
Navigating the Seas of Climate Change: The Asian Shipping Industry Response to Cop26 and the Way Forward

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Abstract

The 26th Conference of the Parties (COP26) of the UNFCCC held in Glasgow, Scotland in October–November 2021 saw the emergence of several resolutions to limit global warming by 1.5 degrees Celsius. This also resulted in declaring the 2020s as the decade of Climate action and Support. The international shipping industry presently accounts for around 3% of the global GHG emissions which is higher than the percentage share of many countries. Given the ‘hard-to-abate’ nature of this industry, it is important to recognize and comply with the regulatory and practical steps laid down by COP 26 and IMO. The Asian shipping industry of China, Singapore and South Korea specifically, must strive to offer solutions to this problem given that they are home to the world’s major shipping container ports as well as major contributors to GHG emissions. The aim of this paper would be to analyse the response of IMO and the shipping industries of China, Singapore and South Korea in light of the various outcomes of COP26. Thus, this paper addresses the associated legal and regulatory challenges and focus on solutions for the Asian shipping industry to comply with the resolutions of the COP26. The paper concludes with detailed recommendations for the stakeholders in the Asian shipping industry to adopt green-shipping technologies and make amendments to their regulatory framework in order to become conformant to the COP26 outcomes and resolutions.

Keywords: COP26, Decarbonisation, GHG, Green-shipping, Net-Zero

Introduction

As the 26th Session of the UNFCCC Conference of the Parties (COP26) held from 31st October-12th November, 2021 concludes in Glasgow, Scotland, UK, its domino effects are seen across various sectors including shipping that accounts for over 3% of the global Greenhouse Gas (GHG) emissions. This has resulted in the need for major reforms to reduce GHG emissions in the shipping industry to gain momentum more than ever.

The need to reform the international shipping industry has also accelerated due to the recent realisations that occurred globally in the last year owing to major events like the Evergiven case and the X-Press Pearl disaster. As the global supply chains were affected the worst owing to the former incident, environmental concerns were fuelled to another level owing to the latter one. This dual importance of the shipping industry in terms of promoting international trade (Piñeiro et al., 2021) and combating environmental concerns has raised the interests of many stakeholders.

It thus becomes imperative to discuss the Asian shipping industry’s response to COP26 in light of the past and present initiatives by nations for fighting climate change since it is home to the world’s major shipping container ports nations namely, China, South Korea and Singapore (World Shipping Council, n.d.).

The 21st Session of the UNFCCC Conference of the Parties, more popularly known as the Paris Agreement was the first international climate treaty that sought efforts to reduce GHG emissions by keeping the worldwide temperature from rising 2 degrees Celsius above the preindustrial levels (UNFCCC, 2015). Though aspirational in nature, the excitement surrounding this agreement fell down the drain as many nations failed to submit their respective plans to combat climate change called the Nationally Determined Contributions (NDCs).

As this failure doomed nations, the Intergovernmental Panel on Climate Change (IPCC) Special Report, 2018 (Special Report) (IPCC, 2018) on the future impacts of global warming came as a wakeup call. The Special Report highlighted that the global temperatures would hit 1.5 degrees Celsius between 2030 and 2052 if global warming continued to increase at the current rate. However, it also came as a beacon of hope as it suggested a mandated “rapid and far-reaching transitions in energy, land, urban and infrastructure (including transport and buildings), and industrial systems” (IPCC, 2018) in order to cap the global warming at 1.5 degrees Celsius.

Consequent to this, the International Maritime Organisation (IMO) held the 76th Meeting of the Marine Environment Protection Committee (MEPC76) from 10th-17th June, 2021 virtually (IMO, 2021). This meeting

introduced and amended existing shipping regulations to address the growing concerns related to GHG emissions caused by this industry (IMO, 2021). Some key outcomes of MEPC76 like the introduction of Energy Efficiency Existing Ship Index (EEXI), Carbon Intensity Indicator (CII) and amendments to the International Convention for the Prevention of Pollution from Ships (MARPOL) Annexure VI were noteworthy developments in the direction of future shipping-related measures to combat climate change (IMO, 2021).

In addition to this, with the Special Report in the background indicating the urgency of reducing the current GHG emissions, almost 200 countries participated in COP26 to form concrete climate action plans for reaching the net-zero target by 2050. The Pre-COP26 meeting held in Milan, Italy from 30th September-2nd October, 2021 further discussed the expectations of the participating nations which ultimately crystallized into the outcomes of COP26 later in the year (UNFCCC, 2021).

A noteworthy development was that immediately after this conference, the IMO held the 77th Meeting of the Marine Environment Protection Committee (MEPC77) from 22nd-26th November, 2021 virtually (IMO, 2021). The parties in this meeting adjusted targets in line with the Paris and Glasgow Climate pacts and revised their 2018 strategy for reduction of GHG emissions (UK P&I Club, 2021). This meeting also contributed towards the introduction of Guidelines for Exhaust Gas Cleaning Systems, 2021 (EGCS), uniform interpretation for Ballast Water Management (BWM) Convention Regulations and greater emphasis on reduction of plastic litter and black carbon emissions from ships in the Arctic (ABS, 2021).

However, both COP26 and MEPC77 have been subjected to various criticisms and more emphasis has been laid on the need to make the international shipping industry accountable for the reduction in GHG emissions. This assumes even greater importance in the light of the dual importance of this industry with international trade and environment-based linkages as discussed previously. With this understanding, this research paper would seek to analyse contemporary literature on the Asian shipping industry's efforts to combat climate change and focus on IMO's response towards achieving the net-zero target by 2050. Furthermore, certain recommendations would be presented as solutions to minimise the gap between the above-mentioned international climate action treaties and existing actions taken by this industry.

Review of Literature and Need Analysis

An industry-wide shift to clean energy and decarbonisation requires clarity of the longevity and sustainability of the energy itself. Keeble L. et al., (2021) explored the challenges of the shipping industry in moving towards clean energy sources like LNG despite the keenness of the financiers to encourage such a shift in line with the Poseidon principles. This is proposed to be mitigated through government funding of research and innovation into clean energy alternatives for the shipping industry specifically along with the legislative amendments to push for greater transparency in the environmental, social and governance aspects of the industry.

Landauer S. & Kortlander L., (2021) explored other forms like Green Bond Principles (GLPs) and Sustainability Linked Loan Principles (SLLPs) to deal with the sustainability challenge but stated that it must be combined with stricter clauses in loan agreements. They do not however, address the kind of regulatory and legislative amendments or technological innovations which could achieve this transition for the shipping industry.

Bush D., (2022) analysed the multitude of aspects related to shipping and decarbonisation from different perspectives by various scholars. He argued that even though greater significance has been laid on the adoption of alternative green fuels like LNG and ammonia, their reliability in terms of use has not been tested before and thus poses an unprecedented challenge for the shipping industry. It has been anticipated that these safety concerns in the light of lack of systematic overview of data along with the element of human error during transit would induce the severity of long-term risks in this industry. In order to remedy this, the article suggested recognising the importance of sea-farers in avoiding accidents on high seas as regulatory systems attain more complexity.

As many countries deploy different measures to meet their set of targets for achieving the net-zero, stakeholders look for brighter options to access finance. In this regard, 'green-financing' has become both a priority and solution for them (Ring S., 2021). With respect to this, the emergence of Poseidon Principles has been credited with increasing the benefits for the shipping industry by establishing linkages between ship-financing and decarbonisation. However, the article also argued that these principles would be left redundant in the long-term if the real-time changes with respect to emissions are not recorded. Hence, the article suggested an 'automated carbon screening of vessels and transaction', in order to achieve the long-term objective of aligning ship-financing with decarbonisation.

While numerous sustainability initiatives have come at the shipping horizon, concerns regarding shipping delays have also been raised. This is because as norms and regulations tighten, there exists a further increase in the number of compliances for this industry. For targeting this, this article suggested that compliances must be streamlined in order to benefit all stakeholders (Ring S., 2021). With many targets for the reduction of GHG emissions in the backdrop, it is suggested that the streamlining of compliances would help the private players in meeting various domestic and international compliance requirements and also help them in efficiently utilising working capital by using green financing for their operations. This requires a further study into the legal

framework that is able to streamline such compliance requirements for the industry which has not been dealt with.

Although there is a need to opt for alternative energy sources for ship-fueling as the long-term solution to achieve the transition of this industry towards decarbonisation, the economic risks associated with making premature investment in research & development of alternative energy sources while the regulatory ecosystem remains indecisive is the major risk for shipping industry (Dbouk W., 2021). In order to reduce or eliminate this risk, the IMO's efforts have been called into question as its decisions have been regarded as "slow-paced". The various outcomes of COP26 have been appreciated for their decarbonisation efforts, but concerns regarding IMO's efforts to regulate decarbonisation in the shipping industry have been expressed. The political deadlock caused due to the "consensus-based approach" of the IMO has been argued to be the major factor behind this failure. In this light, the article proposed "industry-led cross-sectoral coalitions" as the solution to deliver on the net-zero commitment set in COP26.

Towards this end, the use of various market-based measures that could be employed by the IMO for reducing the GHG emissions from international shipping industry has been extensively discussed by Psaraftis H. N., 2012. In this regard, the European Union has also taken various steps towards implementation of market-based measures and included shipping under its Emissions Trading System to achieve decarbonisation (Hoyland R., 2021). This measure has been drawn in strong contrast with the absence of any such a measure by the IMO. It has also been laid down that 50% of the revenue generated by this move of the EU would be contributed towards the 'Maritime Transport Decarbonisation Fund' for promoting and supporting the decarbonisation of shipping industry. However, there has been much uncertainty regarding how this market-based measure by the EU would be made applicable to a multitude of stakeholders involved.

In contrast, a similar response is missing from the Asian shipping industry. While flag vessels of developing nations constitute three quarters of the entire maritime commercial fleet (Shi. Y, 2014), they have expressed the greatest resistance to the measures implemented by IMO to bring accountability in the CO₂ emissions of the shipping sector. After debating the regulatory powers of the IMO in contrast with that of UNFCCC's Kyoto protocol, the author suggested the "Common but Differentiated Responsibility" approach to be the most in line with international jurisprudence and as such would need to collaborate with other international institutions to create and enforce any market-based measures. While the IMO enjoys the support of most Asian countries, they require a greater burden to be placed on developed countries which have more significantly contributed in the current environmental scenario. Another area of resistance expressed specifically by the Chinese industry is the non-recognition of CO₂ and other GHGs as pollutants and hence being outside the scope of shipping regulation. The EEDI benchmark is considered as a trade restrictive measure by the Asian industry and market-based measures as unnecessary.

Doelle M. and Chircop A., (2019) analysed the efficacy of the EEDI in meeting the requirements of fuel transition and improving technical and operational efficiency. They identified the lack for appropriate incentivisation and specific measures to ensure implementation of the IMO's MEPC strategies. While many developing nations of Asia have supported the strategies on the face of it, it has been watered down in execution. An empirical study of the carbon performance in shipping cities of China (Chen, Z. et.al., 2020) discussed the role of the government in providing incentives in the development of a low-carbon industry, and the requirement for stable internal and external governance environments. Monacelli, N. (2017) investigated the impact of cold-ironing in ports to reduce carbon emissions and identified that some of the largest ports in the world situated in southeast Asia including but not limited to China, Singapore and South Korea do not implement such cold-ironing techniques or policy for vessels docking at the ports.

Hence, the current paper would explore the response of the Asian shipping industry primarily that of the major shipping container ports of the world situated in China, South Korea and Singapore (World Shipping Council, n.d.) and suggest concrete amendments to the measures undertaken by the Asian shipping industry in order to comply with the COP26 targets.

Cop26 Outcomes

The COP26 laid down a series of significant outcomes towards transforming the international shipping industry into a green one. These various initiatives undertaken by key stakeholders of this industry have raised hopes for its easier decarbonisation and successful attainment of net-zero levels by 2050 and have been explained below.

A. Call to Action for Shipping Decarbonisation

The "Call to Action for Shipping Decarbonisation" formed by an industry-led task force was convened by the Getting to Zero Coalition, which in turn is a partnership between Global Maritime Forum, World Economic Forum and Friends of Ocean Action (Unifeeder, 2021). This task force urged the industry stakeholders to ensure their respective commitments to decarbonisation of shipping by 2050, assist in zero-emissions shipping projects via national action and introduce and implement policies in order to achieve this by 2030 (Global Maritime Forum, 2021).

B. Clydebank Declaration for Green Shipping Corridors

Under this declaration, recognition was given to the need to establish 6 green corridors in 22 signatory states between their two or more ports by 2025 (Dbouk, 2021). This declaration seeks to achieve collaboration between ports, shipowners, investors, customers and energy suppliers so as to develop green technology for shipping and develop more such green corridors by 2030 (Dbouk, 2021).

C. Declaration on Zero Emission Shipping by 2050

Another outcome of COP26 was the declaration signed by 14 countries in order to garner support from IMO for prompt action to achieve zero-emission shipping by the year 2050 (Safety4Sea, 2021). An interesting note in this regard however, is that this declaration has not been signed by any Asian countries including China, Singapore and South Korea.

D. Global Methane Pledge

Since methane is a GHG that contributes to about half of the net rise in average temperatures globally, the 'Global Methane Pledge' aims to develop strategies for keeping the objective of reducing global warming to 1.5 degrees Celsius within reach (Global Methane Pledge, 2021). Though this pledge sees participation from both Singapore and South Korea, it is surprising to note that China has not participated in this, considering that it is the largest carbon emitter in the world (BBC, 2021).

E. IMO Maritime Research Fund

The idea of establishing the 'IMO Maritime Research Fund' was proposed by the International Chamber of Shipping with an aim to raise funds for developing green technologies for the shipping industry (Asprou, 2021). This 5-billion-dollar fund managed by IMO would be financed by ship owners globally through a mandatory contribution of 2 dollars per tonne of fuel consumed (Habibic, 2021). However, this is yet to materialise as its approval remains pending by the IMO (Habibic, 2021).

F. Glasgow Financial Alliance for Net Zero (GFANZ)

The Glasgow Financial Alliance for Net Zero (GFANZ) was introduced by Mark Carney and COP26 Private Hub in collaboration with UNFCCC Climate Action Champions and 'Race to Zero' campaign in 2021 (GFANZ, 2021). This alliance consisting of major financial institutions seeks to develop green financing initiatives for achieving the target of net zero emissions (GFANZ, 2021).

G. Just Transition Maritime Task Force

The 'Just Transition Maritime Task Force' was established during COP26 for protecting the maritime workforce from transition to green-shipping and ensure development of their green skills (ICS, 2021) along with recommending policies especially for developing countries for an equitable transition towards decarbonisation (Cattani, 2021).

H. Global Carbon Levy Proposal

In a first for any industry, the International Chamber of Shipping (ICS) had proposed a 'Global Carbon Levy' in the shipping industry to keep the carbon emissions in check (ICS, 2021). This market-based measure would be levied on mandatory contributions by ships exceeding 5000 gross tonnages for every tonne of carbon emitted and would in turn be transferred to an 'IMO Climate Fund' that would offer solutions to bunkering and green fuel-pricing related problems in international shipping (ICS, 2021).

IMO Response to Cop26

In addition to the climate action events introduced by the UNFCCC, the response of IMO in the form of meetings of the MEPC is crucial for the shipping industry. These meetings gain importance as they set certain standards and targets specific to the international shipping industry dedicated to the cause of reducing GHG emissions from this sector. In this regard, the Initial GHG Strategy of IMO adopted at the 72nd MEPC in London along with the recently concluded 76th and 77th sessions of MEPC are pivotal in assessing the response of this international organisation towards COP26.

In its 72nd session (MEPC 72) held from 9th-13th April, 2018 in London, UK, the IMO adopted resolution MEPC.304 (72) titled 'Initial IMO Strategy on reduction of GHG emissions from ships' (UNFCCC, 2017). As part of this resolution, the organisation set certain standards for reducing GHG emissions from the shipping industry for the first time (IMO, 2018). A set of various short-term, mid-term and long-term measures with respective deadlines were identified by the participating states to reduce GHG emissions from the international shipping industry by at least 50% by the year 2050 as compared to the 2008 levels (IMO, 2018). As part of these

measures, improvements in Energy Efficiency Design Index (EEDI) and Ship Energy Efficiency Management Plan (SEEMP), establishment of International Maritime Research Board (IMRB), formulation of emissions reduction measures including market-based ones and the shift towards greener fuels were elaborated (IMO, 2018).

An interesting point with regards to this strategy was the responsibility that IMO drew upon itself for reduction in GHG emissions as identified in the 2015 Paris Agreement despite the fact that this agreement did not include 'shipping' within its ambit. This type of proactive response from the IMO reflected its commitment towards climate change mitigation and also signified its importance for future climate change-related measures in international shipping that was depicted in MEPC 76 and 77.

In its 76th session (MEPC 76) held from 10th-17th June, 2021, the IMO adopted a series of short-term measures to reduce GHG emissions from international shipping in line with its Initial GHG Strategy, 2018 (IMO, 2021). As part of these measures, certain amendments were adopted to the International Convention for the Prevention of Pollution from Ships (MARPOL) Annexure VI for developing the energy efficiency of ships (IMO, 2021). In line with this, the committee mandated all ships to calculate their Energy Efficiency Existing Ship Index (EEXI) and build an annual operational Carbon Intensity Indicator (CII) and its corresponding CII rating (IMO, 2021).

Under the EEXI, existing ships would be rated for their energy efficiency depending on their design from A to E, with A denoting the best energy efficient ships (Meadows, 2021). Moreover, it was proposed for the stakeholders in this industry including administrations and port authorities to provide incentives to ships rated A and B while it was mandated for the ships rated D for three successive years and E to submit a plan laying down the actions for achieving a higher rating (Meadows, 2021). The CII indicator on the other hand, would depict the GHG emitted for a certain amount of cargo over a particular distance covered by a ship (IMO, 2021). It was also decided to review the effectiveness of both the EEXI and CII measures by 1st January, 2026 (IMO, 2021). In tandem with the CII, ships would have to meet a reduced carbon intensity target, aiming for a 5% reduction in 2023 to an 11%-22% reduction in 2027-2030 (Meadows, 2021). Moreover, MARPOL Annexure I was amended in this session (IMO, 2021) by approving Regulation 43A for prohibiting the use and carriage for use of heavy fuel oil (HFO) as fuel by the ships in Arctic waters on and after 1st July, 2024 (Yang, 2021).

In the recent 77th session (MEPC 77) held from 22nd-26th November, 2022 right after COP26 in the UK, the IMO adopted further measures in order to achieve the goals of its Initial GHG Strategy, 2018 (Tan, 2021). First such measure was the establishment of a 'Correspondence Group on Carbon Intensity Reduction' for finalising and updating the guidelines regarding EEXI and CII as laid down under MEPC 76 (Tan, 2021). Moreover, in furtherance of its initiatives in MEPC 76 for reducing Black Carbon emissions, the committee adopted a resolution prompting the member states and ships owners to use greener fuels while operating in or near the Arctic waters (IMO, 2021). The committee also adopted measures for reducing the marine plastic litter from ships in addition to introducing Guidelines for Exhaust Gas Cleaning Systems, 2021 (EGCS) and calling for uniform interpretation for Ballast Water Management (BWM) Convention Regulations (IMO, 2021).

However, it is to be noted that though MEPC 77 laid down various measures towards reduction of GHG emission from international shipping, it has been subjected to criticism for not committing to achieve net-zero by 2050 as agreed during COP26 (Tan, 2021).

Asian Shipping Industry Response to Cop26

As the world saw COP26 unwrap, different stakeholders in the shipping industry undertook the initiative to introduce various policy frameworks to achieve decarbonisation of this industry in light of the broader goal of achieving net-zero levels by 2050. Thus, it becomes pertinent to discuss the responses from the states as well the respective domestic shipping industry where these major shipping container ports (World Shipping Council, n.d.) are located namely, China, Singapore and South Korea. As these major ports are located in the Asian continent, this research paper would seek to analyse the shipping industry responses specifically from these three countries.

A. Government Response

(i) China:

- Implementation Plan for Emission Control Areas (ECAs)

Owing to its reputation of being a hub to the world's major container ports (World Shipping Council, n.d.) and following the climate action mitigation measures across the globe, it is interesting to note that the Chinese government's Ministry of Transport (MOT) undertook the responsibility to enact a domestic implementation plan (Ministry of Transport, 2015).

Under this plan, all ships at 11 ports of China beginning from 1st January, 2017 were mandated to use fuel with 0.5% sulphur content at berth (Ministry of Transport, 2015). This came as a major step from the Chinese government since the fuels under this plan would contain an 80% less sulphur content as compared to the average sulfur content in shipping fuels used that time (Finamore, 2015). Furthermore, this measure extended to

all Chinese port regions like the Pearl River Delta, Yangtze River Delta and Bohai Bay after a year (Finamore, 2015).

- **Implementation Scheme Of 2020 Global Marine Fuel Oil Sulphur Cap**

Under this scheme, the Chinese government introduced a sulphur cap from 1st January, 2020 (North, 2020). As per this, all international ships entering the ECAs and Non-ECAs were mandated to use fuel oil containing a maximum of 0.50% m/m sulphur content (Huatai Insurance Agency & Consultant Service Ltd., 2019). It also mandated international ships in the inland river control areas to only fuel oil with maximum 0.10% m/m sulphur content from 1st January, 2020 (Huatai Insurance Agency & Consultant Service Ltd., 2019). Additionally, it imposed this same requirement on international ships in coastal control areas effective from 1st January, 2022 (Huatai Insurance Agency & Consultant Service Ltd., 2019).

(ii) Singapore:

- **Maritime Singapore Green Initiative**

In 2011, the world's first marine administration, the Maritime and Port Authority of Singapore (MPA) introduced a climate action initiative called the 'Maritime Singapore Green Initiative' (MSGI) aimed at reducing GHG emissions from its shipping industry (United Nations, n.d.). Under this initiative, the MPA invested S\$100 million over five years to promote the decarbonisation of its shipping industry (Maritime and Port Authority of Singapore, 2020).

The MSGI comprises of four programmes which are listed below (Maritime and Port Authority of Singapore, 2020):

- 1) **Green Ship Programme**

Under this, Singapore-flagged ships are encouraged to reduce their carbon and sulphur oxides emissions by giving a discount of 75% in initial registration fees along with a 50% rebate on annual tonnage tax (Ministry of Transport, n.d.).

- 2) **Green Port Programme**

As per this programme, the MPA encourages ships to switch to green fuels by reducing port dues for ocean-going vessels that exceed EEDI or use LNG in Singapore Port Limits (Jobanputra & Smith, 2020).

- 3) **Green Energy and Technology Programme**

This programme further encourages Singapore-based maritime companies to develop greener technologies and conduct their pilot trials in order to achieve the decarbonisation of shipping (Ministry of Transport, n.d.).

- 4) **Green Awareness Programme**

As per this programme, the MPA encourages shipping companies to adopt carbon accounting and reporting and also to promote green shipping awareness (Jobanputra & Smith, 2020).

Moreover, the MSGI that was to expire by 2019 was extended by another five years to 2024 (World Maritime News, 2019). In this extended period, additional incentives for encouraging the use of green fuels like LNG and use of LNG bunkers during port stay would be launched by the MPA (The Straits Times, 2019).

- **Maritime Singapore Decarbonisation Blueprint 2050**

As part of achieving decarbonisation of its shipping industry, the MPA developed a 'Maritime Singapore Decarbonisation Blueprint 2050' (MSDB) (Maritime and Port Authority of Singapore, 2021). This document highlighted a series of measures that could be undertaken in 7 key areas by its shipping industry to reduce its GHG emissions (Maritime and Port Authority of Singapore, 2021).

With regards to its port terminals, the MSA has decided to extensively research the adoption of LNG and hydrogen as fuels for its port vehicles and has laid down plans for developing a next generation container port at Tuas (Maritime and Port Authority of Singapore, 2021). The blueprint also lays down the adoption of greener and low-carbon based fuels for all its harbour crafts (Maritime and Port Authority of Singapore, 2021). Moreover, owing to Singapore being the world's top bunkering port, the MPA has taken numerous initiatives for utilising greener fuels in its shipping industry along with identifying five fuels as alternative energy sources for the international shipping industry (Maritime and Port Authority of Singapore, 2021). Lastly, the blueprint commits towards Singapore's efforts in relation to reducing the carbon emissions from Singapore-flagged ships, contributing at IMO in the form of discussions, developing both carbon accounting and Singapore as a maritime decarbonisation hub (Maritime and Port Authority of Singapore, 2021).

(iii) **South Korea:**

- **2030 Green Ship-K Promotion Strategy**

It was more specifically in the previous year that South Korea developed a dedicated strategy to promote decarbonisation of its shipping industry. The South Korean Ministry of Oceans and Fisheries (MOF) announced its First National Plan (2021-2030) for encouraging green shipping and named it '2030 Green Ship-K Promotion

Strategy' (Ministry of Oceans and Fisheries, 2021). For achieving this goal, the South Korean Government would spend \$870 million as investment in research and development to reduce GHG emissions in the lifecycle of a ship (BNP Paribas, 2021).

This strategy primarily focuses on developing and implementing carbon-free/low-carbon technology and localising the core technology with regards to LNG, electrification and hybridisation (Ahn, 2021). As part of this, the MOF would identify green technologies for phasing out GHG emissions by 70% by 2030 from ship-related areas like design, fuel and equipment (Ministry of Oceans and Fisheries, 2021). The strategy also undertakes to convert 15% Korean-flagged ships into green ones (Ministry of Oceans and Fisheries, 2021).

Additionally, this plan aims to develop a demonstration project called 'Greenship-K' that would initially start with the construction of green small coastal ships (The Maritime Executive, 2020). Besides this, a total of 10 ships based on different fuel mixes (BNP Paribas, 2021) would be constructed including LNG bunkering ships, electric propulsion ships, hybrid ships, mixed-fuel ships and hydrogen ships (The Maritime Executive, 2020).

B. Domestic Shipping Industry Response

(i) China:

In a bid to move towards decarbonisation of the Chinese shipping industry, Swiss international shipping company MSC signed for a collaboration with China Waterborne Transport Research Institute under MOT (MSC, 2021). This MOU would be a 3-year agreement under which both the organisations would seek technical cooperation on ways to explore steps towards green-shipping (MSC, 2021).

(ii) Singapore:

In line with the Singapore Government's legislative initiatives towards promotion of decarbonisation of shipping industry, a Joint Industry Project has been set up in collaboration with Den Norske Veritas Clean Technology Centre along with 21 other industry partners in order to prepare an LNG roadmap for smoother transition to this fuel (Ministry of Transport, n.d.).

Apart from this, through the support of MPA, international resources company BHP along with Dutch biofuel firm GoodFuels and German shipping company Oldendorff Carriers conducted the first biofuel trial for the shipping industry for a ship bunkered in Singapore (Sahu, 2021).

(iii) South Korea:

The South Korean industry response has also been commendable with regards to developing and adopting technologies related to green-shipping. In this regard, 3 South Korean shipbuilders namely Samsung Heavy Industries, Hyundai Heavy Industries Group and Hyundai Mipo Dockyard have developed their respective ammonia-based tanker designs (Hellenic Shipping, 2020). Additionally, Daewoo Shipbuilding and Marine Engineering has also committed towards developing greener technologies to achieve decarbonisation of the shipping industry (Hellenic Shipping, 2020).

Analysis of Shipping Industry Response in Major Asian Shipping Container Ports

Having identified the key responses from both governments and domestic industries of the Asian countries where the major shipping container ports are located in the previous part of the research paper, certain observations are pertinent to be made.

From the shipping industry perspective, the response of Singapore towards decarbonisation has been pre-emptive and sufficient to meet the targets set in COP26. The MPA of Singapore has owned up to the country's status of being the top bunkering port in the world and has adequately taken initiatives such as the 'Maritime Singapore Decarbonisation Blueprint 2050' in collaboration with Den Norske Veritas Clean Technology Centre to not only reduce GHG emissions from its domestic shipping industry but also to identify future green technologies to achieve full decarbonisation of this industry. The MSGI is comprehensive enough to achieve this goal by including all four aspects of the shipping industry. Needless to say that the five-year extension of this initiative by the MPA to promote and incentivise use of greener fuels is a significant step towards the country's commitment to the COP26 target of achieving net-zero levels. In addition to this, the recently introduced MSDB for 2050 is a welcome step and in tandem with this measure's goal of transforming Singapore into a world decarbonisation hub.

Furthermore, the domestic industry response towards the decarbonisation measures of the MPA are committed towards the goal of reduction of GHG emissions and in extension of the same. Thus, through an analysis of the measures undertaken by Singapore, it is notable to mention that its responses could be treated as a model for other major Asian shipping container ports.

Despite being home to major shipbuilding corporations, the response of South Korea to the decarbonisation move can be stated to have fallen short both in terms of the immediacy and adequacy in light of the targets set

both under international conventions and the IMO. However, its demonstration project, ‘2030 Green Ship-K Promotion Strategy’ for advancing green-shipping in the country is an aspiring initiative. This has also been received well by its domestic shipping industry with major shipbuilding companies like Samsung Heavy Industries, Hyundai Heavy Industries Group, Hyundai Mipo Dockyard and Daewoo Shipbuilding and Marine Engineering indicating strongly towards their commitment to reduction of GHG emissions by developing alternative fuel-based tanker designs.

On the other hand, the responses from China have been inadequate considering that it is the world’s largest exporter (Nicita & Razo, 2021) and emitter of carbon emissions (Friedrich & Pickens, 2020) and is home to top 7 shipping container ports in the world (CGTN, 2020). This can be attributed to the fact that the MOT came up with a major action plan in only 2015 and only revised its target with respect to the permitted sulphur content in shipping fuels. This is in stark contrast to the actions undertaken by both Singapore and South Korea which have comprehensively covered the identification and incentivisation of greener technologies for their shipping industries. Additionally, China undertook to implement dedicated strategies for reduction in GHG emissions only during COP26 in 2021 called the ‘US-China Joint Glasgow Declaration’ (Office of the Spokesperson, 2021) unlike its counterparts which undertook prompt action regarding the same quite earlier.

One reason for such a reluctant approach by China could be traced back to its heavy reliance on carbon that makes it the world’s largest consumer of coal energy. In such a situation, it has been anticipated that if the country does not introduce a comprehensive action plan to combat GHG emissions from its shipping industry, it easily runs the risk of losing its dominant position in this industry with nations like Singapore and South Korea leading the future of green-shipping.

Suggestions and Recommendations

Through an analysis of the IMO and Asian shipping industry’s responses, there are certain gaps in the adequacy of response and cooperation between the two entities. The growing Asian shipping industry’s impact on CO₂ emissions has been significant and requires the implementation of market-based measures and legislative and regulatory support to achieve the net-zero goal.

It is suggested that an ‘integrated’ approach, envisaging the entire value chain of international shipping including the stakeholders such as ship owners, shipping workforce, industry coalitions, maritime insurance groups, and governments work in collaboration in order to identify, develop and adapt green-shipping technologies which have been scientifically researched and established as safe energy sources. The governments of major ship building countries such as China must adopt a policy of tax remissions for building smart ships and ships involving green technology to reduce carbon emissions. This needs to be supported by a system of green-financing including the insurance corporations. There is a need for assignment of funds for the research and development of new energy sources that are environmentally safe at the level of production as well as use. It is recommended that GHGs including carbon emission be classified as toxic to the environment in order to implement this approach.

Furthermore, this approach must also cover all phases in the lifecycle of a ship from ship-building, fueling, berthing to ship recycling so as to utilise green technology in all these areas and achieve decarbonisation of this industry within the set time-frame. As a model for this approach, the actions and measures adopted by the Singapore’s government and shipping industry are to be recognised. However, this model must be incorporated into different countries depending on their current reliance on coal energy for instance, China which is its largest consumer.

It is also suggested that market-based measures like ‘Global Carbon Levy’ proposal must be adopted across the international shipping sector as it could be an effective way to ensure quick action in this ‘hard-to-abate’ industry and at the same time help in collecting the required investment for developing green-shipping technologies and infrastructure.

Though the IMO has taken numerous measures to combat GHG emissions from international shipping, it has been identified that there exists a lack of response on its part to actively focus on research and development for developing green-shipping technologies. Thus, it is recommended that it must follow a ‘proactive’ approach in this regard and undertake adequate action in the ambit of ‘research and development’. In this relation, the approval of the ‘IMO Maritime Research Fund’ would be a starting point.

Furthermore, various industry initiatives in the form of development of location-based collaborations between various shipping companies and cold ironing in ports on the model of Scandinavian countries can be undertaken in order to ensure smoother transition towards decarbonization of shipping via active collaboration through green-shipping based industry governance.

Conclusion

The COP26 targets are geared towards the establishment of a more serious regime in all sectors of the economy and the shipping industry standard has proven to be a challenge due to its traditional approach. However, with the help of the analysis undertaken in this paper, we can identify the specific concrete measures which must be taken in order to address the issue of carbon emissions by identifying the biggest contributors in this sector. The Asian shipping industry has been booming and taken over the industry which was previously dominated by countries such as United Kingdom, Netherlands and Germany. However, the future of the industry is in the implementation of greener technologies and complete decarbonisation which can be achieved through a cohesive regulatory and industry centric plan of action.

References

- [1] ABS. (2021, November 26). MEPC 77 BRIEF. Eagle.org. Retrieved March 10, 2022, from <https://ww2.eagle.org/content/dam/eagle/regulatory-news/2021/MEPC%2077%20Brief%20-%20Final.pdf>
- [2] Ahn, J. (2021). 2030 Greenship-K Promotion Strategy. KOMSA. https://wwwcdn.imo.org/localresources/en/OurWork/Environment/Documents/Symposium%202021/Presentations/First%20day%20-%20Blocks%201%20and%202/Symposium%20presentations%20-%20First%20Day/Block%202.2%20-%20Junkeon%20Ahn_A%20Korean%20perspective_2030%20Green%2
- [3] Asprou, N. (2021, November 16). The COP26 shipping outcomes. Siglar Carbon. Retrieved March 10, 2022, from <https://www.siglarcarbon.com/post/the-cop26-shipping-outcomes>
- [4] BBC. (2021, May 7). Report: China emissions exceed all developed nations combined. BBC. Retrieved March 10, 2022, from <https://www.bbc.com/news/world-asia-57018837>
- [5] BNP Paribas. (2021). Action-Plan for Blue-Green Shipping Investment in the Pacific. BNP Paribas, 5. <https://oceanconservancy.org/wp-content/uploads/2021/01/Action-Plan-Shipping-Investment-in-the-Pacific.pdf>
- [6] Bush D. (2022), Regulating safe shipping is about to get harder, Maritime Risk International.
- [7] Cattani, A. L. (2021, November 16). COP26 and its impact on Shipping. Ince. Retrieved March 10, 2022, from <https://www.incegd.com/en/news-insights/maritime-cop26-and-its-impact-shipping>
- [8] CGTN. (2020, December 8). China has 7 of world's top 10 ports by cargo, container throughput. Hellenic Shipping News Worldwide. Retrieved March 11, 2022, from <https://www.hellenicshippingnews.com/china-has-7-of-worlds-top-10-ports-by-cargo-container-throughput/>
- [9] Chen, Z., Chen, H., Wang, L., & Guo, W. (2020) Factors of Enterprise Carbon Performance: An Empirical Study of Public Shipping Company in Coastal Regions of China. *Journal of Coastal Research*, 268–272.)
- [10] Dbouk, W. (2021, December 31). Decarbonisation and shipping post-COP26. *Lloyd's Shipping & Trade Law*, (December). ilaw.
- [11] Doelle, M., & Chircop, A. (2019). Decarbonizing International Shipping: An Appraisal of the IMO's Initial Strategy. *Review of European, Comparative & International Environmental Law*, 28(3), 268-277.
- [12] Finamore, B. (2015, December 8). China Acts to Control Shipping Air Pollution and Greenhouse Gas Emissions. NRDC. Retrieved March 3, 2022, from <https://www.nrdc.org/experts/barbara-finamore/china-acts-control-shipping-air-pollution-and-greenhouse-gas-emissions>
- [13] Friedrich, J., & Pickens, A. (2020, December 10). World's Top Emitters Interactive Chart I. World Resources Institute. Retrieved March 11, 2022, from <https://www.wri.org/insights/interactive-chart-shows-changes-worlds-top-10-emitters>
- [14] GFANZ. (2021). About. Glasgow Financial Alliance for Net Zero. Retrieved March 10, 2022, from <https://www.gfanzero.com/about/>
- [15] Global Maritime Forum. (2021). Call to Action for Shipping Decarbonization. Global Maritime Forum. Retrieved March 10, 2022, from <https://www.globalmaritimeforum.org/getting-to-zero-coalition/call-to-action>
- [16] Global Methane Pledge. (2021). About the Global Methane Pledge. Global Methane Pledge: Homepage. Retrieved March 10, 2022, from <https://www.globalmethanepledge.org/#about>
- [17] Habibic, A. (2021, November 10). ICS, IMO, Green Climate Fund discuss provision of \$1.5 million to fast track R&D. Offshore Energy. Retrieved March 10, 2022, from <https://www.offshore-energy.biz/ics-imo-green-climate-fund-discuss-provision-of-1-5-million-to-fast-track-rd/>
- [18] Hellenic Shipping. (2020, September 26). Korea's 3 Shipbuilders Stepping Up Efforts to Develop Ammonia-powered Vessels. Hellenic Shipping News Worldwide. Retrieved March 4, 2022, from

- <https://www.hellenicshippingnews.com/koreas-3-shipbuilders-stepping-up-efforts-to-develop-ammonia-powered-vessels/>
- [19] Hoyland R. (2021), Trading clean air, Maritime Risk International.
 - [20] Huatai Insurance Agency & Consultant Service Ltd. (2019). Guidance on “Implementation Scheme of 2020 Global Marine Fuel Oil Sulphur Cap” announced by Chinese MSA on 23 October 2019.
 - [21] ICS. (2021, November 10). UN Global Compact and shipping industry confirm formation of 'people-centred' Task Force to ensure Just Transition to net-zero. International Chamber of Shipping. Retrieved March 10, 2022, from <https://www.ics-shipping.org/press-release/un-global-compact-and-shipping-industry-confirm-formation-of-people-centred-task-force-to-ensure-just-transition-to-net-zero/>
 - [22] ICS. (2021, September 6). International Chamber of Shipping sets out plans for global carbon levy to expedite industry decarbonisation. International Chamber of Shipping. Retrieved March 10, 2022, from <https://www.ics-shipping.org/press-release/international-chamber-of-shipping-sets-out-plans-for-global-carbon-levy/>
 - [23] IMO. (2018). IMO ACTION TO REDUCE GREENHOUSE GAS EMISSIONS FROM INTERNATIONAL SHIPPING. Sustainable Development Goals. Retrieved March 10, 2022, from https://sustainabledevelopment.un.org/content/documents/26620IMO_ACTION_TO_REDUCE_GHG_EMISSIONS_FROM_INTERNATIONAL_SHIPPING.pdf
 - [24] IMO. (2018, April 13). UN body adopts climate change strategy for shipping. IMO.org. Retrieved March 10, 2022, from <https://www.imo.org/en/MediaCentre/PressBriefings/Pages/06GHGinitialstrategy.aspx>
 - [25] IMO. (2021). Marine Environment Protection Committee (MEPC 76), 10 to 17 June 2021 (remote session). International Maritime Organization. Retrieved March 10, 2022, from <https://www.imo.org/en/MediaCentre/MeetingSummaries/Pages/MEPC76meetingsummary.aspx>
 - [26] IMO. (2021, June 17). Further shipping GHG emission reduction measures adopted. International Maritime Organization. Retrieved March 11, 2022, from <https://www.imo.org/en/MediaCentre/PressBriefings/pages/MEPC76.aspx>
 - [27] IMO. (2021, November 26). Marine Environment Protection Committee (MEPC) 77, 22-26 November 2021. International Maritime Organization. Retrieved March 10, 2022, from <https://www.imo.org/en/MediaCentre/MeetingSummaries/Pages/MEPC77.aspx>
 - [28] IPCC. (2018). Summary for Policymakers. IPCC. Retrieved March 10, 2022, from https://www.ipcc.ch/site/assets/uploads/sites/2/2019/05/SR15_SPM_version_report_HR.pdf
 - [29] Jobanputra, S., & Smith, A. (2020, July). Singapore Encourages Decarbonization of Shipping. Jones Day. Retrieved March 4, 2022, from <https://www.jonesday.com/en/insights/2020/07/singapore-encourages-investment-toward-decarbonizing-shipping>.
 - [30] Keeble L., Paleokrassas G. & Petch S. (2021), Sustainability concerns rising up the shipping agenda, Maritime Risk International.
 - [31] Korea's 3 Shipbuilders Stepping Up Efforts to Develop Ammonia-powered Vessels. (2020, September 26). Hellenic Shipping News Worldwide. Retrieved March 4, 2022, from <https://www.hellenicshippingnews.com/koreas-3-shipbuilders-stepping-up-efforts-to-develop-ammonia-powered-vessels/>
 - [32] Landauer S. & Kortlander L. (2021), Silver bullet for green shipping in ship financing?, Maritime Risk International.
 - [33] Maritime and Port Authority of Singapore. (2020, April 2). Maritime Singapore Green Initiative. Maritime and Port Authority of Singapore. Retrieved March 4, 2022, from <https://www.mpa.gov.sg/web/portal/home/maritime-singapore/green-efforts/maritime-singapore-green-initiative>
 - [34] Maritime and Port Authority of Singapore. (2021). Consultation on the Maritime Singapore Decarbonisation Blueprint 2050. Maritime and Port Authority of Singapore. <https://www.mpa.gov.sg/web/wcm/connect/www/875be5fa-de98-480c-b6be-7472cc1c7e02/Maritime+Singapore+Decarbonisation+Blueprint+Consultation+Document.pdf?MOD=AJPERES>
 - [35] Maritime and Port Authority of Singapore. (2021, July 27). Decarbonisation. Maritime and Port Authority of Singapore. Retrieved March 3, 2022, from <https://www.mpa.gov.sg/web/portal/home/maritime-singapore/green-efforts/decarbonisation>
 - [36] Meadows, J. (2021, November 1). MARPOL Annex VI: Ship decarbonisation - IMO strategy of 2018. Skuld. Retrieved March 11, 2022, from <https://www.skuld.com/topics/environment/air-pollution/marpol-annex-vi/marpol-annex-vi-ship-decarbonisation---imo-strategy-of-2018/>
 - [37] Ministry of Oceans and Fisheries. (2021, February 4). What's News - MINISTRY OF OCEANS AND FISHERIES. What's News - MINISTRY OF OCEANS AND FISHERIES. Retrieved March 4, 2022, from <https://www.mof.go.kr/en/board.do?menuIdx=1491&bbsIdx=31054>

- [38] Ministry of Transport. (2015). The Ministry of Transport issued the implementation plan of the ship emission control area in the Pearl River Delta, Yangtze River Delta and Bohai Rim (Beijing-Tianjin-Hebei) waters. Government of China. http://www.gov.cn/xinwen/2015-12/04/content_5019932.htm
- [39] Ministry of Transport. (n.d.). Sea. Ministry of Transport Singapore. Retrieved March 4, 2022, from <https://www.mot.gov.sg/Transport-Matters/sea/detail/big-steps-towards-environmentally-friendly-shipping>
- [40] Monacelli, N. (2017). Applying Cold-Ironing Regulation in Southeast Asian Ports to Reduce Emissions. *Asia-Pacific Journal of Ocean Law and Policy*, 2(2), 296-316.
- [41] MSC. (2021, October 8). MSC Cooperates With Key Chinese Research Institute To Promote Decarbonisation. *Marine Insight*. Retrieved March 4, 2022, from <https://www.marineinsight.com/shipping-news/msc-cooperates-with-key-chinese-research-institute-to-promote-decarbonisation/>
- [42] Nicita, A., & Razo, C. (2021, April 27). China: The rise of a trade titan. UNCTAD. Retrieved March 11, 2022, from <https://unctad.org/news/china-rise-trade-titan>
- [43] North. (2020). China: Fuel Sulphur Cap and Emission Control Areas. North P&I Club. Retrieved March 3, 2022, from <https://www.nepia.com/industry-news/china-fuel-sulphur-cap-and-emission-control-areas/>
- [44] Office of the Spokesperson. (2021, November 10). US-China Joint Glasgow Declaration on Enhancing Climate Action in the 2020s - United States Department of State. State Department. Retrieved March 11, 2022, from <https://www.state.gov/u-s-china-joint-glasgow-declaration-on-enhancing-climate-action-in-the-2020s/>
- [45] Piñeiro, L. C., Mejia Jr, M. Q., & Ballini, F. (2021). Beyond COVID-19: the future of maritime transport. *WMU Journal of Maritime Affairs*, 20, 127-133. <https://doi.org/10.1007/s13437-021-00243-1>
- [46] Psaraftis, H. N. (2012). Market-based measures for greenhouse gas emissions from ships: a review. *WMU Journal of Maritime Affairs*, 11, 211-232. <https://doi.org/10.1007/s13437-012-0030-5>
- [47] Ring, S. (2021). Finding the route to finance, *Maritime Risk International*.
- [48] Ring, S. (2021). Reducing shipping delays as emissions and sustainability requirements tighten up. *Maritime Risk International*.
- [49] Safety4Sea. (2021, November 2). 14 countries sign declaration urging for zero emissions ships by 2050 - SAFETY4SEA. Safety4Sea. Retrieved March 10, 2022, from <https://safety4sea.com/14-countries-sign-declaration-urging-for-zero-emissions-ships-by-2050/>
- [50] Sahu, S. (2021, October 14). Enduring waves of climate change: Maritime decarbonization, a tempest before the calm. S&P Global. Retrieved March 4, 2022, from <https://www.spglobal.com/commodity-insights/en/market-insights/blogs/shipping/101421-climate-change-maritime-decarbonization-marine-fuels>
- [51] Shi, Y. (2014). Greenhouse Gas Emissions from International Shipping: The Response from China's Shipping Industry to the Regulatory Initiatives of the International Maritime Organization, *The International Journal of Marine and Coastal Law*, 29, 77-115
- [52] Tan, J. (2021, December 17). MEPC 77 – A Summary. UK P&I Club. Retrieved March 11, 2022, from <https://www.ukpandi.com/news-and-resources/articles/2021/mepc-77---a-summary/>
- [53] The Maritime Executive. (2020, December 25). South Korea to Invest \$870 Million Developing Eco-Friendly Shipping. *The Maritime Executive*. Retrieved March 4, 2022, from <https://www.maritime-executive.com/article/south-korea-to-invest-870-million-developing-eco-friendly-shipping>
- [54] The Straits Times. (2019, November 8). Maritime Singapore green scheme extended till 2024 with eye on reducing carbon emissions. *The Straits Times*. Retrieved March 4, 2022, from <https://www.straitstimes.com/business/economy/maritime-singapore-green-scheme-extended-till-2024-with-eye-on-decarbonisation>
- [55] UK P&I Club. (2021, December 17). MEPC 77 – A Summary. UK P&I Club. Retrieved March 10, 2022, from <https://www.ukpandi.com/news-and-resources/articles/2021/mepc-77---a-summary/>
- [56] UNFCCC. (2015). Key aspects of the Paris Agreement. UNFCCC. Retrieved March 10, 2022, from <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement/key-aspects-of-the-paris-agreement>
- [57] UNFCCC. (2017, September 4). Note by the International Maritime Organization to the UNFCCC Talanoa Dialogue ADOPTION OF THE INITIAL IMO STRATEGY ON REDUCTION. UNFCCC. Retrieved March 10, 2022, from https://unfccc.int/sites/default/files/resource/250_IMO%20submission_Talanoa%20Dialogue_April%202018.pdf
- [58] UNFCCC. (2021, September 30). Pre-COP26 Chairs' Summary. UNFCCC. Retrieved March 10, 2022, from <https://unfccc.int/sites/default/files/resource/Pre-COP26%20chairs%20summary%20Final.pdf>

- [59] Unifeeder. (2021). Call to Action for Shipping Decarbonization. Unifeeder. Retrieved March 10, 2022, from <https://www.unifeeder.com/news-and-insights/call-to-actions-for-shipping-decarbonization>
- [60] United Nations. (n.d.). The Ocean Conference | Singapore introduces the Maritime Singapore Green Initiative. 2022 UN Ocean Conference. Retrieved March 4, 2022, from <https://oceanconference.un.org/commitments/?id=18953>
- [61] World Maritime News. (2019, November 8). Maritime Singapore Green Initiative Extended Until 2024. Offshore Energy. Retrieved March 4, 2022, from <https://www.offshore-energy.biz/maritime-singapore-green-initiative-extended-until-2024/>
- [62] World Shipping Council. (n.d.). Top 50 Ports — World Shipping Council. World Shipping Council. Retrieved March 3, 2022, from <https://www.worldshipping.org/top-50-ports>
- [63] Yang, M. (2021). MEPC 76 10th -17th June 2021: Summary of Outcome. UK P&I Club. Retrieved March 11, 2022, from <https://www.ukpandi.com/news-and-resources/legal-content/legal-articles/mepc-76-10th-17th-june-2021-summary-of-outcome/>