



WHY WILL IMO 2020 SAVE FEWER LIVES THAN EXPECTED?

Pablo Rodas-Martini, Author of the Book “IMO 2020: A Regulatory Tsunami”

One of the aims of the International Maritime Organisation’s (IMO) 2020 regulation was to reduce morbidity and premature deaths due to sulphur oxides (SOx). The Finnish Meteorological Institute commissioned the study: “Health Impacts Associated with Delay of MARPOL Global Sulphur Standards.” The authors created two scenarios: “an ‘on-time’ implementation case, which assumed that the fuel oil standard goes into effect in 2020; and a ‘delay’ implementation case, which assumed that the standard is delayed until [January 1] 2025.” The results can be seen in Maps 1 and 2.

Map 3 shows the total additional premature mortality in 2020 in case the regulation was not entering into force on January 1.

DELAY SCENARIO

Using data from the World Health Organization (WHO) that estimated that

about 3.7 million deaths in 2012 were due to air pollution globally, the authors concluded that the delay scenario would imply that the shipping industry was going to be responsible for about 4-7% of all deaths due to air pollution in 2020. Contrary, in the case of the on-time scenario, deaths attributed to the shipping industry could be reduced by about two-thirds, adding to only about 1.3% of all deaths caused by air pollution. Regarding the geographical distribution, more than 90% of the additional deaths would have taken place in the Asia-Pacific Region (58%), Africa (22%), and Latin America (10%). The impact would be much lower for North America and Europe: only about 5%. The main reason for that asymmetry, despite that North America and Europe have some of the busiest shipping routes in the world, is the prevalence of sulphur emission control areas (SECAs) in those zones.

In the end, the three main conclusions of the study were: a) by implementing the cap on SOx, emissions for 2020 through 2024 were going to be reduced by about 8.5 to 8.9 million metric tons annually, b) the benefit would be felt mainly in coastal communities due to the reduction of ambient sulphate concentrations and, most important of all, c) the delay in implementing the cap reduction could cause about 570,000 premature deaths worldwide. Let’s never forget that such a reduction of premature mortality is the primary goal of the entire decision to proceed with IMO 2020.

IMPROVED PRECISION

In a later paper published in 2018 in the academic journal Nature Communications, the authors improved the precision of the figures. According to the new estimations, the entry into

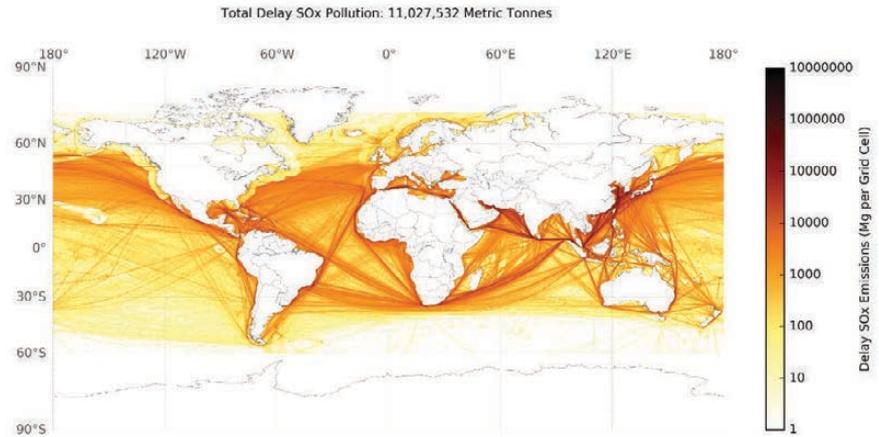
force of IMO 2020 (assuming the same levels for each year) would represent 685,000 fewer premature deaths rather than the 570,000 estimated originally for the period 2020-24. The number is 20% higher.

And the story's plot has an additional twist. Let's look at Map 4, which shows in gray the countries that have not ratified MARPOL Annex VI (the map is updated regularly by North P&I). The first impression is that most of the world will enforce the sulphur regulation: the yellow color is much more dominant than the gray. However, if we focus on the emerging and developing regions of the world, the result is dramatic because we realize that many of those countries have not ratified Annex VI, and consequently are not going to implement IMO 2020.

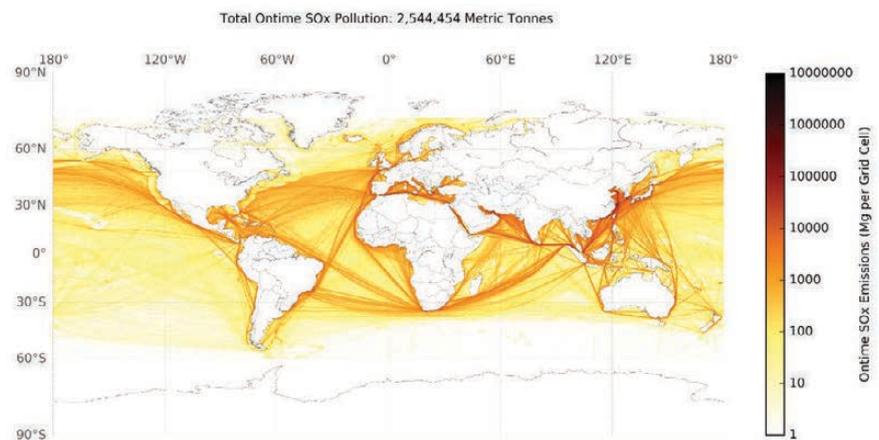
The countries in gray cover almost half of Latin American and Caribbean countries, most of Africa, nearly half of the Middle East, most of Indo-China, almost half of the countries of Oceania, Greenland, and a few additional pockets in the Balkans, the Caucasus, and Central Asia. We can certainly say that for many landlocked countries, the sulphur regulation is of little relevance but even if we focus only on those countries with coastlines, the list of "gray" countries is enormous. And some of those countries have extensive coastlines, which means that some of their inhabitants living in those areas could have benefited significantly if their governments had ratified the Annex. Indeed, the main shipping traffic does not involve most of those countries, but one had expected that these countries would have grasped the opportunity presented by IMO 2020—fewer premature deaths and less morbidity. That will regrettably not be the case. It is almost as if the regulation loses a significant part of its power because those emerging and developing countries (and New Zealand, an advanced country) have not ratified Annex VI.

NON-COMPLIANCE ISSUES

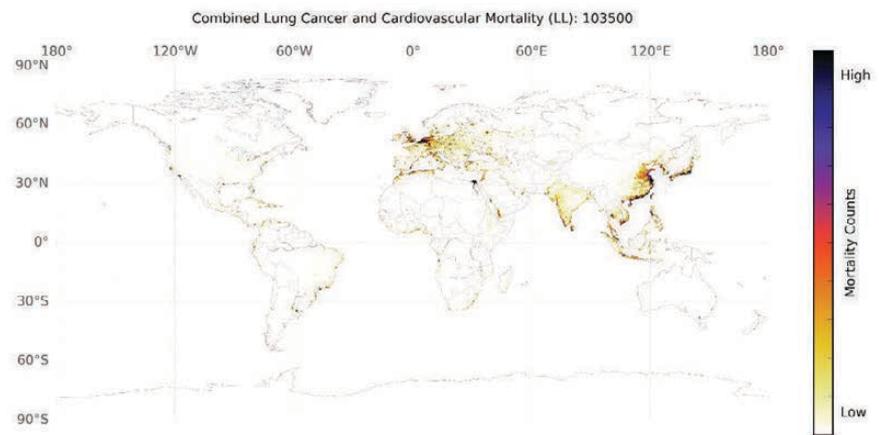
There is the additional issue of the countries that at some point during 2019 threatened not enforcing IMO 2020 for cabotage or river transportation (Russia, India, Indonesia, and the Philippines). IMO 2020 will be certainly be enforced on the main shipping routes. How can I say that IMO 2020 will be enforced while the high seas have always been considered a wild territory, in which anything may happen, from disposing of oily water through magic pipes to overfishing and piracy? First, I am referring to the main shipping routes, not to waters across all the oceans. Most of the traffic takes place



Map 1. Annual shipping inventories for SOX under the delay scenario for 2020



Map 2. Annual shipping inventories for SOX under the on-time scenario for 2020. (Source: Finnish Meteorological Institute)



Map 3. 2020 map of increased mortality from delaying MARPOL VI. (Source: Finnish Meteorological Institute)

along major and very well-identified shipping routes. Those routes connect industrialized countries or industrialized countries with emerging ones. A very impressive map by Marine Traffic shows those main traffic routes in detail (see Map 5).

DIVISION OF LABOR

Trade through the main traffic routes encompasses easily more than 90% of the cargo transported by sea, and that is the traffic I am referring to when I say that IMO 2020 will be enforced. The IMO may seem to be a bureaucratic and weak institution, but the truth is different. There is a perfect division of labor between the IMO and the countries: the IMO approves resolutions, and the maritime or port authorities of the member countries carry out the enforcement.

Will there be enforcement also in secondary shipping routes? Or will there be enforcement on cabotage along either coastlines or rivers? In the case of industrialized countries, with strict land regulations against air pollution and with competent enforcement agencies, I certainly can see a high degree of enforcement.

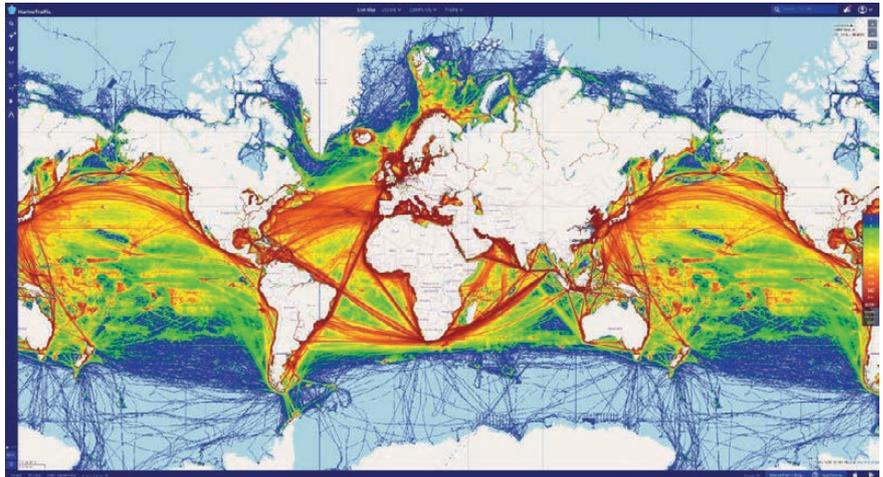
UNCERTAINTY AHEAD

In the case of many emerging and developing countries, however, the answer is more uncertain. Shipping companies will expect, in those cases, that the maritime authorities easily accept the fuel oil non-availability report (FONAR), in which captains will argue that they could not find the compliant fuel, or that the maritime authorities turn a blind eye. The reasons alleged for the possible non-enforcement range from mundane (national refineries have ample supplies of HSFO and it would be difficult to find an alternative market for the fuel), to technological (many refineries do not have cokers or the required equipment to crack the hydrocarbons of residual oils into VLSFO), to environmental (one mentioned exhaustively before the entry into force of SECA in the Baltic Sea was that shippers would replace maritime or river transportation by land transportation, therefore increasing air pollution rather than decreasing it) and ending with the most obvious—the economic (VLSFO would increase transportation prices).

The great paradox is that if we have a look again at Map 3, most of the expected reduction of premature deaths due to IMO 2020 is supposed to take place in countries like Indonesia and India. Will IMO later claim that IMO 2020 is avoiding more than 685,000 premature deaths across the world between 2020-24 while possibly



Map 4. Countries and territories that have ratified MARPOL Annex VI (Source: North P&I)



Map 5. Shipping traffic density map of the world. (Source: MarineTraffic)

one-fourth or one-third of that number were not saved because, in the end, some countries decided not to enforce the regulation in their internal waters and rivers?

CONCLUSION

In summary, the main conclusion of this paper is that IMO 2020 will save much fewer lives than expected due to two main reasons: a) many emerging and developing countries have not signed MARPOL Annex VI and consequently will not enforce the new regulation despite they were included in the health study of countries that could benefit with the regulation, and b) some emerging countries such as India or Indonesia that were supposed to benefit greatly from the health benefits of IMO 2020 threatened at some point with not enforcing the regulation in their territorial

waters (cabotage along the coastlines, cabotage between islands, and river transportation).

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ABOUT THE AUTHOR

Pablo Rodas-Martini is Senior Associate of SQ Consult, a Dutch company specializing in carbon markets and climate change. He is the expert in charge of shipping emissions, shipping decarbonization, and, in general, environmental issues for the maritime industry. Pablo has a Ph.D. and MSc from Queen Mary and Westfield College, University of London.