].

In the coming years, a revision of the energy efficiency design index (EEDI) is also expected, which will toughen the requirements for certain new vessels. Since MEPC 73 is expected to increase, reducing the baselines from 30% to 40% for ships containers since 2022, maintaining 30% for cargo ships General since 2022 and maintaining requirements and current calendar (2025) for tankers, bulk and all categories of Ro-RO.

Another concern for the coming years will be the control and management of the ballast water and sediments of the vessels using active substances. Emergency measures are expected to be included in the management plan [3] [1].

IMO has also started to discuss how to tackle littering plastic ocean shipping and developed an action plan in the context of the Sustainable Development Objective 14 2030 (SDG 14). The measures in the plan should be completed by 2025. The study is evaluating possibilities and adherence port reception facilities or facilitating delivery and recovery gear.

Despite these plans and numerous successive rounds of negotiations, IMO has failed so far to adopt mitigation measures to determine the maritime sector in a way compatible with the aims temperature of the Paris Agreement.

Design In-Dex energy efficiency (EEDI) IMO, approved in July 2011, is the first global standard design to reduce climate

change in shipping, applied to (almost) all new vessels and entered into force in 2013.

Various classes and sizes of ships will have different standards to meet. The standards are compared to the baseline values, determined as the average efficiency of vessels built from 1999 to 2009.

Phase I: A general objective of improving the energy efficiency of 10% of the vessels apply to new ships built between 2015 and 2019;

Phase II ships built between 2020 and 2024 will have to improve their energy efficiency by 15 to 20%, depending on the type of ship;

Phase III: The ships delivered after 2025 will be more effective with 30%;

Smaller Vessel efficiency requirements differ for each phase [1].

EU rules on monitoring, reporting and verification (MRV), agreed on in 2015, and implemented in 2018 require operators of all vessels over 5,000 gross tons calling at EU ports to monitor and publicly report annual emissions each year. Use three metrics that measure the environmental performance of ships: theoretical energy performance design of the ship as energy efficiency design index (EEDI) IMO; actual fuel consumption; and real operational energy efficiency, which is divided contained fuel transport to work (ie the amount of goods transported multiplied by the distance covered) [3].

The ship can carry more cargo using the same amount of fuel, thus being more efficient and cheaper. Publishing real-world energy efficiency of the ships will provide users of the shipping in Europe and worldwide transparent data to identify the most efficient vessels and practices. This can trigger a virtuous cycle of increased competition between operators and owners, leading to fuel savings and emission reductions. The MRV is intended to be a landmark regarding possible measures for current year emission reductions.

Should Shipping Be Included In The Emission Trading System?

In 2016, after the adoption of the MRV Regulation and the Paris Agreement, there was still no sign of global action at IMO meetings. This prompted the European Parliament to seek to include maritime transport system in the EU Emissions Trading Scheme (ETS), after the European Commission failed to include emission sector proposal to revise the ETS in phase four [2].

The proposal would include emissions of transfer of the ships on the EU ETS in 2023 if the IMO had not given a comprehensive agreement with short-term measures to reduce emissions from shipping until then - coinciding with the end of the activity GHG seven years IMO. According to the Commission's impact assessment in 2013, CO2 emissions can be cumulatively reduced by 80 million tons by 2030 - the total annual emissions of Austria - if the sector is included in the ETS.

Concerning air pollution from ships in October 2012, the European Council officially adopted the revision of the EU Directive limiting the sulfur content of fuels used by EU sea vessels. Since January 2015, ships have been allowed to use fuels with a maximum content of 0.1% sulfur, down from 1.5% previously allowed in the North Sea, the Baltic Sea and the English Channel. They could either use cleaner fuels, which are more expensive, or install reduction technologies, such as scrubbers. Read our information on this issue [8].

In parallel, other vessels operating in EU waters and around the world will be allowed to use fuels with a sulfur content up to 0.5% from January 1, 2020 (adopted by the IMO in 2016). Clean Shipping Coalition, has secured a seat on the steering committee overseeing the IMO fuel availability study. The study has analyzed whether or not there would be enough compliant content of 0.5% sulphur fuel available in the new standard in 2020, to start in 2020 or to delay it [7].

As part of the ongoing effort to improve the performance of the ship's propulsion and reduce fuel consumption there have been developed various energy saving devices to improve the flow near the propeller.

4. CONCLUDING REMARKS

Air and water pollution caused by the industry are significant environmental issues in each country. Manufacturing, chemical plants, and power plants rely heavily on burning fossil fuels, resulting in high levels of greenhouse gas and acid rain-producing sulfur dioxide. In addition to causing air quality problems, industrial runoff often ends up in the Danube river system, which makes the water there unsafe for drinking and damages the river ecosystems [6].

The Regulations described above are set to improve the shipping industry's environment profiles and will result in a significant decrease in emissions from vessels. Regulations, in particular the global sulfur cap for 2020, however, for owners, operators and charter will present new challenges to be taken into account and addressed carefully. These challenges also bring opportunities for existing and new market players and there are daily reports on the various positions taken in the preparation of 2020.

The port administration and port operators should find solutions to implement an industrial ecology regime. Adapting an eco-innovative solution should contribute to the number of additional partners and clients. This contributes to the increasing of the traffic volume and national turnover on the inland waterways transport [6].

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