



A study on the improvement of HNS spill response regime by Future Expectation of Marine Environment Change



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1. Background

- 1) The highest country of “Shipping Traffic”
 - Import : 3 highest ranked (Oil) / 5 highest ranked (LNG)
2 highest ranked (LPG)
- 2) HNS convention (will be entered into force around at 2024)

「Hazardous & noxious substances」 (HNS) means (5,500)

- (i) **Oils**, carried in bulk, as defined in regulation 1 of Annex I , MARPOL
- (ii) Noxious liquid substances, carried in bulk, as defined in regulation 1.10 & 1.16 of annex II, MARPOL (In pollution category X,Y,Z, IBC code)
- (iii) Packaged form covered by the IMDG
- (iv) **Liquefied gases** as listed in chapter 19 of IGC code
- (v) Liquid substances carried in bulk with **a flashpoint not exceeding 60°C**
- (vi) Solid bulk materials possessing chemical hazardous covered by IMDG

Table 1. Materials regulated by international conventions

Conventions	Materials	Provisions
SOLAS	<ul style="list-style-type: none"> - (Part A) Packaged form - (Part A-1) Solid form in bulk - (Part B) Dangerous liquid chemicals in bulk - (Part C) Liquefied gases in bulk - (Part D) Packaged irradiated nuclear fuel, plutonium and high-level radioactive wastes 	Chapter VII
MARPOL	<ul style="list-style-type: none"> - (ANNEX I) Oil * crude oil, fuel oil, sludge, oil refuse and refined products. - (ANNEX II) Noxious liquid substances in bulk * IBC Code 17,18, Noxious liquid substances (X,Y,Z) - (ANNEX III) Packaged form * IMDG Code - (ANNEX IV) Sewage - (ANNEX V) Garbage - (ANNEX VI) Air pollution 	Annex I~VI
OPRC	- Oil * crude oil, fuel oil, sludge, oil refuse and refined products	Article 2(1)
OPRC-HNS Protocol 2000	- Hazardous and noxious substances * any substance other than oil	Article 2(2)
HNS Convention	<ul style="list-style-type: none"> - Oils in bulk (MARPOL Annex I) - Noxious liquid substances in bulk (MARPOL Annex II) - Dangerous liquid substances in bulk (IBC Code) - Dangerous, hazardous and harmful substances, materials and articles in packaged form (IMDG Code) - Liquefied gases (IGC Code) - Liquid substances carried in bulk with a flash-point not exceeding 60 °C - Solid bulk materials (IMSBC Code) - Residues (IMDG, IMSBC Code) 	Article 1. 5(a)(b) Article 5

1. Background

3) Regulation for reducing GHG emission - IMO 2050

Units: GHG emissions

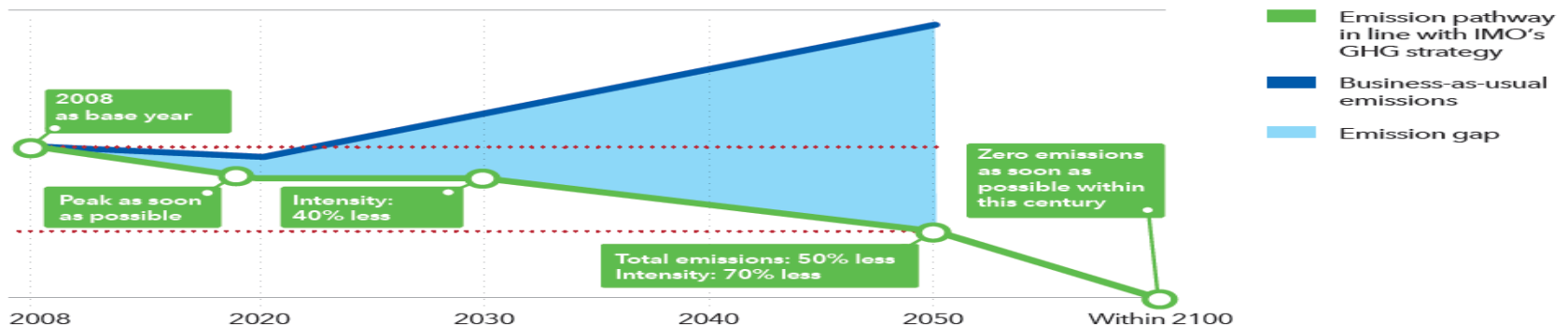
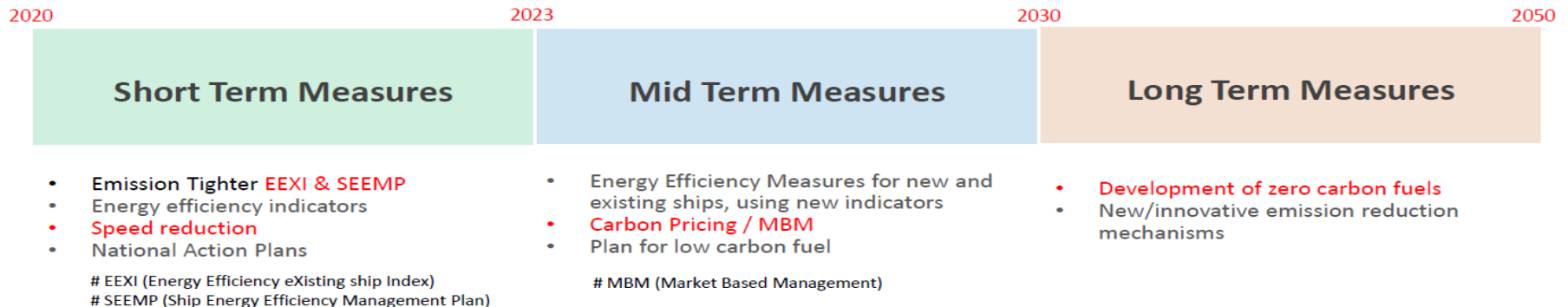
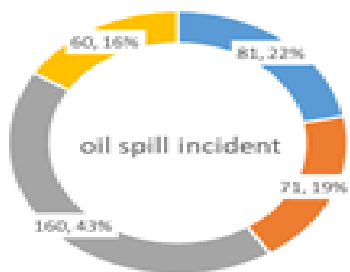
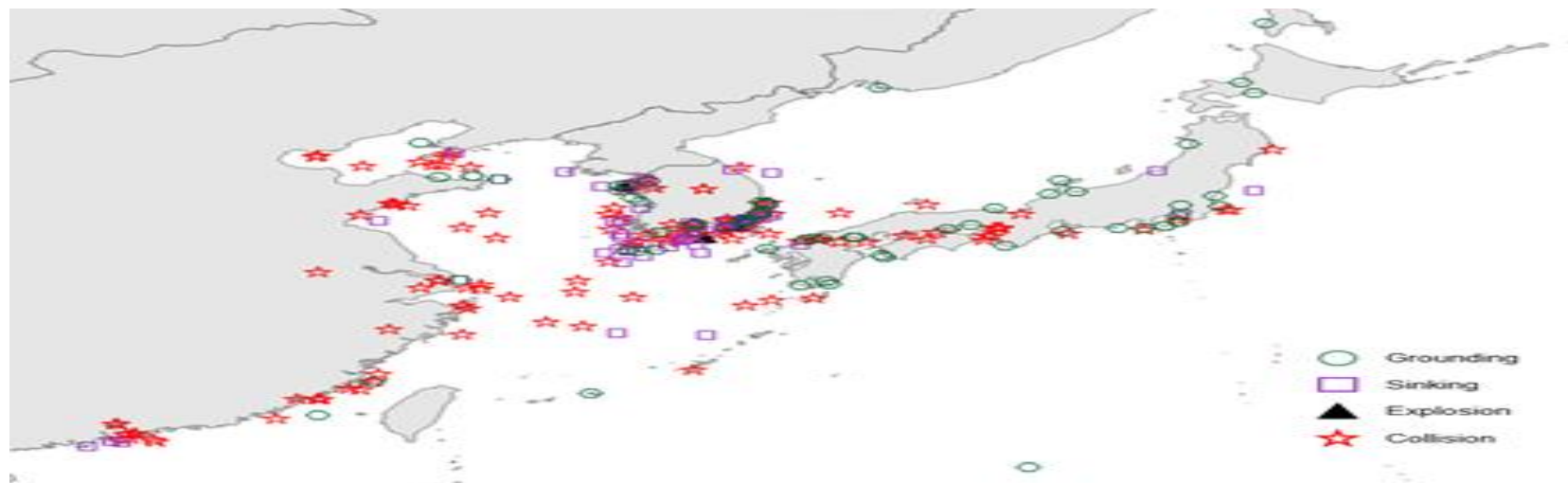


Figure 1: Indicative business-as-usual scenario for GHG emission from the world fleet towards 2050 (blue line) – and the emission pathway in line with the IMO's GHG strategy (green line).

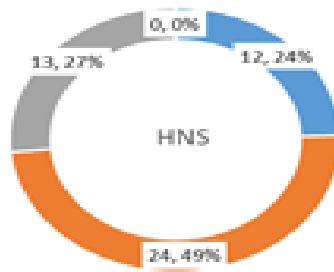


1. Background

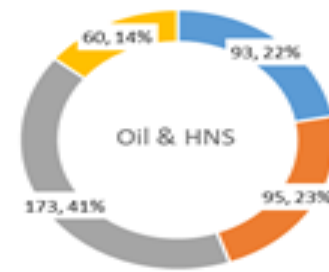
4) Incident status of NOWPAP area



■ China ■ Japan ■ Korea ■ Russia



■ China ■ Japan ■ Korea ■ Russia



■ China ■ Japan ■ Korea ■ Russia

(1990 ~ 2019)

1. Background

4) Incident status of NOWPAP area



(1990 ~ 2019)

2. Assessment of the Current Status

► Infra Enforcement

Enhancement of workforce, capacity, equipment, drill & exercise

- Organizing **3 KCG Special Strike Force** for emergency response
- **Strengthening specialty** of marine pollution preventive measure
- **2 multi purposed vessels** were dispatched (Ulsan, Yeosu)
- The feasibility study was passed for the deployment of a **1,500ton chemical spill response vessel**



2. Assessment of the Current Status

► Cooperation with related organizations

1) MOU between KCG and (2015)

- (In case of accidents) Response to accidents by sharing human resources, equipment, and technology
- (Usual) Mutual cooperation in information exchange, education, training, etc.

KCG	Ulsan	Yeosu	Pyeongtaek	Taeon
Joint response Center	Ulsan	Yeosu	Siheung	Seosan

2) Joint workshop with international experts and related organizations regarding marine chemical accidents

3) In the event of the STOLT accident (September 2019), joint response with the KCG, Fire Department, and local governments

2. Assessment of the Current Status

► Related regime, regulations

REGIME	KOREA	USA	JAPAN
ACT	<ul style="list-style-type: none"> - Marine Environment Management Act - Ship Safety Act 	<ul style="list-style-type: none"> - Oil Pollution Act - Federal Water Pollution Control Act 	<ul style="list-style-type: none"> - Law on Prevention of Marine Pollution and Maritime Disaster
SOP	<ul style="list-style-type: none"> - SOPEP (Bulk liquid HNS) 	<ul style="list-style-type: none"> - VRP/FRP 	<ul style="list-style-type: none"> - SOPEP
Vessels Dispatch	<ul style="list-style-type: none"> - No obligation 	<ul style="list-style-type: none"> - Obligation 	<ul style="list-style-type: none"> - Obligation
Equipment Securing	<ul style="list-style-type: none"> - No obligation 	<ul style="list-style-type: none"> - Obligation 	<ul style="list-style-type: none"> - Obligation
Contracts	<ul style="list-style-type: none"> - No obligation 	<ul style="list-style-type: none"> - Obligation 	<ul style="list-style-type: none"> - Obligation



3. Comparison analysis

► Related regime, regulations

【 Laws related to HNS accidents on land 】

- Toxic Chemical Control Act (MOE)

* Preventing harm caused by chemicals and stipulates appropriate management of chemicals

- Act on the safety control of hazardous substances (Fire Agency)

* Provision of matters related to accident prevention and response of dangerous substances

- Water Environment Conservation Act (MOE), Clean Air Conservation Act (MOE)

* Prevents and appropriately manages harm caused by water or air pollution

- Act on Registration, Evaluation, ETC. of Chemicals(MOE)

* Regulations on registration of chemical substances



3. Comparison analysis

- What is the 「Toxic Chemical Control Act」? This is to protect the life, property, and environment of all citizens from chemical substances **by promptly responding to accidents caused by chemical substances**. It stipulates **the national responsibility** to prevent harm to public health or the environment from the hazards and risks of chemical substances.
- What is the 「Act on the safety control of hazardous substances」? It stipulates matters related to the storage, handling, and transport of dangerous substances on land and safety management accordingly. **In order to secure public safety and prevent accidents caused by dangerous substances**, it stipulates **the responsibilities of the state** such as analysis of types of accidents caused by dangerous substances and the pattern of professional manpower.

3. Comparison analysis

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(LAND) Regulations for the prevention and response of hazardous accidents exist for each sector.

(SEA) There are facilities and loading regulations for shipping, but the regulations and standards for accident preparation and response are insufficient.

4. Implication

1) Definition of "Pollutants" on Marine Environment Management Act

- 『Oil, Noxious liquid substance, Harmful substance in package form』

☞ In preparation for the entry into force of the **HNS Convention (2024)**, it is necessary to re-establish the definition of Hazardous and Noxious Substances defined as "**Pollutants**" in consideration of the expansion of the materials subject to damage compensation to 5,500 types of cargo.

2) Mandatory Regulations for Ships and Marine Facilities

- SEPOP (Ships & Facilities)

☞ Currently **limited to oil or hazardous liquid spill accidents**

- Possession of response ships, equipment, and materials

☞ There are **no specific standards and regulations for HNS ships and facilities.**

The currently stipulated arrangement is related to recovery in case of oil pollution accidents.



4. Implication

3) Need for professional manpower and organization

- 『 Marine Environment Management Act 』
- ☞ Regulations and standards for preparing for and responding to chemical accidents at sea are insufficient, and **there are no national responsibility regulations such as the aspect of professional manpower.**
- **(USCG)** LGCNCOE (Liquefied Gas Carrier National Center Of Expert)
- **(Europe)** Germany and the UK have special response teams and technical support teams

4) Improvement of response expenses in preparation of HNS Convention

- Emergency rescue and rescue measures can also be compensated to prevent casualties in case of explosion or fire of a ship
- Chemical accident response equipment and wage calculation are required
- ☞ 「Rules for Imposition and Collection of Response Costs (KCG Rules)」



5. Suggestion & Conclusion

(2021) Study on the current status of relating regime, regulation

- Establishment of the justification for system improvement.
- Suggestion of need and plan for system improvement.

(2022) System improvement and strengthening of the role of KCG

- Proposal of system introduction plan to prepare for and respond to HNS
- As a law under the jurisdiction of KCG, it stipulates matters relating the response of HNS

(2023) Establishment of the system and lead control

- Promoting the enactment of laws on the response of HNS
- Enforcement of enacted laws and lead response to chemical accidents at sea



Q/A

Thank you for your attention