

Emission Reduction From Shipping And Net-Zero Shipping: Review On Southeast Asia Regional Policy

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1. Introduction

On October 24th, 1945, the United Nations (UN) was formally established after fifty countries made the decision to collaborate together during the United Nations Conference on International Organizations in San Francisco, California. A few years after UN began its operations, it established the International Maritime Organization (IMO) in 1948 to provide a means of cooperation among Governments relating governmental regulation and practices on all kinds of technical matters affecting shipping engaged in international trade; encouraging and facilitating the general adoption of the highest practicable standards in matters concerning maritime safety, efficiency of navigation as well as prevention and control of marine pollution from ships^[i].

The prevention and control of marine pollution from ships such as addressing greenhouse gas (GHG) emissions from ships has been undertaken by the IMO since 1997, where during the Conference of Parties to MARPOL 73/78 (the Air Pollution Conference), IMO has adopted a new Annex VI - Regulations for the Prevention of Air Pollution from Ships - to the Convention in order to reduce the contribution by shipping to air pollution^[ii].

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for ships in the MARPOL Annex VI where it stipulates the requirements on the Energy Efficiency Design Index (EEDI) and the Ship Energy Efficiency Management Plan (SEEMP). This regulation came into force in 2013^[iii].

By 2015, many countries had agreed to work together to limit global warming to well below 2 degrees Celsius and aim for 1.5 degrees Celsius, to adapt to the impacts of changing climate and to provide budget to achieve the target^[iv]. Thus, the Paris Agreement was born, and was adopted by 196 parties at the COP21 in Paris. The Paris Agreement also provides a framework for financial, technical and capacity building support to countries that in need of it. Today, we are witnessing some great progress taken by countries, regions, cities and companies throughout the globe to achieve the promised target.

2. Works on Emission Reduction From International Shipping

The International Convention for the Prevention of Pollution from Ships (MARPOL), as amended, plays a huge role because it was the first legally binding climate change instrument since the Kyoto Protocol for international shipping. While the Paris Agreement does not include international shipping, but since IMO is the regulatory body for the shipping industry, it is committed to reduce greenhouse gas emissions from international shipping. So, on 13th April 2018, IMO adopted Resolution MEPC.304(72) which is the initial IMO strategy on reduction of GHG emissions from ship, and committed to reduce at least 50% of GHG emission from international shipping by 2050 compare to 2008.

Since the adoption of the Initial GHG Strategy, in order to support their implementation, the IMO has approved a number of programs for short-term GHG reduction measures. These programs includes:

- *adoption of MEPC resolution to invite Member States to encourage voluntary cooperation between the port and shipping sectors to contribute to reducing GHG emissions from ships (resolution [MEPC.323\(74\)](#));*

- *approval of the Procedure for assessing impacts on States of candidate measures ([MEPC.1/Circ.885](#));*
- *further improvement of the existing energy efficiency framework with a focus on EEDI and SEEMP, in particular by adoption of the amendments to MARPOL Annex VI on the early application of the EEDI Phase 3 requirements for certain ship types, which will enter into force in April 2022 (resolution [MEPC.324\(75\)](#));*
- *adoption of the MEPC resolution on encouragement of Member States to develop and submit voluntary national action plan to address GHG emissions from ships (resolution [MEPC.327\(75\)](#)) - see submitted national action plans [here](#);*
- *adoption by MEPC 76 of amendments to MARPOL Annex VI on the short-term goal-based carbon intensity reduction measure setting out technical and operational energy efficiency measures for ships (EEXI and CII); together with approval of a comprehensive impact assessment;*
- *commissioning, oversight and approval of the Fourth IMO GHG Study 2020;*
- *initial development of life cycle GHG assessment guidelines by the Intersessional Working Group on Reduction of GHG Emissions from Ships (ISWG-GHG) – [read more here](#);*
- *initial consideration of other candidate measures listed in the Initial Strategy, including proposal for the establishment of an International Maritime Research Board to coordinate and oversee R&D efforts; and*
- *continued and enhanced technical cooperation and capacity-building activities, including the establishment of a voluntary multi-donor trust fund to sustain the Organization's technical cooperation and capacity-building activities to support the implementation of the*

Initial Strategy ("GHG-TC Trust Fund").

The recent updates on GHG emission reduction were made at the MEPC 78 which was held remotely from 6 to 10 June 2022. In brief, the outcomes of the meeting under the GHG emission reduction from ships was: a) the finalisation of technical guidelines for the upcoming Energy Efficiency Design Index for existing ships (EEXI), Carbon Intensity Indicator (CII) and Ship Energy Efficiency Management Plan (SEEMP) regulations which will come into force in 2023; b) the approval of a proposal for Mediterranean Sea as a sulphur emission control area (SECA); and c) further discussions on the revision of the IMO GHG Strategy which has been scheduled for 2023.

Apart from the above, there was also an extensive discussion on potential mid and long-term measures during the intersessional meeting held two weeks prior to MEPC 78. The mid and long-term proposals for various market-based measures are:

1. a levy system based on absolute well-to-wake GHG emissions;
2. a levy system based on CII performance;
3. a levy system based on absolute tank-to-wake CO₂ emissions; and
4. an emissions cap-and-trade system, which is similar to the European Union Emissions Trading System (EU ETS).

Discussion on these market-based measures proposals will continue during the intersessional meeting prior to MEPC 79. The proposed market-based measures which are the levy system and the Cap-and-trade system were intended to accelerate the reduction of the total annual greenhouse gas

emissions by at least 50 per cent by 2050.

As reported by the United Nations Conference on Trade and Development (UNCTAD) in its annual 2021 report, over the last decade, shipping has become more energy efficient, so the total emissions have grown slower as compared to the total number of vessels. However, the report did emphasise that **the improvement will not suffice** to meet the emission targets and the agreed objectives of the IMO.

To accelerate the GHG emission reduction, the United Kingdom had announced £206 million to establish UK Shipping Office for Reducing Emissions, or UK SHORE^[v]. This is a world-leading initiative showcasing climate leadership and to decarbonising maritime, fulfilling the UK's COP26 commitment. The example shown by the UK government, is definitely amazing where having a governmental firm support through policies and incentives are crucial in facilitating the journey towards net-zero shipping.

3. Shipping in Southeast Asia

Southeast Asia is blessed with a strategic location that sees high trading and shipping activities throughout the whole year. In 2017, DNV.GL reported about 29,630 ocean-going ships had operations in, or transit through, the ASEAN region, consuming about 35.1 million ton of oil equivalents. In the same report, it presents an overview of emissions by ship types for the ASEAN region, and the key finding is CO₂ emissions are found to be 111.9 million tonnes, representing about 14% of the global ship emissions. The emissions of NO_x and SO_x are 2,320 and 1,730 Kton, respectively; where else the emissions of PM₁₀ and PM_{2.5} are 214 and 194 Kton, respectively.

The number of ships reporting to the Mandatory ship Reporting System in the Straits of Malacca and Singapore (STRAITREP)^[vi] from 2017 until 2021, as reported by the Marine Department of Malaysia, is decreasing year after year, it became worse during the COVID19 pandemic. In 2021 alone, the number of ships reporting to STRAITREP was only 78,317 ships, down by -7.84% as compared to 2017. The downtrend pattern of ship reporting to STRAITREP probably provides a positive indication

should we were to look at it from the environmental point of view, since less shipping activities will result in less fuel consumption, which leads to lower air pollution. However, less shipping activities in the region could also bring a negative impact on the economics of a country. In Malaysia for example, it was found that less shipping activities as indirectly causes an increase in the cost of living[vii].

4. Southeast Asia Policy on Emission from Ship

The regional cooperation in Southeast Asia began in 1967 when five leaders of Indonesia, Malaysia, the Philippines, Singapore and Thailand gathered in Bangkok, Thailand and signed a document. By virtue of that document, the Association of Southeast Asian Nations (ASEAN) was born[viii]. Today, the ASEAN member states consist of Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam.

Up until 2021, only Indonesia, Malaysia, Philippines, Singapore, and Vietnam have ratified MARPOL Annex VI, which means, half of ASEAN member states have yet to ratify the Convention. To understand further on ASEAN policy on GHG emission from ships, observations were conducted on the documents produced by ASEAN, such as;

1. ASEAN Community Vision 2025;
2. ASEAN Plan of action for energy cooperation (APAEC) 2016-2025;
3. ASEAN Economic community Blueprint 2025;
4. ASEAN Political Security Community Blueprint 2025; and
5. ASEAN Socio Cultural Community Blueprint 2025;

From the observations made to the documents above, the ASEAN Transport Strategic Plan, also called the Kuala Lumpur Transport Strategic Plan (KLTSPP), which has the element of Sustainable Transport and GHG emission from transport sector, was developed with aims to support the realisation of the vision of the ASEAN Economic Community (AEC) 2025. The vision calls for a deeply integrated region that will contribute towards a highly cohesive ASEAN economy^[ix]. In this regard, the Kuala Lumpur Transport Strategic Plan (KLTSPP), which serves as a guiding regional policy document, outlines 30 specific goals, 78 actions and 221 milestones in the areas of air transport, land transport, maritime transport, sustainable transport and transport facilitation but it does not specify policy on GHG emissions reduction from shipping.

In the case of Malaysia and as a member to ASEAN, the design of Malaysia National Transport Policy is very much influenced by the ASEAN Transport Strategic Plan. The Ministry of Transport (MOT) Malaysia has collaborated with various members of government, academia and private sector through series of focus group discussions, technical meetings and workshops since September 2016 to produce the National Transport Policy (NTP) covering land, air dan water transport and is anchored on the principle of sustainable transport. Again, the policy on GHG emission reduction from shipping was not emphasised.

Acknowledging that there is a gap in the policy, and a need for additional standards and regulations relating to environmental protection in the maritime transport sector, Malaysia, as a party to UNCLOS, is obliged to perform its duty as a flag state, port state & coastal state. Malaysia being a member state to the IMO, is also committed to supports IMO commitment in reducing GHG emission from shipping. To do so, Malaysia participated in the Green Voyage project in 2021 and currently undertaking legal and policies reforms towards effective implementation of MARPOL Annex VI as well as developing its own National Action Plan (NAPs).

5. Conclusion

The emissions from ships have been slower over the years compared to the number of ships,

however, as reported by UNCTAD 2021 the current work is not sufficient to meet the IMO-agreed target of reducing emissions from international shipping by at least 50% by 2050 compared to 2008. Individual countries, especially the developing countries in ASEAN are encouraged to accelerate the emissions reduction from ship by ways of domestic legislation, policies or participating in an international project such as GreenVoyage2050, hence, it is strongly recommended that all ASEAN members to ratify MARPOL Annex VI.

Cooperation between countries in the same region is feasible to accelerate the reduction of emissions from ships. The Regional Cooperation among the Countries of Southeast Asia are therefore requested; a) to develop a policy on emission reduction from shipping; b) to develop a Regional Action Plan to achieve net-zero shipping; and c) to protect the well-being of the people in Southeast Asia, whom are affected by the air pollution from ship in-line with the ASEAN join statement on climate change to the UNFCCC COP26.

[i] <https://www.imo.org/en/About/HistoryOfIMO/Pages/Default.aspx>. The Organization is also empowered to deal with administrative and legal matters related to these purposes.

[ii] Resolution A.963(23), IMO Policies and Practices Related to The Reduction of Greenhouse Gas Emissions from Ships.

[iii] Amendments to the Annex of The Protocol of 1997 to amend the International Convention for The Prevention of Pollution from Ships, 1973, As modified by the Protocol of 1978 relating thereto, Resolution MEPC.203(62).

[iv] Article 2 of Paris Agreement 2015, aims to strengthen global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty.

[v] <https://www.gov.uk/government/news/dft-launches-uk-shore-to-take-maritime-back-to-the-future-with-green-investment>

[vi] <https://www.marine.gov.my/jlm/admin/assets/uploads/images/contents/20220518085326-c4f11-01-statistik-laman-web-april-2021-.pdf>

[vii] <https://www.worldbank.org/en/country/malaysia/publication/aspirations-unfulfilled-malaysias-cost-of-living-challenges>

[viii] <https://asean.org/about-asean/the-founding-of-asean/> The five Foreign Ministers who signed it – Adam Malik of Indonesia, Narciso R. Ramos of the Philippines, Tun Abdul Razak of Malaysia, S. Rajaratnam of Singapore, and Thanat Khoman of Thailand

[ix] The [AEC Blueprint 2025](#), adopted by the ASEAN Leaders at the 27th ASEAN Summit on 22 November 2015 in Kuala Lumpur, Malaysia. ASEAN's leadership has published its 2016-2025 ASEAN Strategic Transport Action Plan

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