Regulating Low-Carbon Shipping for Climate Change Mitigation: Opportunities for Cooperation between China and the Arctic States

By: Yubing SHI
South China Sea Institute
Xiamen University

South China Sea Institute
Xiamen University

Outline

1. Introduction
2. Regulatory Regimes for the Reduction of GHG Emissions from International Shipping
3. The Shipping Industries in China and five coastal States of the Arctic (Arctic Five)
4. China and Arctic Five's Perspectives on International Regulation of Shipping GHG Emissions
5. Opportunities for Collaboration between China and Arctic Five in Furthering the Reduction of Shipping GHG Emissions
6. Conclusion

1. Introduction

1.1 Two concepts: international shipping, greenhouse gas (GHG)

- **International Shipping:** refers to 'shipping between ports of different countries, as opposed to domestic shipping'. It excludes military and fishing vessels.

----Second IMO GHG Study 2009

- Domestic shipping: shipping between ports of the same country.

➢ International shipping carries 80% of global trade by volume and over70% by value.

❖What is Greenhouse Gas (GHG)?

❑*Kyoto Protocol to the UNFCCC:*

7 types of GHGs:

CO_2, CH_4, N_2O, HFCs, PFCs, SF_6,

and NF3 (added in 2012 *Doha Amendment to the Kyoto Protocol*)

❑Shipping GHGs: **CO_2**, CH_4, N_2O, HFC

Sources: Exhaust gases;

Refrigerants;

Cargo;

Others…

1.2 Why GHG emissions from international shipping need to be regulated?

- **GHG emissions from international shipping have growing contribution to Climate Change, and have led to many environmental problems.**

- the rise of ocean temperature & alter the dynamics of the marine environment.
- sea-level rise and engender adverse impacts.
- Ocean acidification

IPCC Special Report in Oct 2018

Concludes that global temperature increase "is likely to" reach $1.5^{O}C$ between 2030 and 2050.

2. Regulatory Regimes for the Reduction of GHG Emissions from International Shipping

❖ How to regulate GHG emissions from international shipping?

❑ Under the *United Nations Framework Convention on Climate Change (UNFCCC)* process

- Subsidiary Body on Scientific and Technological Advice (SBSTA) (since 1995)
- Ad Hoc Working Group on Long-term Cooperative Action (AWG-LCA)-- (2008-2012)
- Ad Hoc Working Group on the Durban Platform for Enhanced Action (ADP)– (2011-2015)
- Paris Agreement (Dec 2015)

❑ *IMO GHG Regime*

- *Article 2(2) of the Kyoto Protocol* empowers the International Maritime Organization (IMO) to regulate the issue;
- IMO Convention, United Nations Convention on the Law of the Sea (UNCLOS) also provide the IMO with competence to regulate this matter.

Three regulatory routes: Technical measures, Operational measures, Market-based measures (MBMs)

IMO GHG Regime

❖ **Technical and operational Measures (partially regulated)**

- On 15 July 2011, partially regulated from the technical and operational perspectives (2011 and 2014 amendments).

International Convention for the Prevention of Pollution from Ships (*MARPOL 73/78* Annex VI (2011 amendment):

- Energy Efficiency Design Index (EEDI), mandatory for new ships
- Ship Energy Efficiency Management Plan (SEEMP), mandatory for all ships

Representing 'the first ever mandatory global greenhouse gas reduction regime'…

----IMO official website

EEDI and SEEMP

❑Energy Efficiency Design Index (EEDI)

- Requires a minimum efficiency level for *new ships*, and only applies certain ship types and size segments;
- 'Non-prescriptive' but a 'hard rule'; Technologies for EEDI reduction; **Exemption clause**: "*Category A ships as defined in Polar Code*".

❑Ship Energy Efficiency Management Plan (SEEMP)

- Applies to *all existing and new ships* of 400 gross tonnage and above; A ship-specific energy management plan;
- To minimise shipping GHG emissions

through reducing fuel consumption;

- SEEMP related measures.

Enforcement of energy efficiency measures

☐Flag State: [*MARPOL Annex VI, UNCLOS*]

- flag States that have ratified amendments of Annex VI to MARPOL 73/78 shall incorporate the energy efficiency requirements for ships into their domestic legislation, and, if violations occur, institute proceedings in relation to such offences.
- When informed of a suspected violation of MARPOL 73/78, the flag State is obliged to cooperate with relevant parties in detecting, inspecting or investigating the violation.
- flag States Parties conduct regular surveys, issue or empower other parties to issue the International Energy Efficiency Certificate (IEE Certificate) so as to comply with IMO standards.

Enforcement of energy efficiency measures

Port State:

- inspection by port States should be limited to verifying that there is a valid certificate on board.
- port States must apply MARPOL 73/78 standards to all ships calling at their ports in that MARPOL adopts 'no more favourable treatment' with respect to the ships of non-Parties to the convention.
- Nine Memorandum of Understanding (MOUs) on port State control are in place to coordinate regional port State control.
- Article 218 of the UNCLOS gives port States a discretionary power to investigate and prosecute discharge violations wherever they have taken place.

Enforcement of energy efficiency measures

Coastal State:

- In ***internal waters*** (eg, ports), coastal States enjoy full legislative and enforcement jurisdiction.
- in ***territorial sea***, coastal States *may adopt their national standards on GHG emissions from ships* (eg, operational requirements), and may propose to establish GHG Emission Control Areas in their territorial sea to the IMO. BUT, UNCLOS arts 21(2) provides some limit.
- In the ***Exclusive Economic Zone (EEZ)***, national legislation should neither be 'less demanding' nor 'more stringent' than IMO rules and standards. A State can only adopt stricter rules when such rules are regulating the IMO designated Particularly Sensitive Sea Areas (PSSAs) or ice-covered areas (Art 234, UNCLOS) which are within a coastal State's EEZ.

Recent regulatory development

- In April 2014, IMO amended MARPOL Annex VI again: Extended the Application scope of the EEDI to include an extra 5 types of ships; Adopted a mandatory IMO Audit Scheme.
- In October 2016, IMO amended MARPOL Annex VI again: Adopted Data Collection System for Fuel Oil Consumption of Ships; Approved Roadmap for Developing A Comprehensive IMO Strategy on Reduction of GHG Emissions from Ships.

- In April 2018 (MEPC 72), IMO adopted Initial IMO Strategy for the reduction of GHG emissions from ships--officially establishes the link between IMO's work and global climate policies under 2015 Paris Agreement.

Initial IMO Strategy

- **Levels of ambition**:
- Carbon intensity of international shipping to decline: to reduce CO2 emissions per transport work, as an average across international shipping**, by at least 40% by 2030, pursuing efforts towards 70% by 2050**, compared to 2008.
- GHG emissions from international shipping to peak and decline: to **reduce the total annual GHG emissions by at least 50% by 2050** compared to 2008…consistent with the Paris Agreement temperature goals.
- **Guiding principles:**
- Non-discrimination and the principle of no more favourable treatment **(NMFT)**
- Common but differentiated responsibilities principle (**CBDR**)
- The need for evidence-based decision-making balanced with the precautionary approach.
- **Candidate short- [2018-2023], mid-[2023-2030] and long- term [2030-] further measures:**

- In October 2018 (MEPC 73), IMO approved a program of follow-up actions of the Initial IMO Strategy up to 2023.

3. The Shipping Industries in China and Five Coastal States of the Arctic (Arctic Five)

Table 1: The shipping industries in China and Arctic Five (as of 1 January 2018)

Index / State	Ownership of world fleet (ranked by dwt)		Flags of registration (by dwt)	Strength	Note
	Number	Percentage			
China	Top 3	9.59%	Top 7	Shipbuilding capacity; domestic market	Lack core technologies; Tokyo MOU
Russia	Top 19	1.16%	Top 26	Icebreaker building	Lack infrastructure; Paris MOU
Canada	Top 31	0.47%	n/a	Icebreaker building	Paris MOU
Denmark	Top 14	2.05%	Top 16	R & D, technologies	Paris MOU
Norway	Top 9	3.11%	Top 17	R & D, technologies	Paris MOU
USA	Top 8	3.61%	Top 22	R & D, technologies	USCG

4. China and Arctic Five's Perspectives on International Regulation of Shipping GHG Emissions

- Some issues under debate:

(1) IMO's competence and mandate in regulating GHG emissions from international shipping;

(2) Approaches to reducing shipping GHG emissions//*Initial IMO Strategy*;

(3) Unilateral actions by the European Union (EU);

(4) Applicability of the *"Common but Differentiated Responsibility" (CBDR)* and *"No more favourable treatment" (NMFT)* principles.

Table 2. Positions of China and Arctic Five on the regulation of GHG emissions from international shipping

Positions	IMO competence in regulating technical & operational measures	IMO competence in regulating MBMs	**Application of the CBDR principle**	Application of the NMFT principle	Unilateral actions by the EU	**Initial IMO Strategy on reduction of GHG emissions from ships**
China	support	oppose	**support**	from oppose to support	oppose	Partially support (support CBDR but oppose reduction cap)
Russia	support	unknown	**oppose**	support	oppose	reserve (opposed the CBDR &reduction target)
Canada	support	support	**oppose**	support	unknown	support (sector-wide reduction target)
Denmark EU member	support	support	**oppose**	support	support	support
Norway	support	support	**oppose**	support	support	support (leading role)
USA	support	support	**oppose**	support	oppose	reserve (oppose the CBDR &reduction target)

Note: Only China voted against the adoption of amendments to MARPOL Annex VI in 2011.

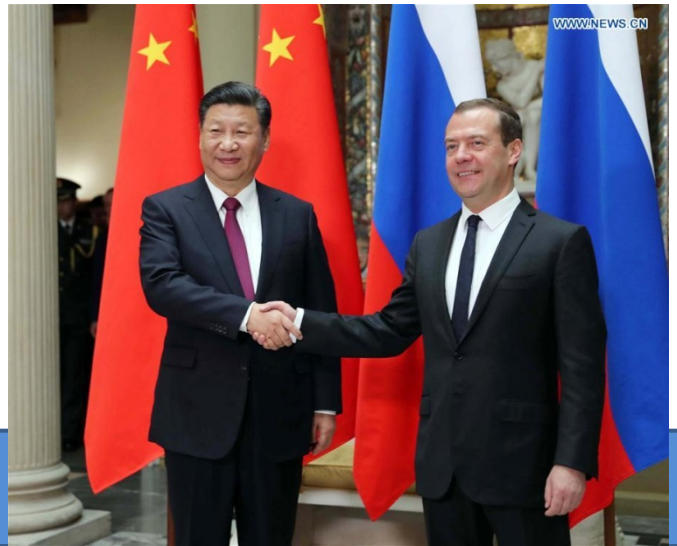
5. Opportunities for Collaboration between China and Arctic Five in Reducing Shipping GHG Emissions

☐ Necessity/feasibility of Collaboration:

- *China's Arctic Policy* released in Jan 2018 provides that "China hopes to work with all parties to build a 'Polar Silk Road' through developing the Arctic shipping routes." The implementation of China's One Belt One Road Initiative, including the "Polar Silk Road", relies heavily on the collaboration between China and the Arctic States.
- The ocean government of the Arctic needs the collaboration from China because China-flagged vessels are one of the main users of the Arctic waters.

To date there are some sort of collaboration between China and Russia, but not enough…

- Their divergent views on this issue could be addressed appropriately.



Approaches to Collaboration

(1) CBDR issue:

joint study/research program aiming to enable the application of both the CBDR and NMFT principles to the issue under discussion

(2) Identify approaches to strengthen the current energy efficiency measures, namely the EEDI and SEEMP, and collaborate within the IMO

Eg, how to make SEEMP legally binding, how to include the EEOI into the SEEMP mechanism, joint proposal on MBMs

(3) Collaborate in the shipbuilding sector

by means of One Belt One Road initiative// over capacity of China's shipbuilding sector—investment—complement each other

Approaches to Collaboration

(4) Enforcement collaboration between ports of these States

- Northern Sea Route//arctic shipping

(5) bilateral agreement on international shipping:

- Eg, The ports of China/Russia offer service guarantee and tax concessions for the ships flying the flags of two countries; Each country allows the shipping companies of the other country to establish branches in its territory.
- As of May 2017, China has signed this kind of bilateral shipping agreement with 36 countries under the One Belt One Road initiative.

China and Arctic Five can cooperate in the setting of environmental standards of international shipping [UNCOS arts 21(2), 234], and the cooperative enforcement of these standards.

6. Conclusion

- China and Arctic Five are all maritime nations that rely heavily on international shipping.
- Although China and Arctic Five have differentiated positions and responses towards global regulation of low-carbon shipping, there is great potential for them to collaborate closely in addressing shipping GHG emissions.
- China and Arctic Five may collaborate in such areas as R&D (research and development), reduction approaches, technological collaboration and cooperative enforcement.

The End

Yubing SHI

Email: shiyubing@hotmail.com