
CLIMATE TALKS IN THE SHIPPING INDUSTRY

A Stakeholder Mapping in Deep Waters

By
Varun Venugopal
Session 2017-2018

A Thesis Submitted for the Degree of Masters
In
Global Energy Transition and Governance
Department of Global Energy Transition and Governance
Centre International de Formation Européenne (CIFE) Nice, France.

Date: June 15, 2018

CLIMATE TALKS IN THE SHIPPING INDUSTRY: A STAKEHOLDER MAPPING IN DEEP WATERS

By
Varun Venugopal
Masters Student of
Global Energy Transition and Governance (Session 2017-2018)

Approved as to style and content by

.....

Dr. Rachel Guyet

Supervisor

ACKNOWLEDGEMENTS

I would like to express my deepest gratitude first to my thesis adviser Dr. Rachel Guyet, who guided me throughout the course and made this year of learning more special because of her enthusiasm. I will always cherish the fruitful discussions with her and I am grateful for her continuous support. I would also like to thank Dr. Gilles Lepesant and Prof. François Bafoil for their valuable insights, I couldn't have asked for a better team to guide me for this research.

I am grateful to all the experts, whom I have interviewed, for their expert opinions on the subject of my research. I would like to thank Mr. Matthias Waechter, Director General, CIFE for giving me the opportunity to complete the masters. I would also like to thank my fellow classmates for their stimulating discussions and encouragement throughout the course. I would like to express my sincere gratitude to all my former colleagues and friends who supported me in this research.

I would also like to thank my family for their continuous support. Finally, not just this thesis but my entire life is dedicated to my father Mr. V.V. Venugopal Nambiar, I hope one day I can be half good a man as you are.

ABSTRACT

Shipping is the backbone of international trade and with increasing globalization, the future of maritime transport looks unchallengeable. Although shipping is the most energy efficient means of goods transportation the sheer quantity results in making the sector one of the largest emitters of Green House Gases worldwide. Nevertheless, shipping has received very little attention from the world community, mainly because the emissions from shipping is not attributed to individual countries or organization. Therefore no one takes responsibility for emissions from shipping and the industry has successfully lobbied out of all international agreements on climate change. There was no clear strategy for reducing GHG emissions from shipping until recently. However, in April 2018, when International Maritime Organization, the United Nations body responsible for international shipping met for its 72nd annual Marine Environment Protection Committee meeting in London the member states reached on a historic agreement to reduce the GHG emission from shipping.

The main aim of this research is to identify the challenges to reach an agreement in the climate change discussions of the shipping industry for the different stakeholders. The framework of stakeholder mapping is used to identify and classify the major stakeholders in this paper. Secondary data and expert opinions have been utilized to implement different stakeholder management theories into the maritime sector. After identification and classification of the stakeholders, the function of important stakeholders and their involvements are explored in detail. Therefore, by analyzing the roles and the relationship between the key players, the potential conflicts and the challenges for the shipping industry to reduce emissions are understood. In addition to this, the strong interdependencies between the different actors and their competing interests are also studied. The analysis shows not only the resistances but also the opportunities for some of the actors involved to get engaged into climate action. The potential alliance and conflicts highlights the challenges for the shipping industry. The multiple stakeholders with overlapping interests and governance, without a sense of responsibility is discovered to be a major challenge for the climate talks.

Keywords: Shipping and climate change, Stakeholder management, Shipping Stakeholders, International Maritime Organization, GHG emissions from ships, Primary stakeholders, Polycentric governance

TABLE OF CONTENTS

INTRODUCTION.....	9
Background:	9
Why is it important to talk about GHG emissions from shipping?	10
Challenges and recent measures adopted for combating climate change in the maritime sector	12
Research Question and Analytical Framework	15
Data Collection	16
Limitation of the paper:	17
Outline of the thesis:	17
1. The Mapping Framework and Stakeholder Mapping.....	19
1.1. Introduction:	19
1.2. What is stakeholder analysis?	19
1.2.1. Definition of Stakeholder: -	20
1.3. Stakeholder Analysis for Decarbonization in the maritime industry.....	21
1.4. Primary and Secondary Stakeholders:	22
1.4.1. The concept: -	22
1.4.2. Primary and secondary stakeholders in shipping: -	23
1.5. Influence-Interest Grid.....	27
1.5.1. The concept: -	27
1.5.2. Influence-Interest grid in shipping: -	29
1.6. Conclusion: -.....	32
2. Competing Interests among the Major Stakeholders:.....	33
2.1. Introduction.....	33
2.2 Major stake holders in shipping industry.....	33
2.3. IMO: - The big brother watching over international shipping.....	34
2.4. Why Ship Owners and Associations are an indispensable group?	39
2.5. Flags of convenience and Port State Control.....	43

2.6. Powerful influence of countries in international shipping: Analyzing the Power and interest levels of nations	47
2.7. Role of Secondary stakeholders	51
2.7.1. Classification Societies.....	52
2.8. Conclusion	53
3. Interdependencies of Stakeholders: Threats or Opportunities for climate talks in the industry?	54
3.1.Introduction.....	54
3.2. MEPC-72 and its implications:	55
3.2.1. What is MEPC-72?	55
3.2.2. Conflicts and alliances in MEPC-72: The country context of decarbonization in international alliances.....	55
3.3. Relationship between port state control and flag state control.....	57
3.4. Lobbying & Corporate Capture of IMO	59
3.5. Interrelationship between other actors: -	62
3.6. Conclusion	62
4.Conclusion	64
5. References.....	69

LIST OF FIGURES AND TABLES

Fig.1	Predicted Increase in World Seaborne Trade, GDP and Population	9
Fig.2	Comparison of emissions from shipping too other large emitters	11
Fig.3	Comparison of emissions between different modes of transport.....	12
Fig.1.1	Primary and Secondary Stakeholders of shipping industry	24
Fig.1.2	Influence vs interest grid stakeholders classification	28
Fig.1.3	Influence vs interest grid shipping industry	30
Table.1.1	Table of stakeholders from influence vs interest grid.....	32
Fig.2.1	Organization structure of IMO	36
Fig.2.2	Function of sections in IMO	37
Fig.2.3	Existing and proposed ECAs	38
Fig.2.4	Largest shipping companies	40
Table.2.1	Climate Performance of private companies	42
Fig.2.5	Top Flag Countries.....	44
Fig.2.6	Importance of countries in shipping	47
Fig.2.7	Largest ship owning countries	48
Fig.2.8	Country Graph Engagement Intensity in IMO Vs Climate Score.....	50
Table.2.9	Members of IACS.....	53
Fig.3.1	IMO Policymaking influence map	61
Fig.4.1	Conclusion influence vs interest graph.....	65
Fig.4.2.	Conclusion country position during MEPC 72.....	67

LIST OF ABBREVIATIONS

Abbreviation	Expansion
IMO	International Maritime Organization
UN	United Nations
GHG	Green House Gases
CO ₂	Carbon Dioxide
NO _x	Nitrous Oxide
SO _x	Sulphur Oxide
ECA	Emission Control Area
UNCLOS	United Nations Convention on the Law of Sea
FOC	Flag of Convenience
UNCTAD	United Nations Conference on Trade and Development
MEPC	Marine Environment Protection Committee
UNFCCC	United Nations Framework Convention on Climate Change
COP23	23 rd Conference Of Parties to the UNFCCC
NDC	Nationally Determined Contribution
LNG	Liquefied Natural Gas
LPG	Liquefied Petroleum Gas
ICS	International Chamber of Shipping
WCS	World Council for Shipping
BIMCO	Baltic and International Maritime Council
MARPOL	International Convention for the Prevention of Pollution from Ships (short for Marine Pollution)
IACS	International Association of Classification Societies
WWF	World Wide Fund for Nature
ETS	Energy Trading Scheme
WHO	World Health Organization

INTRODUCTION

Background:

International shipping is one of the oldest industries in the world and throughout history sailing has been instrumental in the progress of human civilization. Ships have provided mankind with more mobility than travelling over land, whether for trade or warfare. The dominance over the sea meant dominance over the world for the 15th century to 19th century European colonizers. Ships still occupy a significant place for the transportation of goods and people around the world. It touches the lives of people globally in multiple ways which people are unaware of, ranging from transport of electronics to automobiles. Thereby, it is safe to say that international shipping is the backbone of global economy and amounts to a little over 80 % of the world's global trade by volume and 70% of the total value of all goods traded internationally (UNCTAD,2017). Shipping is directly connected to the global economy and is a direct indicator to measure the global economy as well as to predict where it is headed. With globalization which is characterized by rapid increase in international trade, shipping is expected to grow rapidly in the coming decades. The direct relationship between world economy and sea borne trade is shown in the below figure (Fig.1). It can be observed that the world seaborne trade mirrors the projected increase in the world GDP through the year 2030.

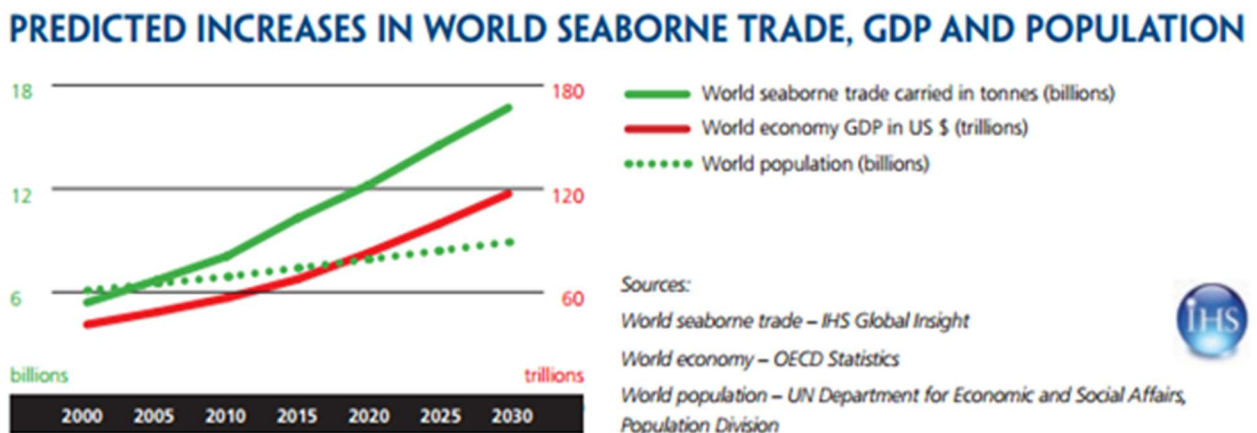


Fig.1 (Source: UNCTAD,2017)

The maritime sector is vital across the globe for both developed and developing countries as well as being the lifeline for small island nations. In addition to providing global transport connectivity the world shipping fleet employs 1.3 million people directly and provides jobs to countless more indirectly through associated industries. These associated industries comprise of ship building, engine and technology manufacturing, logistics, operation, registration, regulation and scrapping. The commercial value of shipping was estimated at around US\$ 830 billion at the beginning of 2017 (UNCTAD,2017).

Although, shipping market is considered as a service oriented single market, but it is made of different divisions based on the type and purpose of ships. Bulk carriers, Container vessels, Special purpose ships and passenger ships are some of them. The shipping companies have the flexibility of operating more than one ships guided by regulations (Mykoo, 2003).

Why is it important to talk about GHG emissions from shipping?

Due to the growth in international shipping during the recent years, the Green House Gases (GHG) emitted from the industry have also increased considerably. The CO₂ emissions were approximately 900 million tonnes in 2015 according to a report published by International Council on Clean Transportation (ITF, 2018). This conforms to almost 2.6 % of the total global CO₂ emissions which was an increase from 2.2 % in 2012(Timperley, 2018). Consequently, if international shipping was counted as a country it would occupy the 6th place in the list of largest emitters by country, which is slightly above Germany (Mooney, 2018). A comparison of the emissions from the shipping industry with other top emitters including countries like UK and Germany are given in the below figure (Fig.2). However, the alarming fact is that if the current trend continues, and in a business as usual scenario, emissions may increase between 50% and 250% by 2050 from the current levels (imo.org, 2014). In such a scenario, the internationally agreed target of limiting the global average temperature below 2° Celsius will not be met. The shipping industry saw an increase of 80% emissions from 1990 to 2010 with a per year increase of 3 % compared to 1.1% per year globally (IEA ,2014).

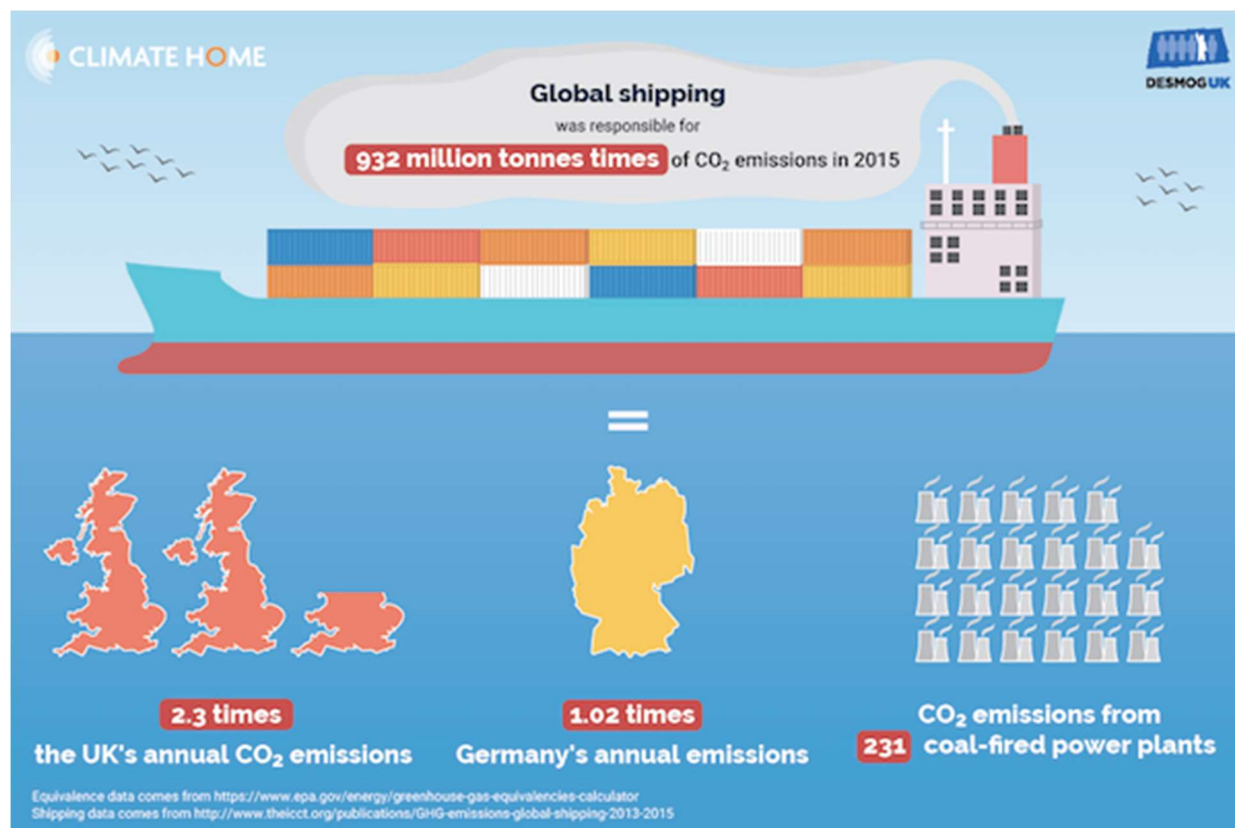


Fig.2 (Source: Darby, 2018)

Despite the high levels of emissions from international shipping, ships are still the most energy efficient means of goods transportation globally compared to other means of transportation like road and air. When CO₂ emissions/tonne of cargo transported in one-kilometer are considered for all means of transport, maritime transport comes in at last. This is illustrated in Fig.3, given below, which compares the emissions from aviation, trucks and different ships, it can be identified that ships are by far more energy efficient than any other means. Nevertheless, even with such a clear advantage over other sectors the large number of vessels makes the industry a significant emitter of CO₂ worldwide.

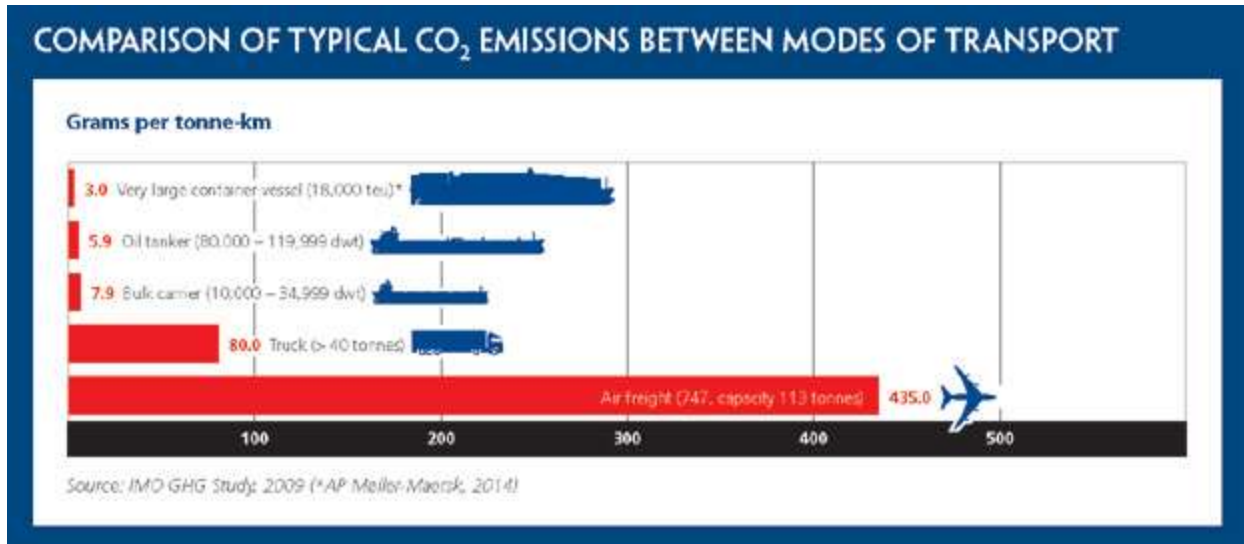


Fig.3 (Source: IEA,2009)

Challenges and recent measures adopted for combating climate change in the maritime sector

In spite of having a significant impact on climate change, shipping industry has been excluded from any form of commitment to reduce emissions in all the international agreements starting from Kyoto Protocol in 1997 to Paris climate accord in 2015 as well as the COP23 meeting at Bonn in 2017. This is mainly because emissions from international shipping is not assigned to any individual country and thereby making the responsibility not attached to any National Determined Contributions¹ (NDC). This lack of accountability has made the shipping companies more complacent in terms of their climate change mitigation strategies. Furthermore, the shipping industry lobbied itself out of any committed targets even after repeated calls were made to include it in the Paris accord. Shipping industry was not directly included in the Paris accord but the task of monitoring and reduction of GHG emissions was assigned to International Maritime Organization (IMO). After the shipping industry was able to ward off any commitments for the reduction CO₂ for a while an increasing pressure from the international community finally led the shipping industry to adopt a strategy for addressing the climate change impacts very recently.

¹ Nationally determined contributions (NDCs) is one of the breakthroughs of the COP21 in Paris for achieving long term objectives. It highlights the effort nations have to make towards reducing their share of emissions and mitigate the effects of climate change. (Unfccc.int, 2018)

This was during the 72nd annual Marine Environment Protection Committee (MEPC) meeting of the IMO at London in April 2018, where a historic agreement was reached. An initial strategy to reduce the GHG emissions from the shipping industry was adopted by all the member states of IMO. During the meeting it was agreed that there would be a reduction in total annual emissions of GHG from the shipping sector by at least 50% of 2008 levels by 2050. Moreover, the members committed to seek efforts in phasing them out completely by the end of the century (imo.org, 2018). Since IMO is the responsible agency for implementing this strategy, efforts are being made to attach responsibility for the emissions and to create a fair and effective systems. However, it is important to note that IMO is not an agency which solely focuses on climate changes like the United Nations Framework Convention on Climate Change (UNFCCC), but instead serves as the international organization responsible for shipping industry in general. Consequently, climate change and emission control forms only a part of its overall duty which ranges from ensuring safety at seas to technical cooperation and maritime security.

For reaching the goal of 50% reduction in GHG emissions, IMO has decided to implement a two-front approach. Firstly, increased regulations would be put in place to reduce the GHG emissions from international shipping. In addition to these energy efficiency means will be made compulsory under Annex VI of IMO's pollution prevention treaty (MARPOL²). Secondly, capacity building measures will be promoted globally to make sure that the regulations are implemented strictly. Additionally, innovations and global technology transfer would be supported for reaching at effective solutions.

Despite the recent sense of purpose within the entire shipping community for contributing to the global climate change challenges, there are various obstacles to overcome. The challenges include economic, political, technical and social challenges, each one of which are critical for a successful transition of shipping to a low carbon path. Most of the ships operating in the world use conventional fossil fuels with high carbon content like Marine Gasoline Oil and Heavy Fuel Oil which emits high concentration of CO₂ along with NO_x, SO_x and fine particles. Many technical alternatives for the fuels like LNG, LPG, methanol, bio fuels and use of renewable energy are

² MARPOL 73/78 which is short form of Marine Pollution is actually International Convention of Pollution from ships, 1973 as modified the protocol of 1978, hence 73/78. MARPOL is the single most important treaty ever signed to limit marine pollution from ships. It consists of 6 annexes to combat different forms of pollution and also consists the Annex VI focuses on preventing air pollution from ships.

being proposed but the main challenge is regarding the development of infrastructure. Since the average life cycle of a ship is 25-30 years, any change in technology must be incorporated very carefully having long term objectives and keeping in mind the return of investments. Therefore, the industry is adopting a policy of wait and watch to adopt the next technology, this uncertainty is one of the reasons that has led to the sluggish response to the call for action on climate change from the sector.

The political challenges are also complex, different countries have different interests and involvement in the shipping industry, thus there is a conflict of interest among different states. Whereas some states profoundly support setting higher targets, there are a few who wants medium targets and others who completely oppose setting of targets. Meanwhile the policies of IMO are heavily influenced by corporations and there is heavy lobbying unlike any other UN body. Additionally, the guiding principle of IMO to be “non-discriminatory” and treating all ships equally irrespective of the countries associated with the ship is diagonally opposite to the general UNFCCC strategy which is “common but differentiated responsibilities” (Timperley,2018). The implementation of new regulations will increase the operational costs of the ship and push the prices which is a major economic factor to be considered.

Shipping sector being pivotal to the economic activity is precisely why it is considered a sensitive subject by the international community. Reducing emissions through stricter regulation means increase in the capital costs for ships and thereby an increase in the cost of goods transported, this can in turn affect the world economy. Another major obstacle is the social challenge of increasing awareness amongst the public. Since most of the ships operate in areas out of sight, people don't perceive the urgency and importance of the problem.

Even though climate change is a hot topic presently and there is an active discussion around the world about the mitigation methods, shipping has been left out from most of these discussions because of these reasons regardless of it being one of the major emitters of the world. The main reasons can be summarized as follows: -

- (i) It is a sensitive topic because of the direct connection with global economy
- (ii) Out of sight from public eye, hence less awareness among the society.
- (iii) Lack of accountability.

Research Question and Analytical Framework

The journals published by international organizations like “Review of Maritime Transport 2017” by UNCTAD, “Decarbonizing Maritime Transport-Pathways to zero-carbon shipping by 2035” by International Transport Forum and various journals from IMO have focused on the future technology and have extensively talked about policies for capping of SO_x and NO_x emissions from shipping. The same can be said of the other literature which were analyzed during research for this thesis. There were considerable research papers and journals on the technology front but on the other hand the governance issues relating to international shipping has received only little attention in literature. There are very few articles focusing on the interests of stakeholders and even fewer ones talking about all the stakeholders together.

This is exactly why this paper will try to examine the difficulties shipping industry is facing to reach a consensus on the climate action by considering the points of view of the stakeholders. In this thesis we are going to address the following question:

“What are the different challenges in a polycentric international shipping industry for the stakeholders to arrive at a common target for decarbonization?”.

The main objective of this paper is to perform a stakeholder analysis for the decarbonization of the maritime sector. Additionally, the role of major stakeholders connected to decarbonization of the maritime sector will be explained in detail, as well as the relationships and dependencies are explored by taking some specific connections. For arriving at the objective and to answer the key question raised, this paper analyzes the competing interests of the complex industry involving stakeholders having different lobbying power which leads to conflicts in deciding on the climate change action. This analysis relies on two main approaches: -

- (i) A stakeholder mapping showing the influence of respective stakeholders in the decarbonization debate
- (ii) The analysis of the interests, relationships, alliances and conflicts among the different industry actors.

This dissertation emphasizes on the stakeholder analysis in maritime sector by identifying the stakeholders and examining the influence level of each, concerning the reduction of GHG.

Stakeholder analysis was done using the stakeholder theory (Freeman, 1984), which was first used as a theory of organizational management and business ethics but later expanded to different

spheres of study. According to a journal published by world bank, stakeholder analysis is a “methodology used to facilitate institutional and policy reform processes by accounting for and often incorporating the needs of those who have a ‘stake’ or an interest in the reforms under consideration” (worldbank.org, 2001). Stakeholder analysis is used as an important tool to identify, manage and analyze the impact of involved actors (Fiaz, 2014). In addition to this, stakeholder analysis also refers to policy change illustrated by the 3I conceptual framework presenting institutions, interests and idea as explanatory factors (Palier and Surel, 2005).

Data Collection

The main data collection techniques were semi-structured interviews and by using secondary data from peer written literature. The research for this paper was started by reviewing other literature available on the stakeholder analysis. Stakeholder theory (Freeman, 1984 & 2010) was identified as a tool during this review, and it was developed to suit the objective of this paper. The second data collection method was by using semi-structured interviews. Interviews were conducted with experts from different fields of shipping involved with decarbonizing the maritime sector including the following representatives: -

- (i) One representing Ship owner
- (ii) One lobbying officer pushing for LNG in shipping
- (iii) Two members of clean shipping NGOs
- (iv) One client of shipping corporation
- (v) One Media person and
- (vi) One Academic.

The interviews were done after getting enough insights of the topic through the literature where multiple data sources were used for a detailed and in-depth understanding. Stakeholder analysis was done by information obtained during the interviews as well as the literature researched in addition to the own experiences of the author.

Limitation of the paper:

The limitations of this thesis must be kept in mind by the reader before delving into the chapters. Firstly, although inland water shipping and shallow water ships are also a major concern for the global CO₂ emissions this paper has focused only on international shipping because of the limited length of the paper and the time constraint. The stakeholders and associations mentioned in this paper are important for deep-water shipping and international trading. Furthermore, the strategies of many stakeholders in the shipping industry are not publicly stated and many of the meetings happen behind closed doors, so certain articles published by nonprofit groups like Transparency Index and Influence map have been used for clarity. It must also be noted that in this paper the stakeholders mentioned are exclusively in connection with the climate change discussions in shipping industry. Therefore, the stakeholders defined here have a role to play in the climate change discussions from the shipping industry but not necessarily all-important stakeholders in the shipping industry are analyzed deeply. For example, seafarers are a very important part of the shipping industry but with regards to climate change discussions they have a very limited role to play. Nevertheless, the important stakeholders in the global shipping industry can occupy a vital position for decarbonizing the shipping sector. As a result, when the term shipping industry is used by the author, it means the climate change actors of the shipping industry unless explicitly stated.

Outline of the thesis:

This dissertation has been divided into 4 chapters to answer the main research question and arrive at the objectives mentioned above.

The first chapter seeks to present the mapping framework which is then used to map the relevant stakeholders critical for climate change discussions in the shipping industry. Two distinct stakeholder mapping concepts are used to analyze the relevance, power and interest of the stakeholders.

The next chapter focuses on the role of the major stakeholders in leading the shipping industry to a low carbon path. The significance of IMO and the interests of major stakeholders are analyzed in this chapter by explaining their individual capacities to bring about a change in the maritime sector.

The third chapter details the interrelationships between major stakeholders. It takes the background of MEPC-72³ to explain the relationships between different countries. Additionally, the dependency of port state and flag state along with the corporate capture in IMO is also presented to expand on the relationship between different stakeholders.

The final chapter concludes by highlighting the key take ways from each chapter and compiles the results by means of a graph and table.

³ See Chapter 3.2

1. The Mapping Framework and Stakeholder Mapping

1.1. Introduction:

This part of the thesis seeks to map the stakeholders associated with the shipping industry and to show the difference in their power and interest level. This will elaborate the challenges for achieving a common agreement for reduction in CO₂ emissions. To do so, this chapter identifies the different stakeholders associated directly and indirectly with the decarbonization in the shipping industry and tries to use the stakeholder management theory (Freeman, 1984 & 2010) to classify the stakeholders into different groups. The theoretical framework used for stakeholder mapping is introduced first followed by mapping of the stakeholders including a visual representation of the analysis. The theoretical framework has been set up by a combination of different theories on stakeholder analysis and management. For mapping of stakeholders this paper has used 2 distinct methods. Firstly, the stakeholders are categorized into primary and secondary stakeholders based on their involvement in the decision making of the decarbonization in the maritime sector. In the second method, stakeholders are depicted in a grid with level of influence versus the level of interest of the stakeholders. Four quadrants in the grid represents 4 different categories of stakeholders, reflecting this into the shipping industry results to very interesting conclusions to understand about the potential conflicts and alliances.

The main aim of this chapter is to give an overview of the important actors and by trying to map the stakeholders the author has tried to attach their significance as well as authority in the decision-making process towards achieving the reduction of GHG emissions from international shipping.

1.2. What is stakeholder analysis?

Stakeholder Analysis is a means to evaluate the impact of a decision on the relevant parties or what impact the different parties have on making the decision. It emerged from the business sciences but has now expanded to different fields such as economics, political and environmental sciences as well as game and decision theory. A good stakeholder analysis takes into consideration the contesting point of views from different players and does not overlook the

interests of one over the other. This results in a comprehensive understanding of the problems and solutions associated with the stakeholders. Different stakeholder mapping methods are used to study the contradictory impacts of reforms on different stakeholders. Stakeholder mapping portrays the power struggles among the stakeholders and the likeliness for compromises and agreements (worldbank.org, 2001). Stakeholder Analysis can be split into 3 different tasks: -

1. The first task involves the identification of stakeholders i.e., to distinguish between the stakeholders and non-stakeholders (Mitchell et al., 1997).
2. Secondly, the interest of the stakeholder is examined by questioning why they are important i.e., in the context of this paper why the stakeholders are vital for the climate change discussions in the maritime sector.
3. Finally, the influence of each stakeholder is evaluated to expose the level of influence they have over the decision-making process.

1.2.1. Definition of Stakeholder: -

The term stakeholder has multiple definitions depending on the context it is used, this has given an impression of ambiguity and inconsistency to the word (Fiaz, 2014). There is no single unanimously accepted definition for stakeholder, at least 27 different definition has been hinted by Mitchell et.al (1997). The concept of stakeholder undoubtedly seems specific to the context being used as it is different for different fields of study. In addition to this each field has different kinds of stakeholders. For instance, in the context of decarbonizing the maritime sector, the stakeholders are unique from any other business and policies. The nature of decision making, implementation and monitoring are unique for this sector, therefore the interests will be unique.

One of the oldest definitions of stakeholder is “any group or individual who can affect or is affected by the achievement of the organization’s objectives” (Freeman, 1984). A stakeholder can be different types of entities like “persons, groups, neighborhoods, organizations, institutes, societies and even the natural environment” (Mitchell et al., 1997). The importance of stakeholders is judged by the level of influence they have on the decisions. Power, legitimacy and urgency are the three main attributes which distinguish different categories of stakeholders and hence their influence level. They are explained in this way, (1) the stakeholder has power to influence the firm by imposing their will on the firm, (2) the legitimacy of stakeholder is when

its actions seem desirable towards the firm with in the appropriate societal norms, values and beliefs, (3) the urgency of the stakeholder's claim on the firm. Influence is strong if a stakeholder has all the three attributes and weak with one attribute. (Mitchell et al., 1997). Stakeholders are actively involved in the action, objectives and policies according to the stakeholder management theory (Freeman, 2010). They can be of different size, model and ability including individuals, organization or unorganized groups. Furthermore, the stakeholder theory identifies that for a project to be successful it must add value to all the relevant stakeholders and no group should be left in isolation. The interests of all the parties should go together and it should be aligned towards the same direction, therefore all the actors must be considered.

Stakeholder analysis is done first by identifying the stakeholders and then by mapping the stakeholders according to different techniques, out of which 2 techniques have been used in this dissertation. Stakeholder mapping is used to visually represent the key players and their interrelations.

There have been different types of classification of stakeholder groups by different scholars. The most common classification is into primary and secondary stakeholders (Freeman, 1984). Stakeholders can be classified into 8 different types with different combination of 3 key attributes power, legitimacy and urgency (Mitchell et.al, 1997). Some other classifications like internal and external stakeholders (Sirgy,2002) and key stakeholder, potential and influential stakeholders (Wubben and Isakhanyan, 2011) have also been explained in other literature.

The stakeholder theory has been applied to several different fields including corporate social responsibility, education, environmental management, ethics, health, information technology, management, public policy and research management (Kivits, 2013). However, stakeholder analysis for shipping industry emission reductions lacks good literature.

1.3. Stakeholder Analysis for Decarbonization in the maritime industry

Stakeholder analysis provides valuable insight regarding the characteristics like actions, attitudes, behaviour and interests of stakeholders. The review of literature gives an impression of significance and existence of stakeholders and their influence in different sectors. However, the maritime sector has a complicated universe of stakeholders who influence talks for reduction of GHG emission in multiple ways to achieve their desired objectives. The nature of their stake

determines their objective and hence the level of influence. In such a huge and diverse industry, the centres of power do not fall on any particular country or organization but is spread across regions and groups. In fact, this is one of the major reasons why any attempts for innovation is rather slow (Black,2008). Consequently, the governance of shipping is not the sole authority of any state or government making it complex, fragmented and overlapping. This overlapping and fragmentation disrupts smooth governance and brings about a conflict of interest between the stakeholders.

Stakeholders for the transition to a cleaner shipping industry are groups who are directly involved in making policies as well as the organizations who are impacted by these policies. For the sake of this paper, we are going to consider the following definition applied to the stakeholders for decarbonizing of the shipping industry: - *“groups or organizations who are directly involved in policies aimed at decarbonizing shipping industry as well as groups and organizations who would be impacted by these changes in policy”* (source-author).

Stakeholders have different interests ranging from economic interests to environmental interest. The interests of all the parties should go together and it should be aligned towards the same direction. Additionally, all the actors must be considered because if institutions and groups are left out, the attainment of the results would be hampered. In the below segments the stakeholders for driving the shipping industry to a low carbon pathway has been mapped and visually represented using 2 different methods.

1.4. Primary and Secondary Stakeholders:

1.4.1. The concept: -

The grouping of stakeholders to primary and secondary stakeholders for determining the characteristics is one of the common method used for analysis (Freeman, 1984; Mitchell et al., 1997). For understanding the concept of primary and secondary stakeholders, it is important to note that there is a hierarchy of authority and power among different groups and the actual perceptions of the reform among different groups is an important criterion to be considered.

Primary stakeholders can be defined as those groups who are directly benefited from or affected by the decision and their participation is essential for the success of the decisions. The

interdependence between primary stakeholders and the objective is paramount and it can be a positive or negative effect (Clarkson,1995). If primary stakeholders are omitted from the decision making the objective cannot be achieved. A stakeholder can be classified as a primary stakeholder if they have legal and institutional rights. Primary stakeholders contribute to the decision-making process by involving directly with their money and time besides having legal rights (Freeman,1984). Internal stakeholders, key stakeholders and market stakeholders are other terms which are used instead of primary stakeholder. A few examples of primary stakeholders in the context of an organization are shareholders, suppliers, customers and employers who can affect the day to day activities (Ayuso et al., 2007).

On the other hand, secondary stakeholders are groups or organizations who are not directly affected by the decision, they have an effect and are affected indirectly by the decision making. Secondary stakeholders are referred to as external stakeholders as they are one removed from the decisions. The influence of secondary stakeholders is still significant, and they often act as intermediaries who aid in the delivery process (Clarkson,1995). Secondary stakeholders of an organization may include government agencies, monitoring agencies, money-lending institutions, implementing agencies, executing agencies, the media, public interest groups, consumer advocates and the local community organizations, which have interest in various activities (Ayuso et al., 2007).

To sum up, primary stakeholders are the key players in implementing any reforms, but the power of secondary stakeholders cannot be undermined in making decisions.

1.4.2. Primary and secondary stakeholders in shipping: -

Primary and secondary stakeholders of the shipping industry have been identified in this section based on a qualitative analysis from different journals, articles, news reports, interviews and press statements. The result of the analysis has been visually presented using a visual representation below (Fig.1.1). In the figure, 2 different colors depict the primary and secondary stakeholders and the arrowhead shows an extension of the main stakeholder. The extension can be in the form of a subsidiary, sub division, associate or some important country or association. Although, all the major stakeholders have been represented in the figure, because of the time constraint some of the stakeholders noted as less important has been left out from this

classification. For instance, coastal state is a group was not included in the list because they are identical to port states and their interests collide.

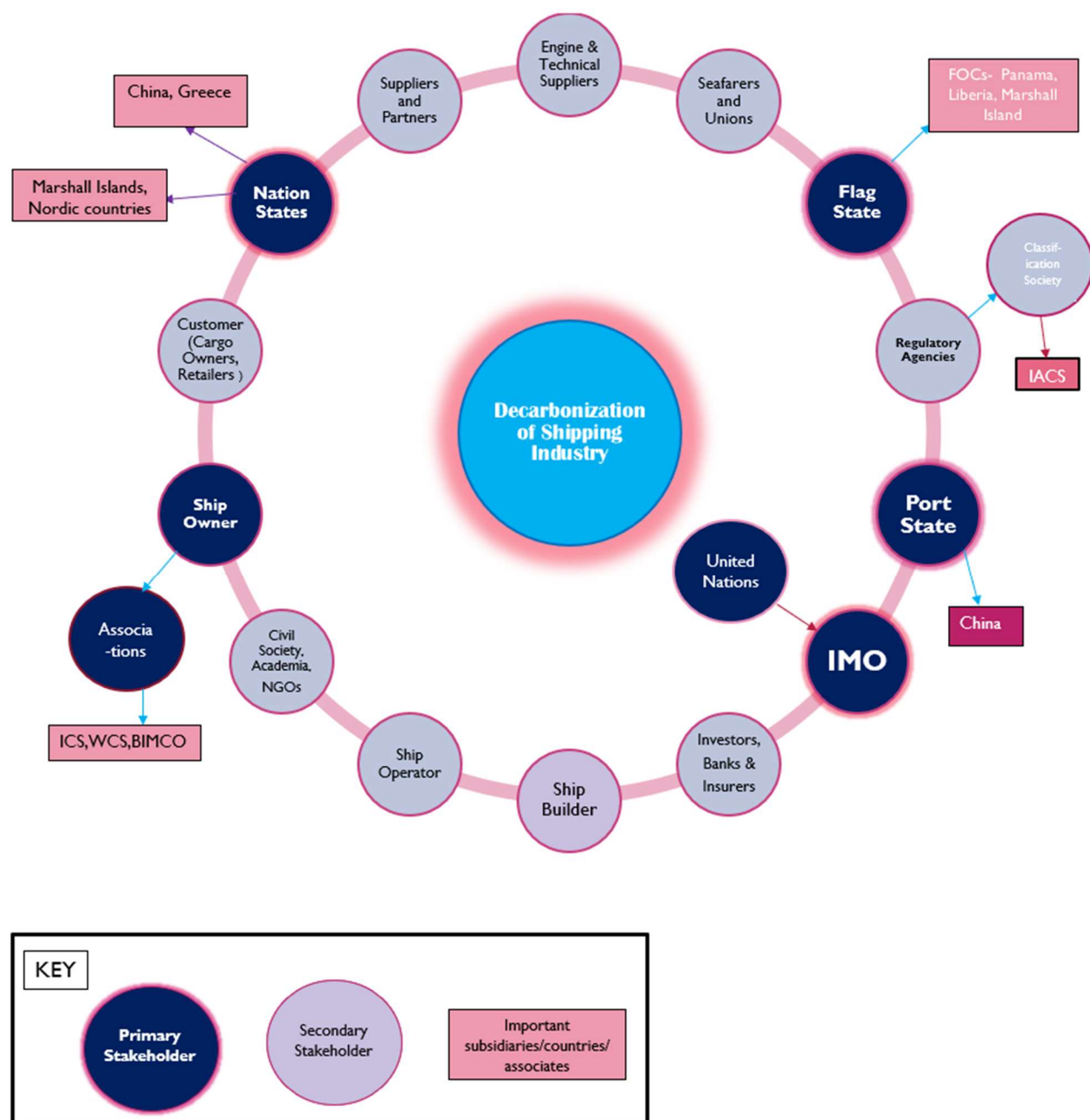


Fig.1.1 (Source:Author)

The primary stakeholders who are considered most crucial for driving the shipping industry to a low carbon path are: -

- (i) IMO
- (ii) Ship Owners
- (iii) Flag States
- (iv) Port States and
- (v) Influential Nation states.

These are the players who are actively responsible and the most affected by decisions on GHG emission from the industry. The next chapter will go deeper into their respective interests and powers, but they are first presented in this mapping section. IMO is a key stakeholder primarily because it is a powerful body in international shipping industry and has the power to make regulatory framework and initiate discussions on not only emissions reduction, but any reforms and improvements concerning the maritime sector. Another important group is the ship owners and the trade associations as they are directly impacted by the measures taken to limit CO₂ emissions. Major chunk of the financial impacts of the decisions to decarbonize the shipping industry are borne by this group because of their involvement. There are international trade associations who represent the shipping corporations in various inter-governmental organizations which advocate the interests of the shipping corporations. International Chamber of Shipping (ICS), World Shipping Council (WCS) and Baltic and International Maritime Council (BIMCO) are the 3 main trade associations which represents the ship owners globally. Flag states is also identified as a primary stakeholder as they are the states where ships are registered according to the regulations. Therefore, the main role of implementation and monitoring of the regulations are done by flag states. Panama, Republic of Marshall Islands and Liberia are significant as flags of convenience⁴ since a large number of vessels are registered under these states. In addition to flag states, port states, where the vessel loads/unloads cargo are also very crucial players. They act as an auxiliary means of checking the compliance with port state control methods.

As shipping is an international business, policies are made keeping in mind that all the nations are equally treated without favorable treatment to any country. However, there are some states who have a word to say in the affairs especially countries like China and Greece who are identified

⁴ See section 2.5

as key stakeholders. Indeed, China is an important country with stake in diverse fields of shipping industry including port, ship building, ship scrapping along with a substantial share in ship ownership (Worldshipping.org, 2018). Greece is also a significant power with many ship owners domiciled in Greece. These two countries are power houses in international shipping but oppose any form of targets to reduce GHG emission from shipping. Another important group is the European Union, in particular the Scandinavian countries, who have been very vocal about the emissions from shipping and called for more stringent measures for the reduction. Their positions are supported by some Pacific island nations like Marshall Islands who can already feel the effects of rising sea level rise. It is important to note that Marshall Islands have a large number of ships registered under them and are heavyweights in the shipping industry. There are other country groups in the developing world including countries like Brazil, Argentina and Saudi Arabia who oppose setting of any targets for reduction of emissions.

The secondary stakeholders identified to be critical for the shipping industry are Regulatory agencies, Ship builders, Engine and technology suppliers, Seafarers and Unions, NGOs Academia and Civil society, Banks, Insurers and financiers, Customers, Suppliers and Partners.

Regulatory agencies are fundamental in imposing the regulations which are put in place for GHG reductions but are not directly involved in the decision making. Regulatory agencies are classification societies who certify the ship to be fit for sailing during the registration and monitor vessels in regular time intervals to check for compliance. International Association of Classification Societies (IACS) is the organization which represents the major classification societies of the world in the shipping forums of the world. Investors, banks and financiers in the shipping sector has shown a trend to invest according to the trend of the market. However, with tougher rules the capital required for ship building and retrofitting will increase. The customers ranging from oil companies to private companies such as Ikea can be impacted by price rise due to newer technologies. With the need for increased energy efficiency and reducing emissions there is a competition among ship builders and equipment manufactures to come up with new technology.

1.5. Influence-Interest Grid

1.5.1. The concept: -

The second method of mapping the stakeholder is done by using an influence versus interest grid. By placing the stakeholders in a grid with their level of influence on the vertical axis and the level of interest on the horizontal axis the capability of the stakeholders to advance or block the reforms, and to identify potential conflicts and alliances can be gauged. Among the stakeholder research theories including Freeman (1984 & 2010), Mitchell et al. (1997) and Clarkson (1995) power and interest are considered as important parameters for stakeholder analysis. According to Mitchell et al. (1997) the 3 main features of stakeholder management are power, urgency and legitimacy. While the stakeholder management theories tried to focus on stakeholders in an organization or a corporate structure, this paper has tried to extend it over the diverse sector of international shipping. Influence and interest were chosen to form a grid rather than other attributes defined in the stakeholder theories because it is best suited in the context of the energy transition in shipping industry. Influence may be a term difficult to define but can be summarized as the capacity to impact policy making. A stakeholder can try to influence decision making directly or indirectly, where they can use allies or partners to manipulate (Frooman, 1999). Influence is closely related to power and legitimacy, power can be said as the level of influence (worldbank.org, 2001). Power is often described as tricky to define but easy to recognize (Mitchell et al., 1997). To sum up, the level of influence banks on the quality and quantity of the resource available and the power the stakeholder can gather to advance their goals. The level of interest is the emphasis which each stakeholder attaches to the reforms.

In this method of stakeholder mapping, stakeholders are arranged in the grid according to their influence and interest. The influence interest grid gives an idea of the division of the stakeholder through its visual representation (worldbank.org, 2001). For formulating the grid, influence level of the stakeholders is plotted in the vertical axis, which increases as we go up the grid. The stakeholders with the most power will occupy the topmost part of the grid and the less influential stakeholders occupies the bottom. Interest level of the stakeholders are plotted in the horizontal axis and it increases as we go towards the right. Stakeholders with minimum interest will be positioned in the left most corner and the stakeholders with maximum interest will occupy the

right most part. After placing stakeholders according to their influence and interest level the graph can be split into quadrants.

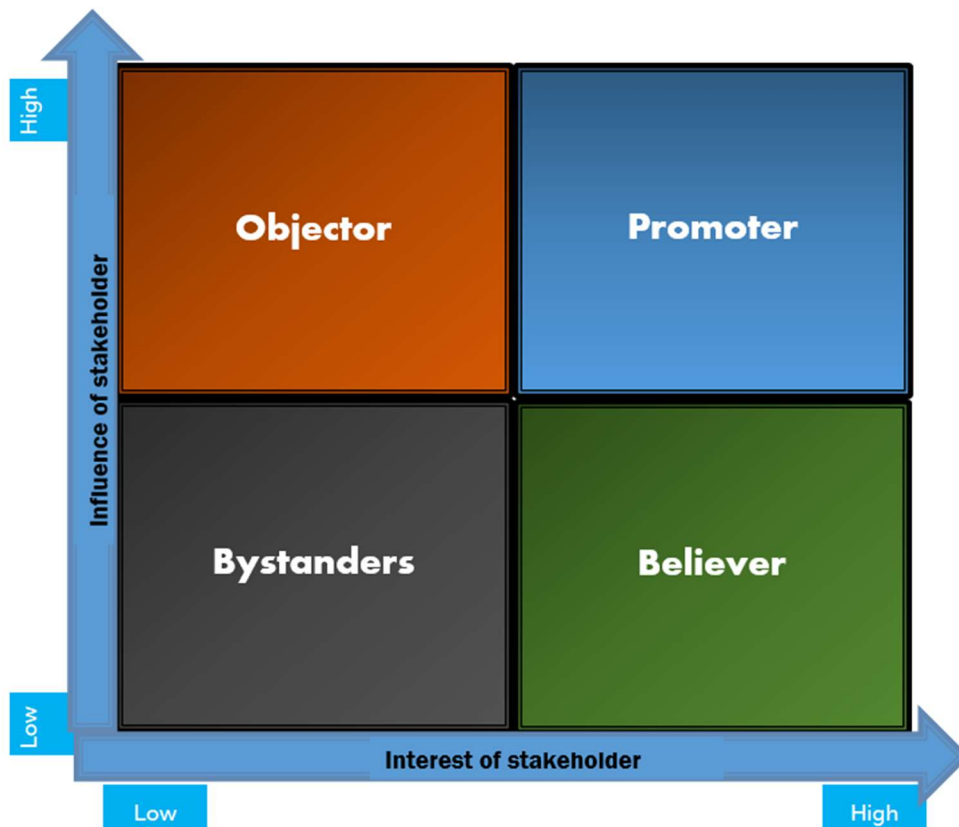


Fig.1.2 (Source: Author & stakeholdermap.com,2018)

Each quadrant specifies a certain characteristic of the stakeholder, these 4 classifications can be identified as: -

- (i)Promoter: - Groups who attach high priority for the implementation and their actions have powerful impact, they are the ones who drives the reforms positively.
- (ii)Objector: - Groups who are highly influential and powerful but with little interest for any change, they are the ones who poses the main roadblocks and challenges.
- (iii)Bystanders: - Stakeholders who indirectly affect the policy decision but have little influence and interest.
- (iv)Believer: - Stakeholders who have a strong interest but little power to force changes, usually think tanks and NGOs.

From the influence-interest quadrants the most important disputes to be considered are between the promoters and objectors, the more separated they are in the horizontal axis the more difficult it would be to reach an agreement. This is because they have a high influence level and if the interest level is in opposite quadrants then it leads to potential conflicts. The potential of alliances is within stakeholders in the same quadrants since they are like minded groups having similar interest and influence levels. Bystanders occupy the bottom quadrants because of their low levels of influence but cannot be ignored from the discussions. Believers who have a high interest level can influence other groups by their action and alleviate their interest levels.

1.5.2. Influence-Interest grid in shipping: -

The influence versus interest grid has been used to map the stakeholders for decarbonization in the maritime sector. The level of influence in this context is the authority stakeholders have towards making decisions on climate change in the international shipping industry and also the power yielded by them in the negotiations. The level of interests can be explained as the legitimate concern which the stakeholders have in order to set up targets for decarbonization. The influence-interest grid was plotted to have an overview of the different power and interest levels of the stakeholders. Additionally, it was intended to summarize the potential alliances and the possibilities of conflicts. The grid has been developed by using a qualitative assessment of the literature available including journals, books, news articles and press statements along with interviews conducted with experts in the field of shipping. This graph is used for the purpose of mapping only, the interests and relationships of stakeholders are further expanded in the next chapters.

The results from the influence-interest graph in the shipping industry is represented in the figure below(Fig.1.3). Different nation states have also been represented in the graph to expand on the alliance formations and disputes with respect to countries. While observing the graph, it gives an idea of the powerful and the most interested stakeholders. Furthermore, the graph also indicates the alliances that can be formed (within the same quadrant) and the disputes which can arise from stakeholders (opposite quadrants).

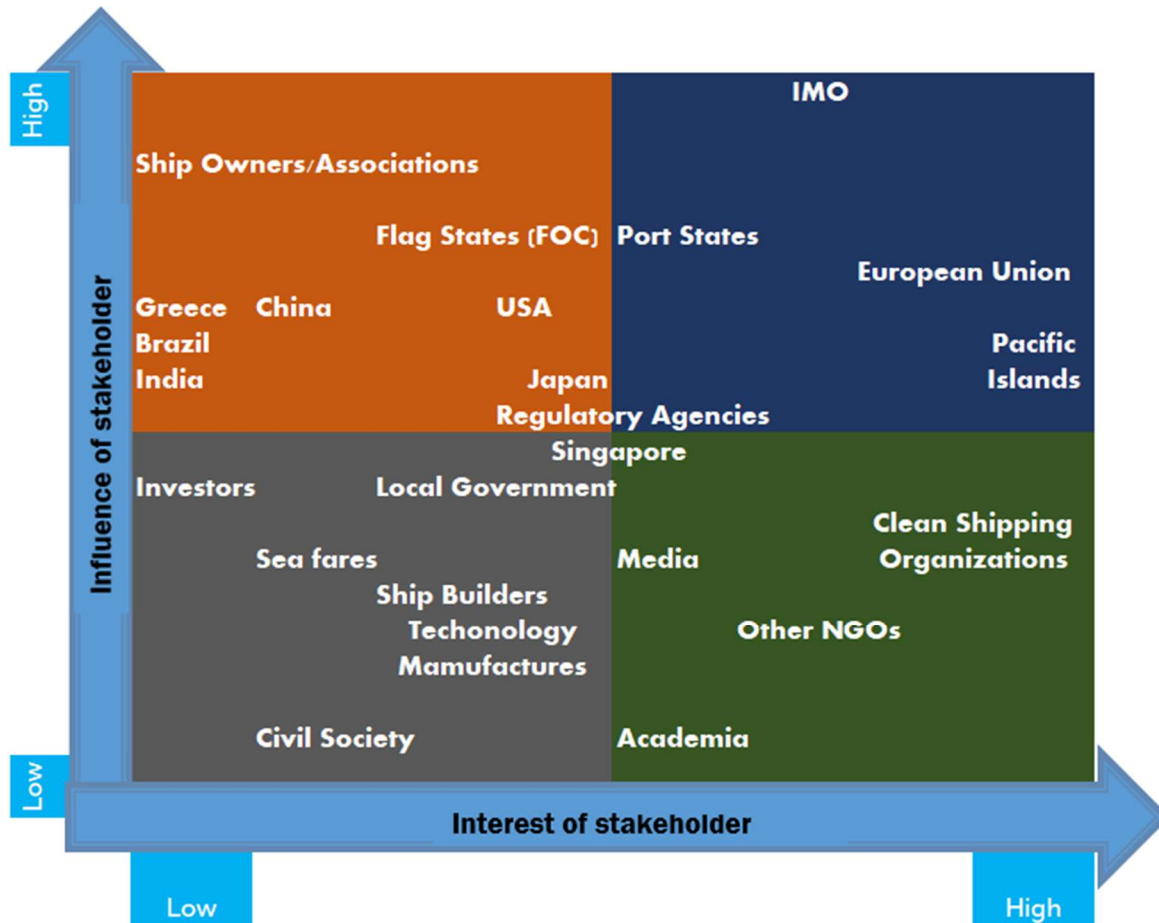


Fig.1.3 (Source: Author)

The potential disputes between the IMO and the very powerful shipping corporations can be observed from the figure as they occupy two extremes on the horizontal axis but being very high on the vertical axis. This shows that even though both are very powerful actors in international shipping, they have contrasting views on climate change discussions. The exact nature of the conflict and the complexities will be explained further in the coming chapters, but it is very fascinating to understand the incursion of the ship owners into IMO making it difficult to distinguish between the actual interests of IMO. IMO is guided by the UN and its international commitments to reduce GHG emissions from shipping which makes them a significant promoter. Even though IMO is a very powerful body, it is dealing with an increasing resistance from the private shipping corporation and their trade associations by means of lobbying and other activities. Ideally, IMO being a UN body should have high interests' levels as shown by other organization in the UN like UNFCCC. However, in the case of IMO the interest levels are lower because of

the influence of the ship owners inside the organization. The main advocates for setting of targets are the powerful EU bloc and the pacific islands states like Marshall Islands who are potential allies for limiting the amount of GHG emissions from the maritime sector.

The opposing countries falling under the “objectors” category are Greece, Brazil, China and Saudi Arabia. Furthermore, the countries in this group are mostly developing countries who attach significance to the economic growth rather than climate considerations. These countries ally with the shipping corporations as seen in the figure. The ship owners and associations are identified as objectors to decarbonization of the shipping industry. They are the most powerful group among the objectors because of their direct economic involvement and influence in the industry.

Other countries like Singapore occupy a somewhat ambiguous position because on one hand they support stricter rules on emissions from shipping but continue to act as a quasi FOC⁵ which does not effectively regulate the ships registered under their flags. In addition to Singapore U.S.A has also been in the fence with no clear indications of their stance on climate change impacts of shipping industry.

The civil society fall into the group with little concern because the public is unaware of the emissions originating from shipping, basically due to the lack of awareness. The little power that local communities have, are through their elected representatives who can push for their governments as well as ports in their jurisdiction to regulate the GHG emissions. Ship builders and Engine & Technology manufacturers have medium power with lesser interest level, although steps are done to innovate and adopt newer technologies with reduced emissions they usually play to the gallery, which means that they protect the interests of their customers who are the ship owners. Another group with considerable power but little positive or negative interests are the banks or investors concerned about their financial returns. They will invest less on fossil fuel powered ships if they start to see less profits from increased regulations.

The “believers” list consists of academia, think tanks, media and NGOs who have strong interest levels but little power to influence any decisions. NGOs like Clean Shipping Coalition conducts studies and brings forward effective ways to decarbonize the shipping industry, this is also supported by academia by understanding the urgency of the situation. Media belong to the subtype of stakeholders with relative power, for instance even government agencies could be influenced by public opinion aroused by media especially in sensitive areas like environmental conditions of

⁵ See chapter 4.3

sea. The different stakeholders are split into groups of promoters, objectors, bystanders and believers in a table as shown below (Table.1.1).

Groups	Stakeholders
Promoter	IMO, EU, Port States, Pacific Islands
Objector	Ship Owners/Associations, Flag States (FOCs), China, USA, India, Japan, Brazil, Greece
Bystander	Investors, Local Government, Ship builders, Technology Manufacturers, Sea Farers, Civil Society
Believer	Clean Shipping Organizations, Academia, Other NGOs, Media
More than one group	Regulatory Agencies, Singapore

Table.1.1 (Source: Author)

1.6. Conclusion: -

The conceptual framework explained in this chapter helps to identify the complex structuration of the industry and the potential risks of conflicts that may arise because of the multiple interests at stake. This chapter has separated the major stakeholders by classifying them into primary stakeholders and secondary stakeholders. The possible interactions between the stakeholders has been explored by arranging the stakeholders into an influence versus interest grid. Additionally, the framework used in this chapter has helped to focus on the main stakeholders as well as a chance to observe what interactions between key stakeholders holds key to successful climate talks in the maritime sector. The primary stakeholders who have been identified in this chapter seen as the most critical for leading shipping towards a low carbon path are IMO, Ship Owners, Port State, Flag state and nation states. The interests of the major stakeholders will be investigated more deeply in the coming chapters.

2. Competing Interests among the Major Stakeholders

2.1. Introduction

This chapter explains the interests of the important stakeholders in decarbonizing the maritime sector based on the conceptual framework presented in the previous chapter. The role of primary stakeholders, who were identified in the previous chapter is going to be explained in this chapter. The interest of the stakeholders explains their point of view regarding the climate change discussion in international shipping. This chapter also gives an idea of the economic, technical, social and political impacts that decarbonizing ships would have on the primary stakeholders. The role of the 5 primary stakeholders- IMO, Ship Owners, Port State, Flag state and important countries, identified in the previous chapter has been extensively discussed. The functioning and roles of IMO and Ship Owners in the climate talks have been investigated. Additionally, the interests of different countries in the maritime sector has also been presented. Flag states and Port states are discussed together because of the complimentary nature and the close links they have with each other. Furthermore, the role of secondary stakeholders is also briefly touched upon. However, explaining in detail about the secondary stakeholders was not possible because of the time and length constraint.

The aim of this chapter has been to confirm the importance of the primary stakeholders and to explain why it is difficult to integrate them into a coherent group. The diversity in interests of the different stakeholders will help to identify the potential roadblocks or opportunities to reach a compromise.

2.2 Major stake holders in shipping industry.

Shipping is a complicated industry including stakeholders on land and water, to add to this, they are from diverse nations having different values and cultures subject to different laws and norms. The maritime sector is truly a global industry having stakes in all parts of the world, for instance a ship registered under the flag of Panama having European owners may transport goods between ports of Latin America and China with a crew of Indians and Filipinos. Shipping corporations and their vessels may be registered in different states and vessels will use ports across many states

and navigate through different national as well as international waters (Rahim et.al, 2016). In addition to the diversity in geographical spread of the stakeholders, the size and power of the stakeholders also differs vastly.

The fragmentation and polycentric nature of the shipping industry makes it difficult for smooth governance and brings about conflict of interest. For example, in regard to climate change on one hand the IMO adopts a policy of “no favorable treatment” towards its member states but on the other hand UNFCCC goes by the principle of “common but differentiated responsibility”. Although both are UN bodies, when trying to address the responsibility of emissions from the maritime sector their views are diametrically opposite. Due to the globalized nature of the industry imposition of rules is also a major challenge because of the polycentric structure of governance (Bloor et al., 2015). The rules and legal framework is made by IMO and implemented via flag state controls and port state controls⁶. The role of these stakeholders along with the interests of ship owners and some influential nation states, who were recognized as primary stakeholders in the previous chapter has been detailed below.

2.3. IMO: - The big brother watching over international shipping

The International Maritime Organization or IMO is a specialized agency of the United Nations (UN) and is the most important organization in international shipping. IMO is responsible for the safety and security of all sea going vessels, in addition to creating a regulatory framework that is fair, effective and universally adopted (Imo.org, 2018). IMO is also responsible for adopting and implementing regulations for dealing with environmental concerns in the maritime sector. In addition to making a regulatory framework which has a compliance across the globe, the responsibility of creating equal rights and opportunities in the shipping industry worldwide is also another major objective of the IMO (Unchronicle.un.org, 2018).

IMO is an intergovernmental cooperation of countries having 173-member states and 3 associate states (mostly landlocked countries with no ports or coast line are not represented) presently. Additionally, there are 79 international NGOs with mostly consultative status and 64 inter-governmental organizations acting as observer organizations. The international associations having consultative status represent a wide range of industries, for example Clean Shipping

⁶ See section 2.5

Coalition, Green Peace International, International Association of Classification Societies (IACS), International Association of Ports and Harbors, International Chamber of Shipping (ICS), World Shipping Council (WSC), World Wide Fund for Nature (WWF), International Transport Workers' Federation (ITF) and Baltic & International Maritime Council (BIMCO) are some of them. Inter-governmental bodies such as World Customs Organization, Organization for Economic Co-operation and Development, League of Arab States, International Organization for Migration, International Criminal Police Organization, European Commission and the Commonwealth Secretariat maintains observe status in the IMO (imo.org, 2018).

The organization structure of IMO is given in the below figure (Fig.2.1), it consists of a general assembly, a council, the secretariat and several committees and sub committees. The main governing body of IMO is the Assembly which holds sessions biennially having the all the member states as attendees. The council⁷ which is elected by the assembly, consists of 40-member states, acts as the governing body on behalf of the assembly in the period of these 2 years in between assembly meetings. The technical activities of the International Maritime Organization are executed by several committees and sub-committees. A prime example is the environmental protection committee which is responsible for reducing the climate change impact from shipping and is called as the Marine Environment Protection Committee -MEPC (Imo.org ,2018). The secretariat is the executive wing consisting of bureaucrats and headed by the secretary general.

⁷ Consists of 3 categories- Category (a) 10 States with the largest interest in providing international shipping services, Category (b) 10 States with the largest interest in international seaborne trade, Category (c) 20 States not elected under (a) or (b) above, which have special interests in maritime transport or navigation and whose election to the Council will ensure the representation of all major geographic areas of the world.

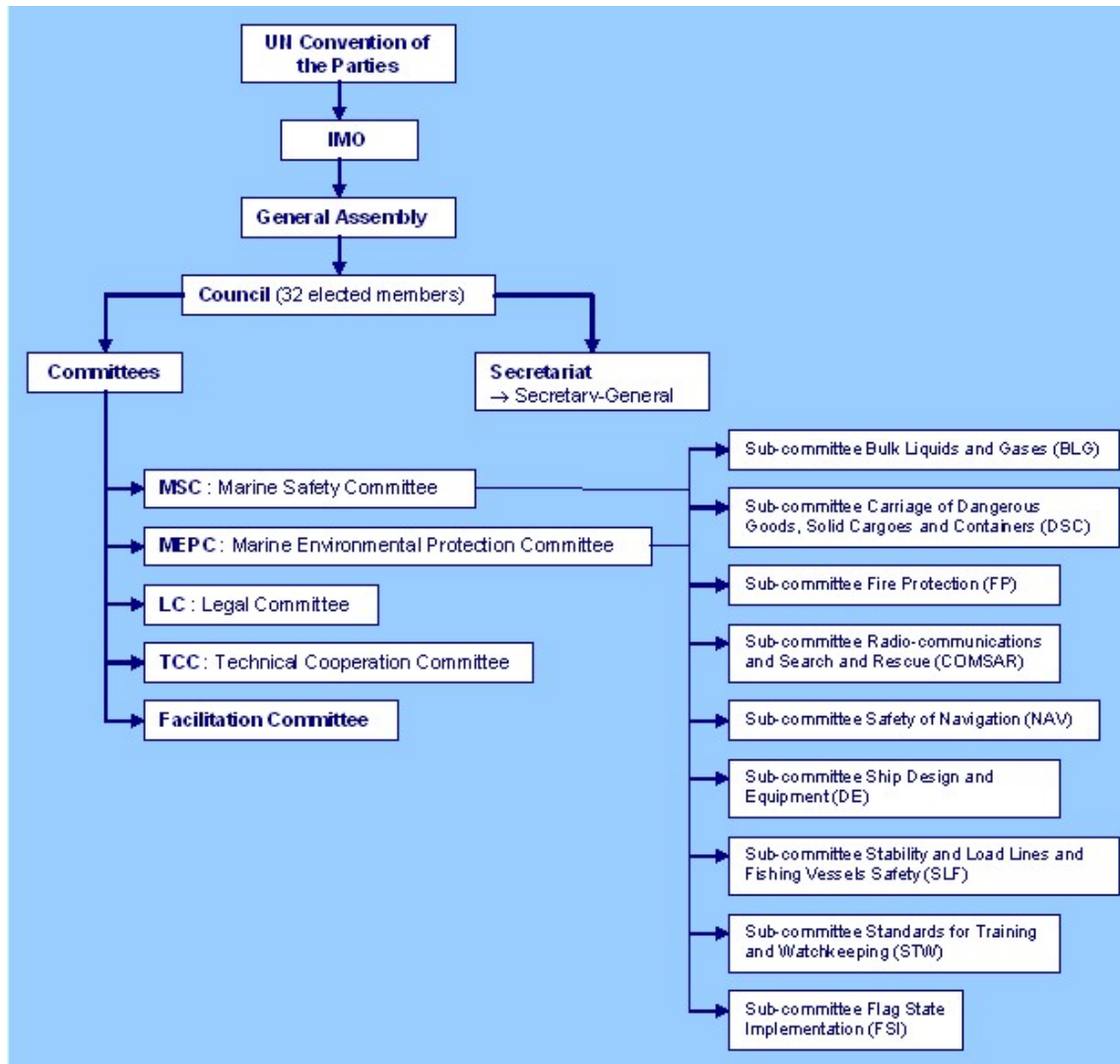


Fig.2.1 (Source: centrodoscapitales.org,2010)

The description of functions carried out by important sections of IMO is given in the table below (Fig 2.2). IMO is entrusted with the responsibility of drafting conventions or other suitable agreements for international shipping, but the decision-making process is very complex. The decisions are made by IMO through consensus among the different members representing their respective governments. Hence, most of the decisions are time consuming and would be a compromise solution. For implementation of policies, each full-time member is given voting rights with each member state having one vote and the decisions are finalized based on the majority votes. The voting frequency is minimized to eliminate roadblocks and for the ease of implementation. Consequently, the final voting is the end result of long discussions and a

compromise between members. Consulting organizations and observer members are not given any voting rights, but they actively participate during the dialogue and discussion process.

IMO Section	Description of its function
Assembly	The highest governing body of the organization. The Assembly includes all Member States and meets every two years. It is responsible for approving IMO's programme, deciding its budget and electing the Council.
Council	The Council, elected for two-year terms, consists of 40 Member States and is the executive body of the IMO, responsible for supervising its work. Between Assembly sessions it performs all the functions of the Assembly apart from making recommendations to Governments on maritime safety and pollution prevention, which is reserved for the Assembly ³ .
Marine Environment Protection Committee (MEPC)	MEPC is a permanent subsidiary organ of the Assembly that has the power to adopt and amend legislation governing marine pollution from ships, including GHG emissions and energy efficiency regulations. At present, nearly all negotiations regarding the creation and amendment of legal instruments concerning climate policy within the IMO are conducted through the MEPC, with both GHG emission reductions and energy efficiency measures an agenda item at every meeting throughout 2015-17. The MEPC regularly establishing working groups for dealing with specific issues such as GHG emissions regulations ⁴ and meets three times every two years at the IMO's headquarters in London ⁵ .

Fig.2.2 (Source: infuencemap.org)

The environmental issues under IMO is addressed by the Marine Environment Protection Committee -MEPC. The chair of MEPC, which rotates every meeting (last chair was Japan), is a very important player for setting up of the climate change agenda in the maritime sector (Transparency Index,2018). In addition to the recent MEPC-72 decision on emissions from ships, IMO has used different methods to reduce emissions from international shipping, most effective

one is the use of Emission Control Areas⁸ (ECA) which are regions having a lower limit for NO_x and SO_x. This has been active around areas in the developed countries and coasts of North America and Europe as illustrated in the picture below(Fig.2.3).

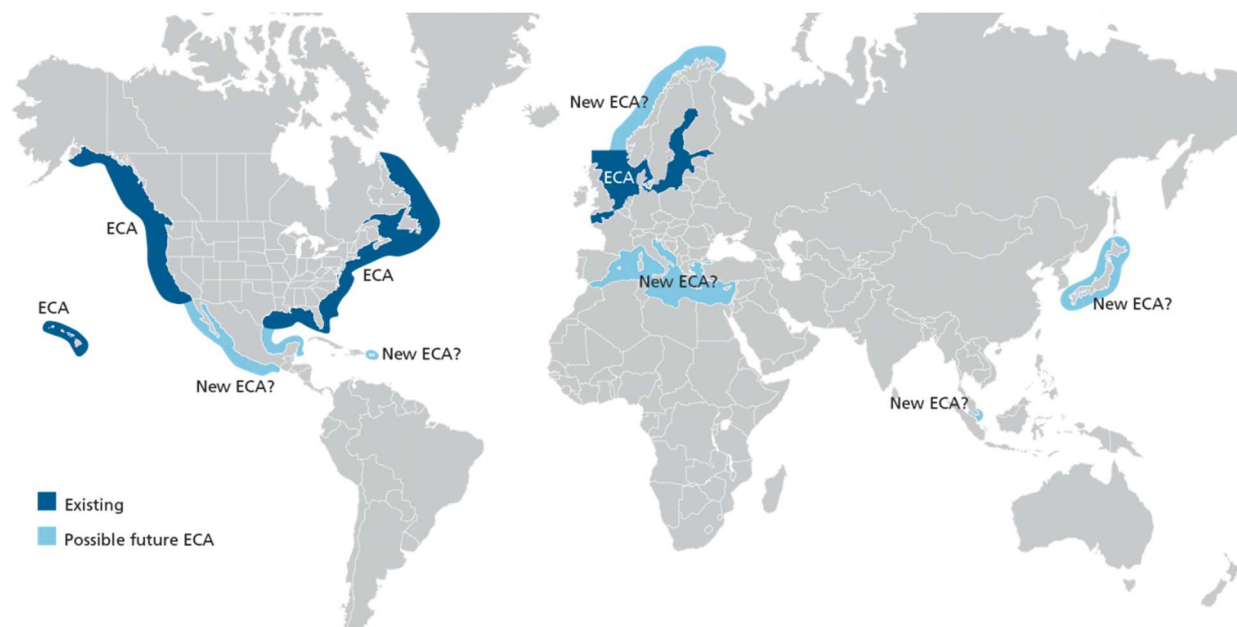


Fig.2.3 (Source: Thor Marine, 2018)

Another highly fruitful approach towards increasing the energy efficiency of ships by implementing Energy Efficiency Design Index (EEDI)⁹ as an obligation for new ships and Ship Energy Efficiency Management Plan (SEEMP)¹⁰ for older ships(imo.org ,2018) have been successful. Some other projects including GEF-UNDP-IMO Global Maritime Energy Efficiency Partnership (GloMEEP)¹¹ have objectives to share and improve the technical expertise between the member states (gmn.org ,2018). Finally, the Global MTCC Network (GMN)¹², funded by

⁸ ECA are regions in the sea in which the emissions limit is stricter than other places, emissions comprise of SO_x and NO_x and does not include CO₂ emissions. These zones have been active from 2005 and newer areas are being considered now

⁹ EEDI needs the vessel to have a minimum energy efficiency level per capacity mile based on the vessel type. The standards levels are improved incrementally every 5 years, and this particularly concerns new built ships

¹⁰ SEEMP is an operational measure to improve energy efficiency, concerns ship in operations.

¹¹ GloMEEP aims to significantly reduce GHG emissions by supporting 10 leading pilot countries in speeding up the legal, institutional and policy reforms required for the same.

¹² GMN is a project powered by EU whose formal name is Capacity Building for Climate Change Mitigation in the Maritime Shipping Industry is an initiative which binds technology centers in different parts of the world to promote technologies.

European Union, is a project to establish Maritime Technologies Cooperation Centers in various parts of the world.

It is interesting to note that although IMO has initiated a lot of positive developments, there are critics arguing that the track record of IMO shows that it usually moves at a very slow pace in the subject of environment regulations (Gabbatiss, 2018). Another argument is the conflict of interest within the members of IMO, which was highlighted in a study conducted by Transparency Index on 2018(transparency.org, 2018). The research was done to gauge the lapses in governance of IMO considering transparency, accountability and integrity as main factors. A clear majority of the world's commercial vessels (52% of the total) are registered in 5 tax havens namely Panama, Liberia, the Marshall Islands, Malta and Bahamas. They contribute up to 43.5 percent of the IMO funding, therefore having considerable influence over policy matters. Furthermore, these member states have been able to insert representatives from the corporate sector, including ship owners in their delegations to IMO without being concerned about any moral code (Transparency Index, 2018). IMO doesn't interfere in the appointment of the delegates, it is solely the responsibility of the member states to determine the delegation to be sent. It is not uncommon for the member states to send representatives from private companies instead of national delegations. An increasing private sector participation will push the vested interest of some companies and in this process undermine the interests of the citizens, which will limit attempts for any effective policy implementation towards the path of low carbon emissions. Likewise, the consultative membership scheme in the IMO also raises concerns over the influence of some stakeholders and interest group over the policy making. In this scheme industry actors are granted consultative membership their specialized expertise. Although consulting members doesn't have any voting right, but still the membership allows them to acquire classified information and push for their agendas in various committees. Trade associations outnumbering civil society organizations five to one in the recent meetings of IMO is a clear illustration of the seriousness of this problem (influencemap.org, 2018).

2.4. Why Ship Owners and Associations are an indispensable group?

The lifeline of the maritime industry are the ship owners, they are not only vital for the reduction of GHG emissions, but for any policy to be implemented in the maritime sector. Their consent and cooperation for policy decisions is necessary as they bear a large chunk of the cost for the

changes. Ship owners can be of different size and shapes including large multinational private corporations as well as state owned firms. However, the major owners are private companies, the top 10 liner shipping companies are given in the below figure (Fig2.4). The Danish company Maersk occupies the top position in the list and a considerable part of the list is made up of European companies. Swiss based Mediterranean Shipping Company, French shipping giants CMA-CGM and German company Hapag Lloyd make up the top five. Asian companies from Singapore/Japan like ONE and Chinese companies like COSCO, OOCL and Yang Ming Marine are all important companies in the top 10 largest liner companies.

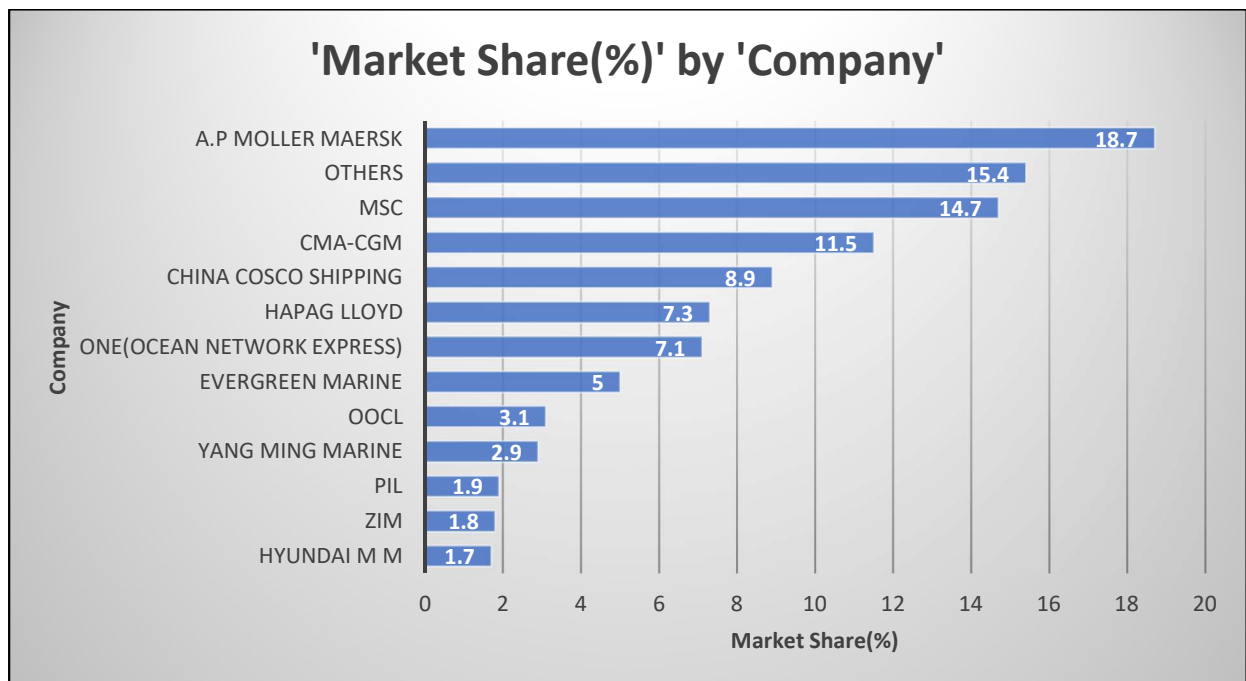


Fig.2.4 (Source: alphaliner.com)

As most of the methods to mitigate GHG emissions from ships are by increasing regulations, for the ship owners it usually means an economic cost. In addition to this, large scale investments are required for infrastructure developments as well. As far as the development of infrastructure is considered there is a case of “chicken and egg situation” in which there is a debate on what should be introduced first, the infrastructure required for the new technology or new ships much like the debate around electric cars. For instance, the introduction of LNG as marine fuels is at a very slow pace is for the most part due to the lack of infrastructure (Janssen, 2015). Since shipping industry is still unclear of the technology to be put into action for an effective reduction of

emissions, ship owners follow the strategy of wait and watch. Even with policies designed for regulations such as the EU supported cap and trade system MRV¹³(Monitoring, Reporting and Verification) scheme, there is a considerable financial impact on the companies. This scheme increases the operational cost thereby raising concern among the major corporations, however it is difficult to determine the exact figure of costs associated with any type of the regulations. Nevertheless, increasing costs for reduction in GHG may increase the transportation cost and thereby increase the positive externalities¹⁴ of shipping thereby reducing the emission further (Rahim et.al, 2016). This is possible because increase in cost of transport will increase the freight charges and therefore ship owners will try to make ships more fuel efficient to reduce fuel consumption and in effect reducing emissions.

Another major hurdle for decarbonizing the maritime transport sector is because none of the instruments used for regulation focuses on the private companies. The measures are focused on nation states and seldom target the corporations. Therefore, there is little to no accountability from the ship owners, an illustration of this case is MARPOL¹⁵ convention which provides for measures to curb ship pollution regulations from ships in 6 annexes. Annexes I and II about oil and chemical pollution in shipping are binding for member states and there is no mention about the vessels. Even in Annex VI, which regulates air pollution, the implementation is optional responsibility of states. Furthermore, none of these regulations even cover CO₂ emissions from fossil fuels. Nations are mostly responsible for the regulations from ships even if the GHG emissions from shipping are considered independent of the country's emissions (Rahim et.al, 2016). Therefore, private ship owners do not take any blame for the GHG emissions and there is no well-defined accountability structure.

Lastly, the data from shipping companies are not publicized and are most often hidden from the public which adds to more suspicion of the actual interest the companies have towards decarbonization. A notable exception from this is the largest container firm, AP Moller-Maersk, who seems to be very open about their climate policies and appears to partner action on climate

¹³ MRV was launched by European Maritime Safety agency lawfully requires companies to report on their CO₂ emission which took effect from January 2018. This data will be made public and will encourage a reduction of emissions from the maritime sector.

¹⁴ Benefits to society is more than benefits to oneself

¹⁵ MARPOL is short for Marine Pollution which is the name given to the International Convention for the Prevention of Pollution from Ships, 1973 which was modified to a protocol in 1978. It is one of the most important international marine convention.

change (influencemap.org). Other than some few exceptions, most of the companies are ill prepared to implement changes and have a weak governance to address the issues related to climate change. The companies are not prepared to devote their attention towards reducing GHG emissions from shipping. The table.2.1 below features the performances of some leading shipping companies in terms of emission reductions and compares the governance system (Helfre and Boot, 2013). From the table we can understand that other than one or two companies, most of the companies lack a governance system to effectively tackle subjects about climate change. This is a major demerit to implement measures because without a structure there is no starting point to take up the climate change issues to the next level. The other point which can be highlighted from table is the insufficient disclosure of data, this causes suspicion and also raises concerns about the intent of the companies.

Table.2.1 (Source: Helfre and Boot, 2013)

Company Name	Overall Carbon Performance	Board Oversight of ESG Issues	GHG Emissions Reduction Targets	Fleet Management Programs	Carbon Intensity (tCO ₂ e/USD m. sales)	Carbon Intensity Trend
A.P. Moller - Maersk	Strong	ESG committee	Targets set	Strong programs	In line with the industry average	Insufficient disclosure
Kawasaki Kisen Kaisha	Relatively strong	ESG committee	Targets set	Strong programs	Above industry average	Decline by 25% or more over the last 4 years
Mitsui OSK	Relatively strong	ESG committee	No targets set	Strong programs	Well above industry average	Decline by 25% or more over the last 4 years
Neptune Orient Lines	Weak	No formal ESG committee	No targets set	Activities	Insufficient disclosure	Insufficient disclosure
Nippon Yusen Kabushiki Kaisha	Adequate	ESG committee	Targets set	Adequate programs	In line with the industry average	Insufficient disclosure
Orient Overseas	Relatively weak	ESG committee	Targets set	Adequate programs	Above industry average	Insufficient disclosure

Conclusively, the fundamental objective of the corporations is to decrease the operation costs of its fleet. The unimpressive implementation of the regulations by states and inadequacy in attaching the responsibility of GHG emissions to corporations have resulted in the lackluster performance by the ship owners. There are very few policies or intention to develop such policies aiming to make vessels more responsible, either from the IMO or any international organization, which makes the ship owners complacent.

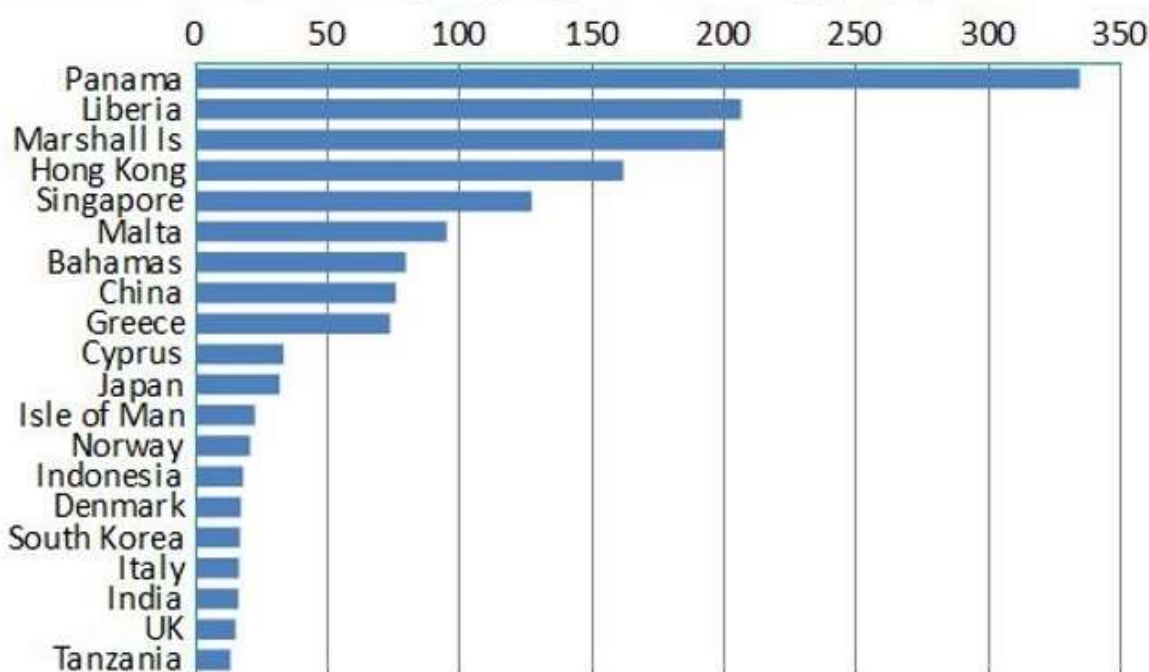
Although ship owners oppose the implementation of targets in the sector, it is very rarely seen that they speak openly about climate regulation strategies. This task is done by powerful trade associations of the ship owners instead of them. These trade associations represent ship owners at global events on climate change and vehemently oppose any binding GHG regulation for the shipping industry. International Chamber of Shipping, BIMCO and World Shipping Council are the most powerful associations who represent the interests of the shipping corporations worldwide (influencemap.org, 2018). International Chamber of Shipping (ICS) is the largest group with members from the national ship owners associations of different countries including Asia, Europe and Americas represented. ICS represents the ship owners in IMO by acting as a consultative body, besides this it promotes the interests of ship owners in World Customs Organization, UNCTAD, and other intergovernmental bodies related to shipping(ics-shipping.org,2017). Baltic and International Maritime Council(BIMCO) and World Shipping Council are also other powerful trade associations representing ship owners globally. International Chamber of Shipping has actively advocated for not having a 2017-2023 emission reduction roadmap, submitting an IMO policy proposal in 2016 opposing the implementation of GHG emissions regulations until 2023. Furthermore, throughout 2015-17 ICS has consistently rejected the introduction of binding GHG emissions targets and in 2017 advocated for GHG emissions regulations adopted in 2023 to only include voluntary ‘aspirational objectives’ for the industry in multiple policy submissions to the IMO. Additionally, ICS is vocally opposed to regional GHG regulations for shipping, it can be seen that all the shipping corporations have similar positions on climate change (influencemap.org,2018).

2.5. Flags of convenience and Port State Control

It is important to understand the role of port states and the concept of flags of convenience to understand the obstacles to implement the regulations proposed by IMO. All sea going vessels has to be registered under a state, this gives them the authority to fly the flag of the state and the state is called as Flag state for the vessel (Hamad, 2016). A vessel registered under a flag state will have to abide by the laws and regulations of the flag country and it takes the nationality of that state regardless of where the ship was constructed, nationality of the sailors or where the

owner is based. United Nation Convention on the Law Of Sea (UNCLOS)¹⁶ mandates that a “genuine” link between the ship and the state has to be established to allocate the ships registry. Although this is a very fair method, the problems are that there is no exact definition of the term “genuine”. Flag of convenience (FOC) or open registry is the practice of registering a ship in a different country other than the country of the ships, most likely to avoid regulations and taxes. In other words, open registry is a state which operates a shipping registry accessible to all and the owner’s country are not relevant (influencemap.org,2017).

Top 20 ship registration countries (flag states) as at 1 January 2016
million deadweight tonnes, seagoing merchant ships, 100 gt and over



source: UNCTAD *Review of Maritime Transport, 2016*

Fig.2.5 (source: Hellenicshippingnews.com, 2018)

The large number of vessels, more than 50%, registered under countries considered tax havens upholds this fact that this practice is very common (in Fig.2.5). Panama, Liberia, Marshall Islands, Bahamas and Malta are all examples of countries having an open registry. Additionally, using a FOC gives more benefits such as anonymity of ownership, reduced taxes and economic benefits

¹⁶ UNCLOS is the international agreement which defines the rights and duties of nations with respect to the use of the world’s oceans and laws of sea.

to the ship owners. It also means that the companies have lesser labor laws to fear and have a simpler and faster registration procedure (Sea News, 2018). The use of Flags of convenience over traditional flags can be summarized by the following 3 points: -

- (i) higher flexibility
- (ii) lower operating costs and
- (iii) anonymity.

This also starts a troubling trend in which the flag states compete with each other by lowering the standards of regulations to attract more vessels. FOC are usually developing countries trying to maximize their economic benefits by registering an increasing number of ships under their flags. Therefore, ship registration is only considered as a means to increase the state revenue in these states. The shipping companies seek states with minimal regulations to evade costly and unfavorable legislations thereby maximizing their profits. This practice is referred to as flag shopping (Kutner and Wilensky, 2014) because the owners are free to seek from any registry across the globe. These states lack the capacity as well as the will to enforce regulations to limit the GHG emissions, therefore they are unable to honor international agreements. Furthermore, registries are so constructed that the flag states barely have a link with the registered ships or have any influence over the vessels.

FOCs franchising the registry to private corporations is another complication, this is done generally when the country doesn't have enough resources to cope with the growing requirements. The private companies are usually based abroad, and the flag states outsource the entire registration process to them. However, the ships will still fall under the jurisdiction of the national laws of the flag state and only the registration process is franchised. Franchising also effects the nations efforts to fulfill regulation requirements as private companies have different priorities than the interests of the country (Kutner and Wilensky, 2014).

Conventionally the enforcement of the regulation falls in the hand of flag states but the inadequacy of this has led to the implementation of port state control. It has been seen that flag states mostly neglect the lower standards of the vessels when they set sail to other ports and this threatens the port states more than the flag states. Therefore, another mechanism to regulate the emissions from vessels always spoken in the same line as of flag state regulation is port state control. Port state control is the inspection of foreign ships in the ports of call. The vessels using a harbor in any part of the world irrespective of the flag are subjected to inspection by the national

ports to verify the compliance with international rules (imo.org, 2018). However, it is not practical to impose port state control prior to flag state control. Port state control is used as second line of defense for regulating marine vessels, keeping in mind that flag state control is the primary method, but it has proved to be a very effective tool. This is because the main interest for the flag states regarding emission control can be different but for a port state where the vessels berth, the only interest is protecting the environment for its citizens. Hence port states have a clear objective to implement regulations which are first focused on the pollution (Fikri, 2007). Port state authority under UNCLOS applies to both foreign and domestic ships thereby making a very effective method to check the emission from ships. In practice, port state controls have proven to be a common enforcement mechanism in a number of international agreements.

The flag states have principal authority over ships in their registry and, as such, have wide discretion to regulate GHG emissions of ships registered under their flag. Such legal authority applies to all states regardless of status as a FOC state or the decision to franchise the registry. FOC states with registered franchisees will have barriers to carry out the regulations for decarbonization as more stringent regulations may make a FOC state's registry less attractive and lead to a reduction in the size of the registry. In addition, limited resources may make it difficult to properly ensure compliance with regulations. Port State Control means the equal treatment of all berthing ships regardless of flag was explicitly developed to address the deficiencies of Flag State Control and employs smart regulation strategies (Gunningham et al., 1998). It sought to incentivize ship operators into compliance, most notably through naming-and shaming on industry websites those vessels found on inspection to be deficient, and hence influencing the freight rates that the shamed vessels can command (Bloor et al., 2006), the relationship between flag state and port state is further explained in chapter 4.3.

Since climate change poses a substantial threat to all Pacific island states, these nations may benefit from a regional agreement to set GHG standards and to enforce these standards across all their ports. This could be an attractive proposal as port states have a strong economic interest in encouraging shipping and will want to ensure regulations do not hinder maritime trade. Further, the more states that impose similar provisions, the less opportunity there is for flag-shopping or reflagging for ships looking to avoid new regulations.

2.6. Powerful influence of countries in international shipping: Analyzing the Power and interest levels of nations

Although countries are entrusted primarily with the responsibility of reducing GHG emissions in their territorial waters, it is not possible to allocate carbon emissions from shipping to a particular country (Rahim et.al, 2016). International shipping is highly fragmented, and the governance is polycentric but still there are some countries which stand out with their significance. These power centers must be analyzed and understood to explain the influence each one has on the decision making towards a cleaner shipping industry. Therefore, the last primary stakeholder identified in the previous chapter i.e., nation states are explained in this part. To comprehend further, the pictorial representation of some of the prominent countries in different fields of shipping industry is given below (Fig.2.6).

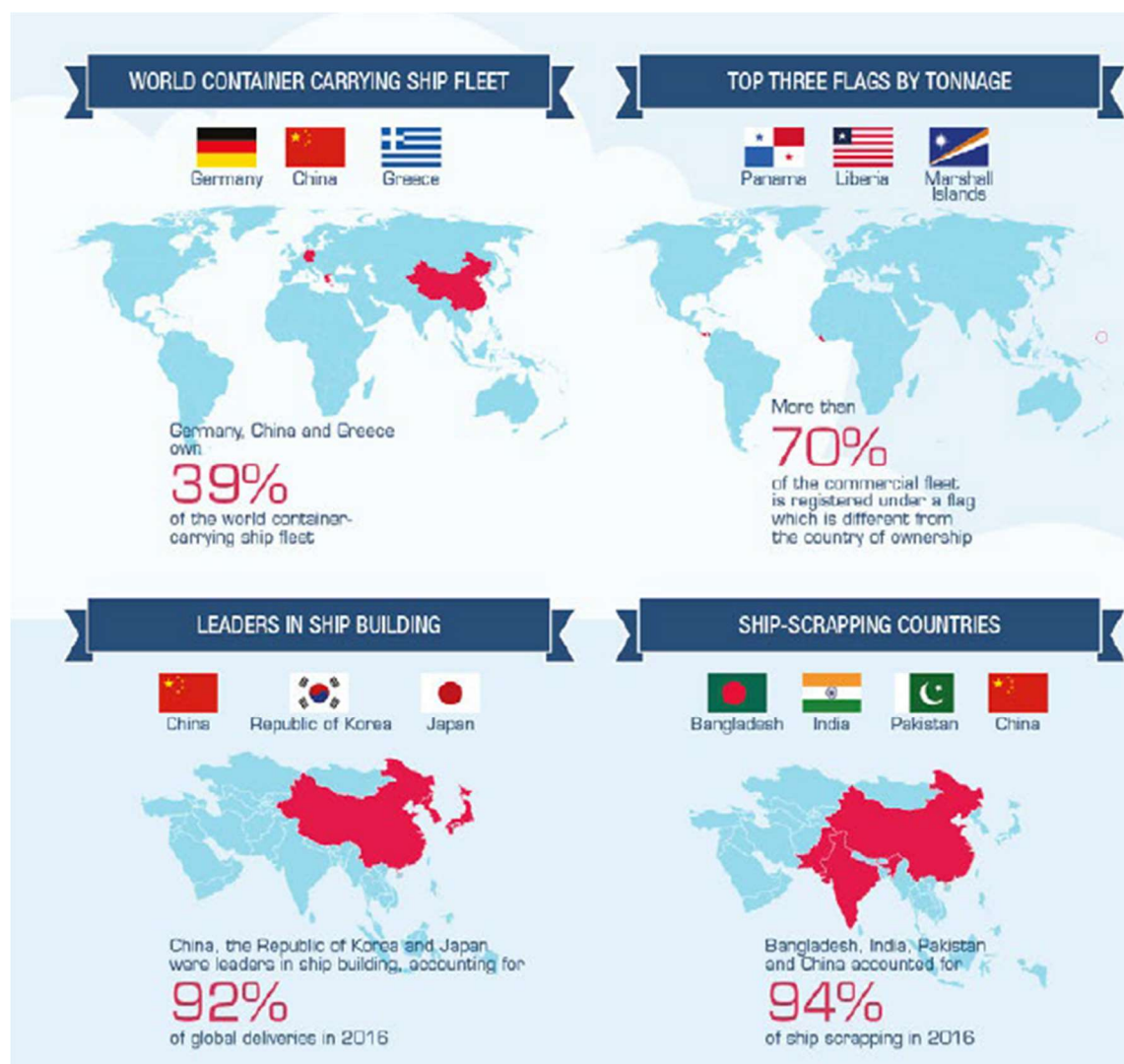
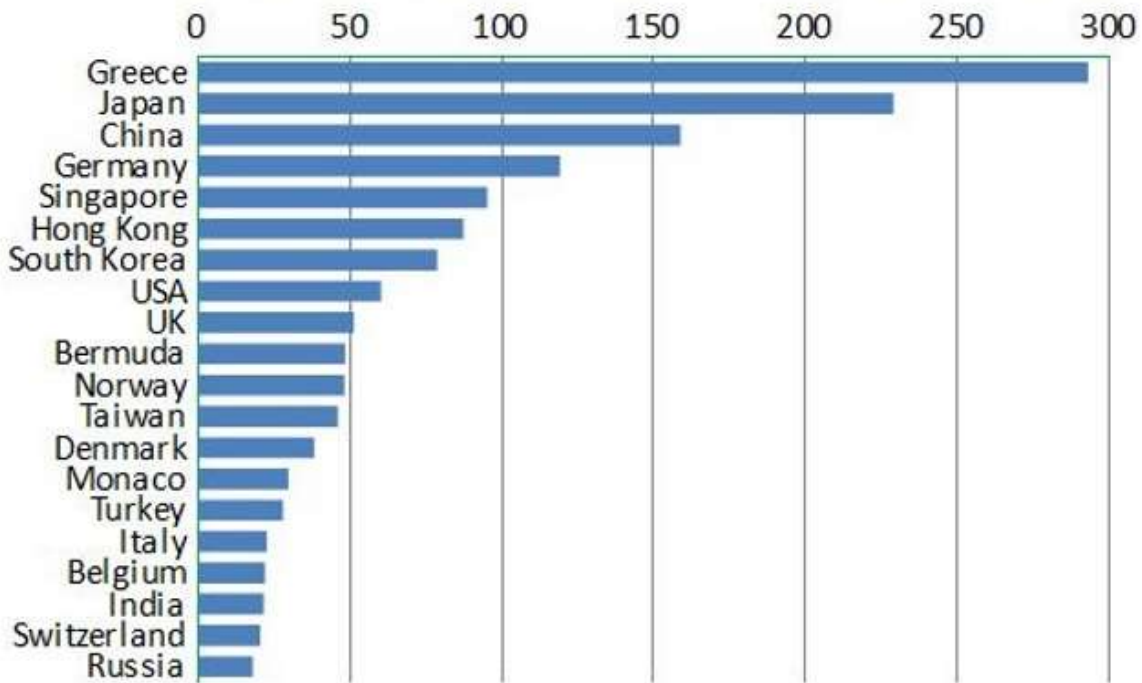


Fig.2.6:Source:UNCTAD,2017

China maintains a key role in the industry having the 7 out of the 10 busiest ports in the world, they also have a massive ship building and ship scrapping industry (Worldshipping.org, 2018). In addition to this, large fleet of ships are owned by Chinese companies, but ownership of vessels is dominated by the Greeks. Greek ship-owners have the largest merchant fleet in the world, controlling 16% of the world's fleet, the largest ship owners in the world are shown in the below list (see Fig.2.7).

Top 20 shipowning countries as at 1 January 2016

million deadweight tonnes, seagoing merchant ships, 1000 gt and over



source: UNCTAD *Review of Maritime Transport, 2016*

Fig.2.7 (source: Hellenicshippingnews.com, 2018)

Greece plays an important role in the various trade associations of the shipping industry. For example, BIMCO, INTERCARGO, European Communities' Shipowners' Associations and INTERTANKO, which are all leading trade association in the shipping industry, have one thing in common ie, all these organizations have Greeks at the topmost position (Influencemap.org, 2018). Due to this Greece is widely regarded one of the most influential nation in shipping. A position called as the "Greek way" for emission reduction is prevalent in the industry which

basically argues that there is no need for emissions targets for shipping and that the Paris Agreement be made only voluntary for shipping (Influencemap.org, 2018). The significance of small states such as Panama, Marshall Islands and Liberia as Flags of Convenience are also highlighted in the picture showing the large number of vessels registered in these countries. Ship building industries are concentrated in the Asian power houses of technologies like Japan and South Korea which have traditionally grown their influence. Another geographical area important for the international shipping is South Asia, where countries like India, Pakistan and Bangladesh are involved with the dirty business of ship scrapping industry. All these countries together represent the diverse spread as well as the diversity of interests that nations have in different spheres of the shipping industry.

For understanding the interest levels which different countries have towards decarbonization of the maritime sector another quadrant chart is considered (see Fig.2.8). In this chart, the engagement intensity of nations in the climate change discussions of IMO is taken on the vertical axis and the climate score is taken on the horizontal axis. This study conducted by “influencemap” considered the engagement intensity in IMO by analyzing the activity of the countries in the past 4 MPEC meetings of IMO. Climate score was given from a scale of 0 to 100, based on the country’s stance at various IMO and other key forums for determining the shipping GHG emissions policy. Countries having the most favorable position for implementing CO₂ targets for the shipping industry were given 100 points and the countries who were opposed to it got the minimum points. The graph gives an indication of the interests of the major countries in reducing emissions (Influencemap.org, 2018).

It is very interesting to note that other than the countries pushing for climate change worldwide in other sectors there are some other countries who play a critical part for the climate change discussions in shipping industry who are not very significant in other sectors. Japan, China, Norway, South Korea and Germany are countries featuring above the central axis which shows their involvement in the climate change discussions of IMO whereas countries like India, Saudi Arabia, Panama and Liberia are at the bottom.

The first quadrant which shows the best performing and the most interested countries in the climate impacts for shipping industry are the developed Scandinavian countries along with the pacific island nation of Marshall Island due to their climate change concerns. Germany and France

occupying the first quadrant validate that their position is similar to their climate change in other sectors.

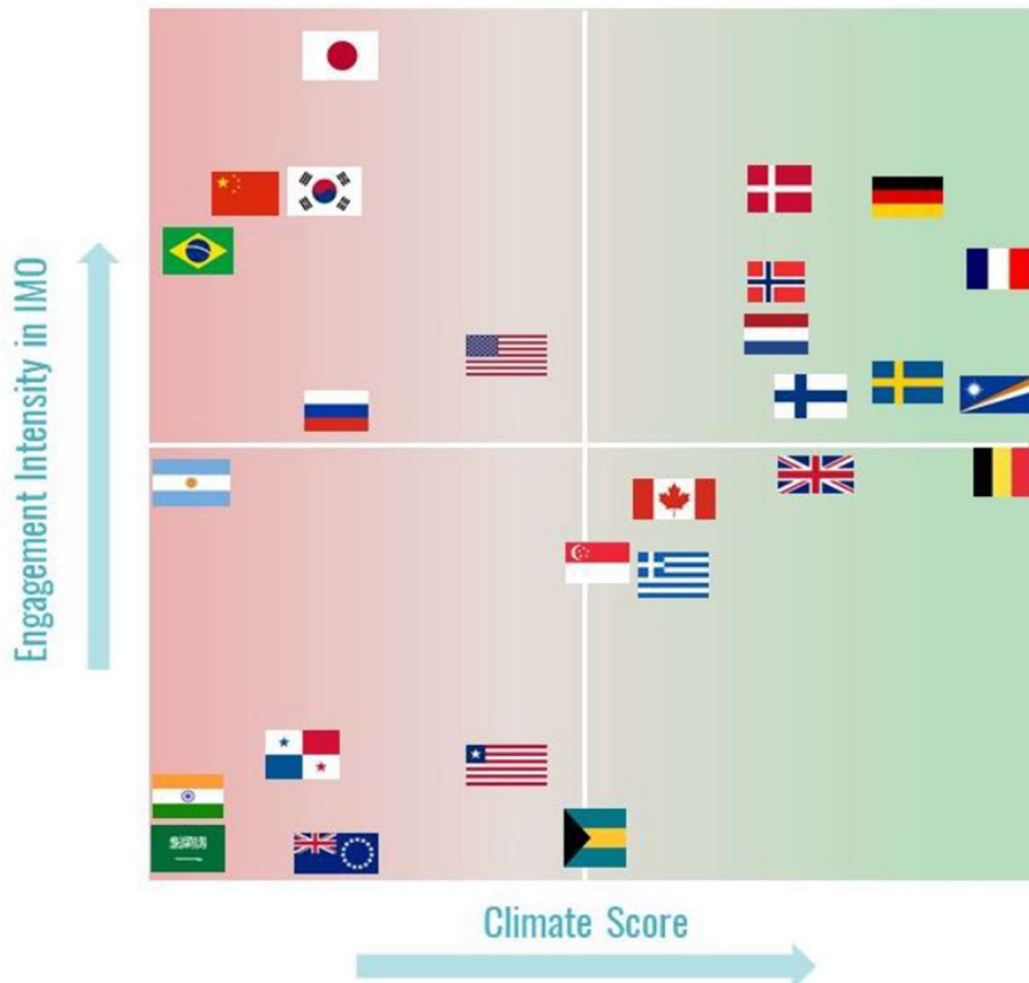


Fig.2.8 (Source: influencemap.org,2018)

Japan, South Korea, Brazil, U.S and China are the countries in the second quadrant shows the high level of opposition for setting up of targets in the maritime sector, this can be clearly associated with the economic benefits. India and Saudi Arabia are on the bottom corner which illustrates that they oppose setting of any targets but on the same time doesn't engage much in the discussions pushing fort their agendas. In addition to India and Saudi many perceived as FOCs are in the third quadrant, showing their lack of interest in climate talks of shipping. The alliances and conflicts between different countries in the context of MEPC 72 is further detailed in section 3.2.

2.7. Role of Secondary stakeholders

In addition to the primary stakeholders explained above, there are many other stakeholders who can indirectly affect or are affected by the transformation of the maritime sector. These stakeholders were identified as secondary stakeholders in the previous chapter. This section briefly explains the role of some of the secondary stakeholders for the decarbonization of the shipping sector. The secondary stakeholders identified in the previous chapter are Regulatory agencies, Ship builders, Engine and technology suppliers, Seafarers and Unions, NGOs Academia and Civil society, Banks, Insurers and financiers, Customers, Suppliers and Partners. Since classification societies is one of the most important organization as a regulatory agency, their role has been described more elaborately than other secondary stakeholders.

Cargo owners and charterers are a major group whose opinion are very important as they serve as the primary customers for the shipping companies. There is also a complete lack of disclosure on climate change strategies from some of the shipping sector's largest customers such as ExxonMobil (the world's largest fossil fuel company) (Rushe, 2018). These companies are silent on their view on the decarbonization of the shipping sector. On the other hand, some customers like IKEA have been very effective in trying to decrease the carbon footprint from their supply chain by initiatives like Clean Cargo Working Group¹⁷. Environment related problems are urgent for local communities living in areas close to the sea coast or/and industrial constructions of maritime industry. Local communities and environmental groups near the ports and coastal states have urgency and legitimacy for actions but their impact on the climate change in shipping is very low. Academic institutions have legitimacy and obligation to examine environmental conditions and develop technology for industries, but their impact depends on access to political decision making and urgency for businesses. Trade unions, citizens and academic institutions are actors with legitimate claims but without power or demand their impact is also considerably lower. Ship builders and technology reflects the trends in the industry but are important for the development of innovative technologies to decrease the CO₂ emissions from ships as well as making them energy efficient.

¹⁷ Clean Cargo Working Group (CCWG) is a business-to-business leadership initiative involving major brands, cargo carriers, and freight forwarders dedicated to reducing the environmental impacts of global goods transportation and promoting responsible shipping (Bsr.org, 2018).

Another group working behind the scene but not having a direct effect on the decarbonization of the shipping industry are NGOs for clean shipping, some of the important ones related to the maritime sector are:-

- 1) Clean Shipping Coalition: - International organization which focuses on environmental issues in the shipping industry.
- 2) The Sustainable Shipping Initiative- Includes people from the entire supply chain of international shipping to focus on sustainability of the sector.
- 3) Marine Conservation Society
- 4) Seas at Risk
- 5) Transport & Environment
- 6) Pacific Environment

In addition to these organizations, international NGOs like WWF and Green Peace International advocates for the reduction of carbon from the maritime sector. WWF, Clean Shipping Coalition, Green Peace International and Pacific Environment actively participate in the climate change discussions in IMO. They hold observer status in IMO and therefore involve in the decision-making process of IMO. The NGOs together as a group calls for a reduction target with the highest possible ambition and early implementation of actions so that international shipping can contribute for achieving the Paris Agreement climate goals(EU, 2018). In addition to this, another important function of the NGOs is by raising the awareness among the society and educating people about the urgency of the situation.

2.7.1. Classification Societies

Classification societies perform the function of establishing and maintaining technical standards. They provide approvals during construction phase and regular surveys to verify that the standards are maintained. Major classification societies associated with International Association of Classification societies which covers classification standards of 90% of the world's cargo carrying ships tonnage are given in Table 2.9(iacs.org). It has international outreach since the insurers and banks will put one of these societies to verify that the ship is seaworthy.

Classification societies have high level of technical expertise and are better equipped to carry out the surveying of vessels compared to flag states or port states. The high level of technical knowledge puts classification societies in a position of power which is not adequately addressed.

The rules formulated during international convention are broad legal laws and fail to be specific technical ones which are measurable. In the case of the class rules, they are more technical in nature and specific procedure for measurement is also implemented. The compliance with class rules are a precondition for a ship to be in line with the required international law. Hence, classification societies are important in the implementation of the regulations for the reduction of GHG emissions because of their advantage in the technical matters.

Table.2.9 (Source: lacs.org.uk, 2018)

Name(Abbreviation)	Country
Lloyd's Register (LR)	UK
Bureau Veritas (BV)	France
Croatian Register of Shipping (CRS)	Croatia
Registro Italiano Navale (RINA)	Italy
American Bureau of Shipping	USA
DNV GL	Norway
NK Class	Japan
Russian Maritime Register of Shipping (RMRS)	Russia
Polish Register of Shipping (PRS)	Poland
China Classification Society (CCS)	China
Korean Register of Shipping (KR)	South Korea
Indian Register of Shipping (IRS)	India

2.8. Conclusion

Following the stakeholder mapping framework used in the previous chapter, the complex and competing interests of the primary stakeholders in the shipping industry has been underlined in this chapter contributing to explain the difficulties in reaching an agreement on the climate targets. The interests of the primary stakeholders give their position on the climate change discussions of the shipping sector. Since the organization of the shipping industry is polycentric, a multitude of actors have different kinds of influence over the decision-making process. This chapter shows how the economic risks attached to climate targets, the balance of power in favor of the primary stakeholders and the complex decision-making process within the industry contribute to the roadblocks in the climate change talks. The next chapter will consider how the search for alliances and interdependencies among the different actors in the maritime sector may represent opportunities for new partnership but also threats to the results of climate talks.

3. Interdependencies of Stakeholders: Threats or Opportunities for climate talks in the industry?

3.1. Introduction

The previous chapter described the role of the primary stakeholders identified in the conceptual framework. This chapter details further the interdependencies between the primary stakeholders leading to additional threats for the solutions. Interdependencies between different players in the industry are important to understand the complexities of the decision making. The interrelationships within the industry are sophisticated and multi directional. Each stakeholder has a distinct interest and has different powers as explained in the previous chapters. Hence it is difficult to explain all the interrelationships in detail because of the limitations of the length of the paper. Taking these considerations, this chapter has focused on 3 main relationships between the primary stakeholders, these are: -

- (i) MEPC-72 and its implications- This gives the grouping and conflicts between different countries with the background of MEPC-72 meeting in London.
- (ii) Relationship between port state control and flag state control
- (iii) Corporate capture of IMO- Describes the relationship between ship owners and IMO

These 3 relationships are used to critically examine the relationships of the primary stakeholders in the shipping industry which shows the major challenges for arriving at a compromise in the decarbonization of the industry. Potential alliances and conflicts between the primary stakeholders are investigated here. Additionally, the conflicts between similar groups and unforeseen alliances between dissimilar groups are explored to find the challenges for the climate talks.

The main aim of this chapter is to show that the discussions on climate change, in addition to being an opportunity for new and unexpected alliances between the stakeholders, can also bring new conflicts as a threat to the success of the talks.

3.2. MEPC-72 and its implications:

3.2.1. What is MEPC-72?

“We stand here at one of the most historic moments in IMO when, for some years now, the global community has brought nations together in a common cause to undertake ambitious efforts to combat climate change” (imo.org,2018). These are the words from IMO general secretary Mr. Kitack Lim during his address to the member states of IMO during the 72nd annual session of Marine Environment Protection Committee held from 9th to 13th April in London. This was a remarkable achievement for climate advocates and nations pushing for setting a target to reduce GHG emissions from the maritime sector. It was the first time in the history of international shipping that all the major stakeholders agreed on a target to reduce GHG emissions. MEPC-72 adopted an initial strategy of 50% reduction in GHG gases from 2008 levels by 2050, this acknowledges the urgency of the matter. It was further agreed on setting up of a final target by 2023 and phasing out CO₂ by the end of the century. In addition to specifying an initial strategy to emission reduction, MEPC-72 also includes a reference for “a pathway of CO₂ emissions reduction consistent with the Paris Agreement temperature goals” (Imo.org, 2018). It represents a framework and guiding principles with short, mid and long term further measures with timelines and impacts on states. The MEPC-72 strategy is to facilitate this by adopting a two-front approach, firstly improved regulations would be put in place for enhancing the energy efficiency in ships and to reduce the GHG emissions. Secondly, capacity building initiatives would be supported worldwide with encouragement for technology transfer and innovations.

3.2.2. Conflicts and alliances in MEPC-72: The country context of decarbonization in international alliances.

There has been a historical divide between the developed and emerging economies in the climate change negotiations of IMO like any other areas of international law making. However, during MEPC-72 interesting alliances were formed between some powerful countries from the developed and developing countries. Nonetheless, IMO is dominated by developed world either through the private corporation or via the member states. Besides this, EU also has a significant impact on the countries in the union. This is because EU can adopt independent regulations if they are dissatisfied with the IMO regulations. If stricter views are adopted by the EU it has to be

followed by the European states, therefore the EU member states try to impose Europe's view on the IMO negotiation process. (Karim, 2015).

During the build up to the MEPC-72 meeting it was clear that not all countries were fully onboard regarding the emission targets (Garcia and Lin, 2018). During the discussions, different groups having similar emission targets were seen to come together as a group according to their individual proposals of emission reduction which were vastly different.

Marshall Islands along with some other Pacific islands proposed a complete decarbonization of global shipping by 2035, it is fascinating to note that this comes from one of the leading flag states of the world. The common stance of EU members was to have a minimum 70 % reduction in CO₂ emissions by 2050 comparing to 2008 levels and aiming for a 100% reduction. However, this combined objective camouflaged the absolute disagreement between the climate conscious Nordic countries and the south European countries who represents the big shipping industry. Three of the world's biggest flag states i.e., Malta(6th), Greece (9th) and Cyprus(11th) wanted an agreement with a non-binding "preference" rather than a binding objective but were silenced by the other countries in the union. These countries preferred to side with the emerging economies rather than fall in line with the EU directives for the discussions. Finally, the position of EU was possible only after a credible threat of unilateral action was made to impose regulations in the EU zone. This included a proposal to include shipping under the EU Emission Trading Scheme (ETS) by 2023, which was approved by the EU parliament under the condition that it would be imposed if IMO had failed to arrive at any substantial emission reduction objective by 2021. Although, this move was also strongly opposed by IMO and other shipping bodies many of the member states of EU were in favor of such a directive (Saeed, 2018). That gives the Marshall Islands a particularly strong hand in alliance with Northern Europe as it's both an industry heavyweight and a climate-vulnerable country. These scenes were seen even earlier, when in December 2017 a joint declaration between the European Union and a group of Pacific Islands was signed, this was named as the Tony de Brum Declaration (former minister of Marshall Island advocating for climate action from the shipping industry). This joint declaration called for the shipping industry to play its part meeting the Paris accord goals.

The regulation which was proposed by Japan was for a 40% reduction below 2008 levels by 2030. Emerging economies on the other hand supported the policy of not imposing any carbon caps but rather make it a preference due to the fears of impacting the economic growth. These included

countries like Argentina, Brazil, China and Turkey who actively opposed any absolute carbon capping mechanism. China was opposed to the imposition of any emission targets and even failed to provide timelines or pathways. In addition to this, developing countries headed by Brazil formed a loose group with countries including India, Argentina and Saudi Arabia made a joint submission to focus on energy efficiency rather than having any commitments on emission targets. The position of India was much like the Paris agreement where they argued for “common but different responsibility” which would mean more flexibility for developing nations (Timperley, 2018). U.S.A had an ambiguous position and by not taking part in the discussions actively and failed to give any specific targets. They have supported the ban of the Heavy Fuel Oil in the arctic region but at the same time having a reserved position on having absolute reduction targets presently which was seen in the MEPC-72 meeting (Mooney, 2018).

The position of shipping corporations was highlighted by International Chamber of Shipping and other trade groups lobbying for the shipping industry. They argued for not having carbon capping highlighting fear among the industry i.e., setting up of high targets are unrealistic, costly and harmful for international trade. Hence, the industry supported proposals made by China and to soften the stand by EU and Pacific islands. Although the shipping corporations called the decarbonization proposals made by EU unrealistic, studies done by OECD think tank International Transportation forum confirmed that decarbonization would be possible by 2035 is a mixture of alternate solutions like using energy efficient fuels like hydrogen and methanol as well as improvements in ship design and slower ship speeds were used.

From the negotiations it was clear that the discussions hit a BRIC wall (Brazil, Russia, India and China) (Saeed, 2018) with support from south European nations and other developing countries. The group trying to push for setting targets were the northern European countries along with island countries from Pacific. Finally, after widespread negotiation and discussions a common ground was agreed upon by the member states for adopting the Japanese model of 50% reduction and reducing the timeline to 2050.

3.3. Relationship between port state control and flag state control

It is sometimes impossible to classify states as either port states or flag states because a state which is a port state can simultaneously be a flag state. However, states prioritize one duty over the other, as they can consider one responsibility more important than the other one and push for

the interest of that specific responsibility in the world stage. This can be due to financial or environmental consideration, for instance the countries labelled as FOCs it would be particularly difficult to act as a responsible port state due to the high revenue source from the shipping corporations (Karim,2015). The city state of Singapore particularly illustrates this dilemma of the states, on one hand Singapore is the second busiest port in the world (Worldshipping.org, 2018) but is very reluctant in imposing stricter regulations on vessels flying its flag, it is classified as a Quasi-FOC¹⁸.

Since the functions of flag state control and port state control are very much alike, the comparison is made often. Port state control is the last line of defense for the nation states to protect their environment. Nevertheless, between port state and flag state control, the former is known to be more objective as they have no economic interest but only protection of its environment as their concern. The flag states disregard the regulations especially if the vessels do not sail in their waters, therefore, port states are more impacted by the emissions. The IMO recognizes port states controls only as measures complementary to the Flag State control (imo.org, 2018). However, port state control is seen to be more effective and stronger in imposition of the regulations compared to the flag state control. Unfortunately, this is a very negative trend because whenever the port state control is tightened the flag state controls starts being more lenient.

The significance of port states and flag states are high in the climate change discussions as their voices are clearly heard in the IMO. Generally, the port states support whereas the flag states oppose the reduction of GHG emissions from the shipping industry. Nevertheless, their positions on the climate change discussions are not uniform but depends on the individual interests of the country. The leading flag states represents the interests of ship owners over the interest of their citizens in climate change discussions. For example, Panama which is the largest flag state openly opposed any measures to reduce GHG emissions before 2023 in MEPC-72. Other leading flag states like Liberia and Bahamas also opposed such measures. The main argument of these countries was that the measures can affect the economic development of the developing countries much more than the developed. However, as indicated earlier Marshall Islands is a notable exception to this, being one of the top flag states they still wanted tougher emission standards to

¹⁸ To attract vessels to its registry, tax cuts were kept with lower barrier for registrations, so the regulations are not implemented as bad as FOC but still considerably below standards of traditional flag states.

be implemented. Port states generally are more concerned about the environment in their territorial waters and are stronger advocates for decreasing the GHG emissions. The countries with the biggest ports in the EU like Belgium, Germany and France were strong supporters for increased regulations in the MEPC meetings. However, China, the country having 7 out of the top 10 ports seemed to have a lesser concern about the GHG emissions, as the economic development of the country depended on increased activity from its ports.

3.4. Lobbying & Corporate Capture of IMO

The links between the shipping corporations and IMO are multilayered and difficult to analyze by the face value. Individual ship owners largely remain silent about their emissions, neither do they participate in any climate change discussions. Companies use trade associations to act on their behalf for lobbying activities, the role of which is crucial in pursuing policy change for the shipping industry. Such a relationship allows companies not to be directly associated with the activities of the corporation but by conducting a veiled lobbying. The associations are seen to represent the interest of the entire sector and having much more impact than individual companies. The power of the ship owners is amplified when they voice their opinions as a group and it is a win-win situation for the ship owners. Firstly, they provide a cover to the ship owners to push their agenda and secondly when acting as a group, their power is magnified.

The mandatory system for any United Nations body is that the member states should put the interest of their citizens as their priority. Another important principle of UN is not to interfere in the appointment of delegates from the member states, this is a way to respect the sovereignty of the nation. These 2 principles are also true for IMO, but it has been seen that latter principle hijacks the former. Since member states are free to send their delegates, they choose to send private company representatives or trade associations instead of sending citizens representatives because of their economic interests. The interest of the private companies at these meetings are to improve the company's position rather than well-being of the citizens. Hence, the employees of private companies who represent member states at these meetings can shape the position of the government they are representing. Additionally, it is difficult to distinguish whether the delegate appointed by the state is either an actual citizen representative or a member of some private company. The reason is that, since delegates do not have to acknowledge any alternate source of employment and there is no obligation for the delegates to declare any conflicts of interests.

Therefore, it is difficult to determine the extent of the interests of private companies being pushed over the interests of the nations by these delegates. The appointment of companies to represent and determine their government's position on behalf of national delegations leads to a partial privatization of inter-governmental policy-making in shipping (transparency index,2018). This high degree of influence by corporates over IMO is described as the corporate capture of IMO.

The representatives of corporations and trade associations are legally permitted to attend IMO meetings as part of state delegations usually as advisers or observers. The technical expertise of these organizations is utilized by the states as they would lack experts within the country to shape policy decisions. Consequently, the industry directly represents and influence the position of states during discussions on climate change. Open registries are represented by private companies managing their ship registries. These companies also shape state positions and develop the technical details of international maritime law, as they have greater experience and expertise in understanding and applying international law to shipping fleets. Thus, one of the causes of corporate capture of IMO is when the countries with an open registry, whose opinions carry weight, let shipping companies to dictate their stance. For example, it was reported that during preliminary discussions for the July 2017 71st MEPC meeting, Brazil, whose delegation included three advisers from Vale (a Brazilian mining and logistics company), was criticized for obstructing progress on climate legislation (influencemap.org, 2018).

Another method of corporate influence in the shipping industry is by granting trade associations consultative status in the IMO. They have the power to submit policy recommendations in addition to attending and contributing in committee meetings, working and drafting groups. They can also receive texts of resolutions adopted by the Assembly and recommendations made by other IMO bodies, be an observer at Assembly plenary meetings and at other meetings of IMO bodies, attend and contribute to committee and sub-committee meetings, working and drafting groups. This gives them exposure to the happenings in IMO and they are better equipped to deal with any difficulties coming their way.

The influence of corporations in IMO is unparalleled and their direct involvement in policy making is not seen in any other UN agency. Although trade associations are represented in other organizations of the UN in the status of consultative or observer they are never represented as delegates of the state (influencemap.org, 2018). In addition to this, other UN bodies are taking more efforts to reduce the influence of corporates. For example, the UN body for international

public health World Health Organization (WHO) approved the worldwide treaty on tobacco with a total ban on the involvement of tobacco industry in 2003 (Roemer, Taylor and Lariviere, 2005). The industry representatives are present during every policy making process of IMO and has direct impacts on any policy implemented. The representation of the industry as part of the formal representatives of state and observer organization has been explained in the previous chapter. Consequently, the climate policy of the global shipping industry is substantially influenced by the shipping industry. The following fig 3.1 shows how this influencing works, the shipping industry influences the IMO in multiple ways directly and indirectly.

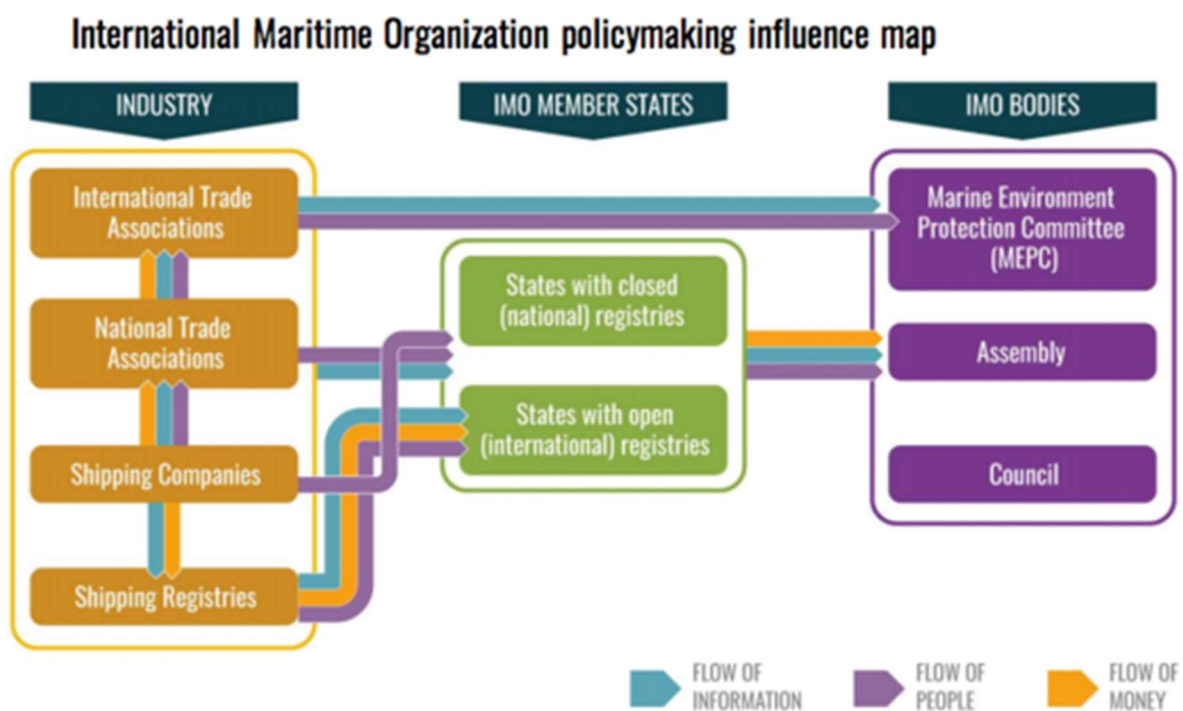


Fig.3.1 (Source: influencemap.org, 2018)

International Chamber of Shipping, World Shipping Council and BIMCO, the 3 leading trade associations have successfully lobbied to delay GHG emissions reduction measures for shipping industry until 2023. Additionally, they have rejected any binding GHG emissions targets and jointly opposed implementing energy efficiency standards. appear unsupportive of a price on carbon. ICS frequently takes part in the UNFCCC meetings and events besides the IMO representatives. ICS had more representatives in the recent MEPC meetings than 85% of the

member states and seems to lead efforts to oppose climate action for shipping. According to a research by transparency index, it was found out that at the most recent IMO environmental committee meeting 31% of nations were represented in part by direct business interests. The IMO is the only UN agency to allow such extensive corporate representation in the policy making process (transparency index,2018).

It is therefore very hard to distinguish the actual objectives of IMO and the private companies because of the level of influence. This is a direct threat to the climate talks in the shipping industry as the UN body which is supposed to be impartial in its decisions have a strong bias towards the private shipping companies.

3.5. Interrelationship between other actors: -

There is also a relationship between the public sector and private sector actors in shipping and allied industries. Public sector stakeholders include the different countries, supra national organizations like EU, associations of ports and different policy makers and regulators in the maritime industry. Ship owners and operators, ship builders, engine and technology manufacturers, leading shippers and environmental NGOs are the major private sector actors in international shipping. Unlike some other sectors, where the public-sector organization can control and dictate terms to the private sector, in shipping it is not the same. The shipping companies have a lot of power outside the state as well, hence they do not have to depend on being in a specific country's good books.

The local community can make their voices heard through local communities and have their interests represented legally which is also a very important relationship. Likewise, the influence of NGOs over IMO are also very crucial, they can have a very positive but limited influence since the whole discussion in a way or another is dominated by the industry interests.

3.6. Conclusion

The bilateral relationships between the primary stakeholders identifies the major roadblocks in the climate talks of international shipping. It has brought into the spotlight some unexpected alliances as well as conflicts. The alliance between the EU and Pacific islands was unforeseen which can be attributed to 2 reasons: -

1. The willingness of EU to be a leader in the climate change reductions and
2. The concerns of Pacific islands with climate impacts;

The opposing voices from the developing countries and the loose alliance between Brazil, Argentina, China and India formed to counter the EU and pacific islands could also be seen throughout in the MEPC discussions. Even the disagreements between the countries within the EU was not expected, the powerful shipping nations of southern Europe like Greece, Malta and Cyprus were pitted against the northern European states. The interrelationships between port state and flag state along with their position on climate change is also very important to understand the challenges to climate change discussions, it has been seen that the flag states generally oppose, and the port states supports increased regulation. This is not a uniform trend because certain flag states like Marshall Islands backs the implementation of more regulations and a port state like China resist it. The influence of private shipping corporations over the decision making in IMO and the corporate capture of the UN body impacts the climate change discussions from the shipping industry negatively as well. The influence of the industry as an actor as well as a state representative is not seen in any other UN body. An increasing pressure of the ship owners and the economic might subdues the voices of other actors.

4. Conclusion

This paper set forth to answer the question: *“What are the different challenges in a polycentric international shipping industry for the stakeholders to arrive at a common target for decarbonization?”*. The challenges, for reaching upon a compromise on decarbonization of the maritime sector emerges from the competing interests of the stakeholders. To understand the real reason behind the different interests, their role and motive have been analysed. Furthermore, the level of influence of the stakeholders were studied to comprehend their significance in the decision-making process which lead to the development of 2 visual representations. The first figure (Fig.1.1) classifies the stakeholders into primary and secondary according to their importance in the climate change discussions. In the second figure (Fig.1.3) the stakeholders are arranged in an influence vs interest grid to analyse the power and commitment of each group. It has been found that the challenges arise from the complex interrelationship between the stakeholders which are multi directional in nature. The paper identified the major stakeholders as primary stakeholders and explained the interest levels of each group. The interdependence between the stakeholders are investigated by taking 3 important bilateral interactions between primary stakeholders. The relationship between different stakeholders in the shipping industry exists due to transfer of resources and their individual stake in the activities of the industry. Moreover, nature of stake and positional power also illustrate the formation of relationship in network, besides resource transfer.

The findings of the thesis are summarized by using a table and a graph which has been given below. For the graph, the influence vs interest grid, which was used in the first chapter, has been modified by depicting the primary stakeholders and using symbols to represent their relationships as shown below in Fig.4.1. Primary stakeholders, identified in the first chapter, who will drive the global maritime sector towards a low carbon path are represented by black rectangular boxes. The red double-sided arrows between 2 important primary stakeholders indicates the adversary relationships between these two. The most substantial relationship to be considered among these is the one between IMO and private ship owners. The corporate capture of the IMO is an alarming reality to an extent where it is impossible to distinguish between the interests of IMO and private ship owners, thereby making it difficult to assess the IMO functioning impartially.

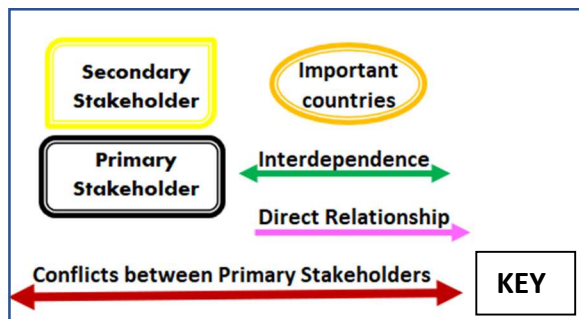
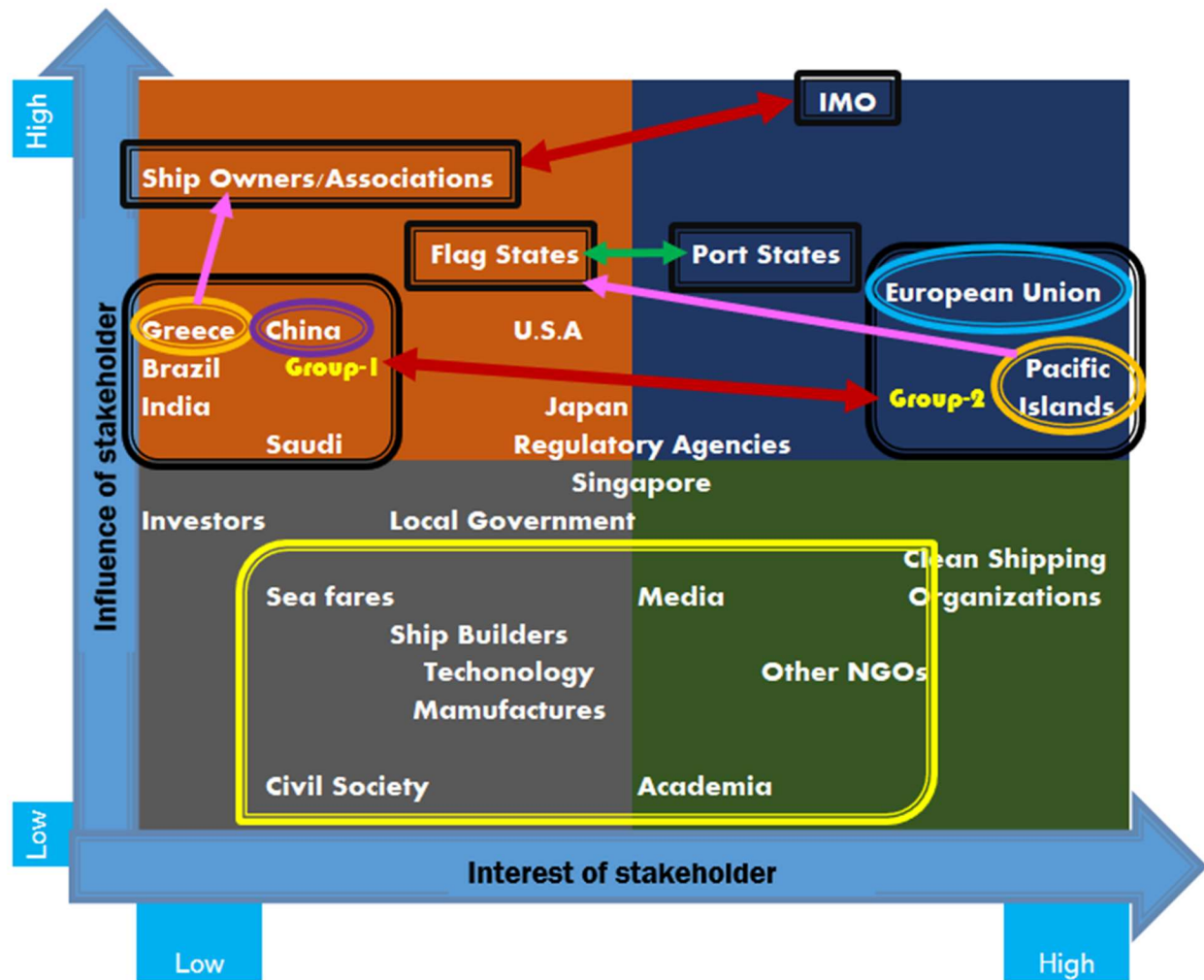


Fig.4.1 (Source:Author)

The second group with high influence levels are some of the nation states, the Pacific Island nations and the European Union are campaigners for more action on climate change in the shipping industry whereas developing countries including China, Brazil, India and Saudi are the

main opposers. They have been split into 2 groups in the graph. The alliance between the Pacific islands and EU is very important taking the climate talks on international shipping forward. EU is a very influential promoter for decarbonizing the shipping industry but marred with conflicts internally. For instance, the climate conscious northern states of Europe do not agree with the states from southern Europe who have substantial economic interests in the maritime sector. Out of the different countries shown in the Fig.4.1 Greece, China, EU and the Pacific Islands has been singled out because of their significance in the discussions, it also gives an idea of the diversities at stake. Greece, although being an EU member do not actually agree with the stance of EU as many ship owners are domiciled here. Marshall Islands, in the Pacific, in addition to being an important flag state and acting as a flag of convenience push for more reforms to reduce emissions from ships which is driven by their concerns over the global sea level rise. China has multiple economic stakes and therefore oppose any regulations in the maritime sector. It is very interesting to note that countries like Marshall Islands in the Pacific islands who are not significant players in other sectors for climate change are global heavyweights when it comes to international shipping. The interdependence between the two primary stakeholders namely the flag state and port states have been represented by a green double-sided arrow. Secondary stakeholders who are affected by any changes in the industry are represented in the yellow rectangular box.

Secondly, a table has been used to represent the various positions of different countries/organizations at the climate change discussions during the MEPC-72 discussions. The organization presented in green wanted stricter action within a smaller timeframe, this group are the main promoters of positive action on climate change. The countries represented in yellow held the middle ground between stricter action and the realistic implementation of the regulation in the maritime sector. The last group in red shows the countries who are opposed to setting up of absolute targets for the reduction of the GHG from the shipping industry. The table is self-explanatory, the alliances are formed between countries having similar position on GHG emissions and conflicts arise between countries indicated in different colors.

Country/ Organization	Category	Position on GHG emissions
Belgium, Denmark, Finland, France, Germany, Kiribati, the Marshall Islands, New Zealand, Spain, Sweden and the United Kingdom	EU + Island nations	Decarbonisation as soon as possible in this century 50% to 70% reduction by 2030 and 70% to 100% reduction by 2050 compared to 2008 levels
Kiribati, Marshall Islands, New Zealand, Solomon Islands and Tuvalu	Island States	International shipping should contribute to staying below 1.5°C Decarbonisation by 2050 and early actions including measures which can be implemented before 2023
Norway	Multiple stakes	50% reduction by 2050 from 2008 levels does not support setting intermediate goals, Supports operational and technical measures and the development of a MBM
Green Peace, WWF, Clean Shipping Council	NGOs	Level of Ambition should not rely on a review and ratchet-up mechanism like for NDCs as the long investment cycles in the shipping sector would create uncertainties
Japan	Ship Owner	Acknowledges need for setting targets but the target needs to be an efficiency target bas demand for international transport services is beyond the control of the maritime sector, suggests 30% efficiency improvement by 2030 and 60% emission reduction by 2050 compared to 2008 as achievable targets; includes use of non-fossil fuels
South Korea	Ship Owner	No timeline set but in support of GHG emission reduction
U.S.A	Multiple stakes	Ambiguous position
China	Multiple stakes	Opposes setting a timeline and indicates on Common but Differential Responsibility, No numbers as emission reduction targets
Panama	Flag State	Opposes early action prior to 2023 Concerns about economic repercussion on states particularly developing country and advocates for full reduction by the end of the century
Argentina, Brazil, India and Saudi Arabia	Developing states	Does not support zero emission visions presently Action to be implemented after 2023

Fig.4.2.(Source:Author)

The polycentric system with multiple power centers poses many roadblocks for the international shipping industry. Since there are different stakeholders having different interest and power levels it becomes very difficult to implement any decision. The challenges arise from the diverse

interests the stakeholders have which can be understood partly from the above two diagrams. It can be safely said that there is no absolute power within any group.

Further research can be done on the importance and interdependencies keeping in mind the vastness and spread of the industry. The relationships between each stakeholder can be extended and studied in more detail which can yield to more concrete results. Corporate influence of IMO is an area which can be researched in addition to having a more detailed analysis of the relationship between countries.

Finally, the story of a small island country called as Marshall Islands is very significant in the context of shipping and climate change. It is a tiny country made up of 29 atolls and 4 islands with silvers of white sand, warm blue waters, lush green vegetation and a thriving coral reef. The country is blessed with natural beauty and for a tourist the roar of sea can be music to his ears but lately it is bringing a creepy uneasiness to the ears of locals. The fresh water supplies in the island are being threatened by salt water intrusion due to the rising sea levels. As per new studies, climate change can completely cut off the islands fresh water supply by the middle of this century (Greshko, 2018). The low-lying islands are not threatened by climate change in the distant future but it already getting affected as we speak. Sea level rise will make many pacific islands uninhabitable by the middle of this century. The story of the Republic of Marshall Islands epitomizes all the cause and effects from the climate changes and the relationship with the shipping industry. On the one hand it is a major flag state acting as a flag of convenience which facilitates for less regulations in ships and on the other hand it is one of the worst affected by climate change. This also signifies the main issue which is tormenting the maritime sector, it is about the power of money playing out against the welfare of the people. According to the previous foreign minister of Marshall Island who was a champion of the climate regulations, the late Mr. Tony deBrum *“If we don’t do this now, you won’t be seeing this kind of people anymore. Our countries are forever condemned”*.

5. References

- 1) Ackermann, F. and Eden, C. (2011). Strategic Management of Stakeholders: Theory and Practice. Long Range Planning, 44(3), pp.179-196.
- 2) Alphaliner.axsmarine.com. (2018). PublicTop100. [online] Available at: <https://alphaliner.axsmarine.com/PublicTop100/>
- 3) Ayuso, S., Ariño, M., García-Castro, R. and Rodriguez, M. (2007). Maximizing Stakeholders' Interests: An Empirical Analysis of the Stakeholder Approach to Corporate Governance.
- 4) Bloor, M., Baker, S., Sampson, H. and Dahlgren, K. (2015). Enforcement Issues in the Governance of Ships' Carbon Emissions.
- 5) Clarkson, M. (1995). A Stakeholder Framework for Analyzing and Evaluating Corporate Social Performance. The Academy of Management Review
- 6) Clarkson, M. (1995). A Stakeholder Framework for Analyzing and Evaluating Corporate Social Performance. The Academy of Management Review
- 7) Darby, M. (2018). UN shipping climate talks 'captured' by industry lobbyists. [online] Climate Home News. Available at: <http://www.climatechangenews.com/2017/10/23/un-shipping-climate-talks-captured-industry/>
- 8) EU (2018). IMO's challenges on the route to decarbonising international shipping Available at: <http://www.europa.europa.eu/supporting-analyses>
- 9) Fikri, I. (2007). FLAG STATE CONTROL An Overview and its Relationship with Port State Control.
- 10) Fiaz, F. (2014). STAKEHOLDERS INFLUENCE ON VESSEL OPERATIONAL SAFETY AND EFFICIENCY.
- 11) Fikri, I. (2007). FLAG STATE CONTROL An Overview and its Relationship with Port State Control.
- 12) Freeman, 1984, Strategic Management: A Stakeholder Approach Available at <http://stakeholdertheory.org/team/r-ed-freeman/>
- 13) Freeman, R., Harrison, J., Wicks, A., Parmar, B. and Colle, S. (2010). Stakeholder theory: The State of Art
- 14) Frooman, J. (1999). Stakeholder Influence Strategies. The Academy of Management Review
- 15) Gabbatiss, J. (2018). Air pollution from UK shipping is four times higher than previously thought. [online] The Independent. Available at: <https://www.independent.co.uk/environment/air-pollution-uk-shipping-levels-record-environment-fumes-damage-nitrogen-dioxide-sulphur-a8189691.html> 2018].
- 16) Gabbatiss, J. (2018). Carbon emissions from global shipping to be halved by 2050, says IMO. [online] The Independent. Available at: <https://www.independent.co.uk/environment/ships-emissions-carbon-dioxide-pollution-shipping-imo-climate-change-a8303161.html>
- 17) Garcia, B. and Lin, J. (2018). The shipping sector is finally on board in the fight against climate change. [online] The Conversation. Available at: <https://theconversation.com/the-shipping-sector-is-finally-on-board-in-the-fight-against-climate-change-95212>.
- 18) gmn.org (2018) Available at: <http://gmn.imo.org/about-gmn/>
- 19) Greshko, M. (2018). Within Decades, Floods May Render Many Islands Uninhabitable. [online] News.nationalgeographic.com. Available at: <https://news.nationalgeographic.com/2018/04/marshall-islands-climate-change-floods-waves-environment-science-spdl/>

- 20) Hamad, H. (2016). Flag of Convenience Practice: A Threat to Maritime Safety and Security.
- 21) Hellenicshippingnews.com. (2018). Developing countries' increasing involvement in maritime business | Hellenic Shipping News Worldwide. [online] Available at: <https://www.hellenicshippingnews.com/developing-countries-increasing-involvement-in-maritime-business/>
- 22) Helfre, J. and Boot, P. (2013). Emission Reduction in the Shipping Industry: Regulations, Exposure and Solutions. Sustainalytics.
- 23) Iacs.org.uk. (2018). Members - IACS. [online] Available at: <http://www.iacs.org.uk/about/members/>
- 24) Ics-shipping.org. (2018). ICS | About ICS. [online] Available at: <http://www.ics-shipping.org/about-ics/about-ics>
- 25) Imo.org. (2018). MEPC 72nd session. [online] Available at: <http://www.imo.org/en/MediaCentre/MeetingSummaries/MEPC/Pages/MEPC-72nd-session.aspx>
- 26) imo.org. <http://www.imo.org/en/MediaCentre/HotTopics/GHG/Pages/default.aspx>
- 27) Imo.org. (2018). Port State Control. [online] Available at: <http://www.imo.org/en/OurWork/MSAS/Pages/PortStateControl.aspx> (2018)
- 28) imo.org(2018). <http://glomeep.imo.org/>
- 29) Influencemap.org(2017). Corporate capture of the UN IMO How shipping lobbies to stay out of the Paris Agreement on climate
- 30) Influencemap.org(2018). The polarized struggle among states for ambitious climate policy on shipping Available at: <https://influencemap.org/report/Decision-time-for-the-IMO-8f253dd1db9a2942b3c4d2d93f39f210>
- 31) ITF.(2018). Decarbonising Maritime Transport-Pathways to zero-carbon shipping by 2035,International Transport Forum
- 32) Janssen, A. (2015). LNG: investing in the chicken and the egg. [online] Port of Rotterdam. Available at: <https://www.portofrotterdam.com/en/news-and-press-releases/lng-investing-in-the-chicken-and-the-egg>.
- 33) Karim.M.S.(2015) . Prevention of Pollution of the Marine Environment from Vessels: The Potential and Limits of the International Maritime Organization
- 34) Kivits,, R. (2013). Multi-dimensional stakeholder analysis : a methodology applied to Australian capital city airports.
- 35) Merk, O. (2016). Did shipping just fail the climate test?. [online] Shipping today blog. Available at: <http://shippingtoday.eu/shipping-climate-change>
- 36) Mitchell, R., Agle, B. and Wood, D. (1997). Toward a Theory of Stakeholder Identification and Salience: Defining the Principle of Who and What Really Counts. The Academy of Management Review
- 37) Mooney, C. (2018). [online] Washington Post. Available at: https://www.washingtonpost.com/news/energy-environment/wp/2018/04/13/the-global-shipping-industry-is-finally-going-to-cut-its-climate-change-emissions/?noredirect=on&utm_term=.fb3f827eadc3
- 38) Mykoo, W. (2003). The role and responsibility of minor stakeholders in the elimination of substandard shipping.
- 39) Palier B, Surel Y. 2005. Les «trois I» et l'analyse de l'_Etat en action. Revue Française De Science Politique 55: 7–32

- 40) Rahim, M., Islam, M. and Kuruppu, S. (2016). Regulating global shipping corporations' accountability for reducing greenhouse gas emissions in the seas. *Marine Policy*, 69, pp.159-170.
- 41) Reid, I., Weber, M., Gerth
- 42) H. and Mills, C. (1947). *Essays in Sociology*. *Journal of Educational Sociology*, 21(4), p.252.
- 43) Ronald K. Mitchell, Bradley R. Agle & Donna J. Wood Toward a Theory of Stakeholder Identification and Salience: Defining the Principle of Who and What Really Counts
- 44) Rushe, D. (2018). Shareholders force ExxonMobil to come clean on cost of climate change. [online] the Guardian. Available at: <https://www.theguardian.com/business/2017/may/31/exxonmobil-climate-change-cost-shareholders>
- 45) Saeed, S. (2018). Shipping climate talks expose EU divisions. [online] POLITICO. Available at: <https://www.politico.eu/article/ship-climate-change-transport-emissions-talks-expose-the-eus-own-fault-lines/>
- 46) Sea News. (2018). Flags of Convenience – Advantages, Disadvantages & Impact on Seafarers. [online] Available at: <http://seanews.co.uk/flags-of-convenience-advantages-disadvantages-impact-on-seafarers/>
- 47) Sirgy, M. J. (2002). Measuring corporate performance by building on the stakeholders model of business ethics. *Journal of Business Ethics*
- 48) Stakeholdermap.com. (2018). Stakeholder Theory - Edward Freeman. [online] Available at: <https://www.stakeholdermap.com/stakeholder-theory-freeman.html>
- 49) Stopford, M. (2010). *How shipping has changed the world & the social impact of shipping*. Clarkson Research Services Ltd.
- 50) Thor Marine. (2018). SECA & ECA - Thor Marine. [online] Available at: <https://www.thormarinetrading.com/bunker-trading/seca-eca/>
- 51) TIMPERLEY, J. (2018). In-depth: Will countries finally agree a climate deal for shipping? | Carbon Brief. [online] Carbon Brief. Available at: <https://www.carbonbrief.org/in-depth-will-countries-finally-agree-climate-deal-for-shipping>
- 52) Transparency, e. (2018). TI Publication - Governance at the International Maritime Organisation: the case for reform. [online] Transparency.org.
- 53) Unchronicle.un.org. (2018). The Role of the International Maritime Organization in Preventing the Pollution of the World's Oceans from Ships and Shipping | UN Chronicle. [online] Available at: <https://unchronicle.un.org/article/role-international-maritime-organization-preventing-pollution-worlds-oceans-ships-and>
- 54) UNCTAD (2017). Review of Maritime Transport 2017. UNCTAD. [online] Available at: http://unctad.org/en/PublicationsLibrary/rmt2017_en.pdf?user=46.
- 55) Unfccc.int. (2018). Nationally Determined Contributions (NDCs) | UNFCCC. [online] Available at: <https://unfccc.int/process-and-meetings/the-paris-agreement/nationally-determined-contributions-ndcs>.
- 56) wikipedia.org/stakeholder_analysis, (2018). Stakeholder analysis. [online] Available at: https://en.wikipedia.org/wiki/Stakeholder_analysis.
- 57) Worldshipping.org. (2018). Top 50 World Container Ports | World Shipping Council. [online] Available at: <http://www.worldshipping.org/about-the-industry/global-trade/top-50-world-container-ports>.

- 58) [www1.worldbank.org](http://www1.worldbank.org/publicsector/anticorrupt/PoliticalEconomy/stakeholderanalysis.html). (2001). Stakeholder Analysis. [online] Available at: <http://www1.worldbank.org/publicsector/anticorrupt/PoliticalEconomy/stakeholderanalysis.html>
- 59) Wubben, E. and Isakhanyan, G. (2011). Stakeholder Analysis of Agroparks. Wageningen University.