

AT THE DAWN OF NEW MARITIME ERA – OUR ROLE

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At the Dawn of New Maritime Era – Our Role

- 1. The Importance of the Ocean**
- 2. Global Seaborne Trade and the International Shipping Fleet**
- 3. The IMO and Global Challenges**
- 4. The Era of Arctic Sea Route and Its Challenges**
- 5. South Korea's Role at the Dawn of New Maritime Era**

1. The Importance of the Ocean



- Covers **72%** of Earth's surface
- Produces ~**50%** of oxygen
- Absorbs **90%+** of excess heat generated by human activity



- **Fisheries & aquaculture**
- High-quality protein/"blue food"
- **Recreation & tourism** (cruises, marine leisure)

With global warming **exceeding 1.5°C** above pre-industrial levels, **more than 90%** of coral reefs are at risk of collapse (UN IPCC Special Report, 2024).

* Coral reefs host over 30% of marine species and form the foundation of ocean biodiversity.

✂ The ocean generates \$1.5 trillion in value annually, projected to reach **\$3 trillion** by 2030 (OECD, 2016).

1. The Importance of the Ocean

❑ 1972 Stockholm Declaration (Sweden)

- 1972 UN Conference on the Human Environment
- Four Principles: The right to an environment adequate for human well-being,
Conservation of natural resources and ecosystems,
Harmony between development and the environment, International cooperation and responsibility
- >>>> Led to the resolution establishing the United Nations Environment Programme (UNEP)
- >>>> Adoption of the protection of the marine environment and prevention of marine pollution as official international agendas

❑ 1992 Rio de Janeiro Declaration (Brazil)

- Adoption of the three major environmental conventions: UN Framework Convention on Climate Change (UNFCCC),
Convention on Biological Diversity (CBD), UN Convention to Combat Desertification (UNCCD)
- Integrated management plans for land and oceans to protect the marine environment

❑ 2022 Stockholm+50 Summit: 50th anniversary of the Stockholm Declaration

1. The Importance of the Ocean

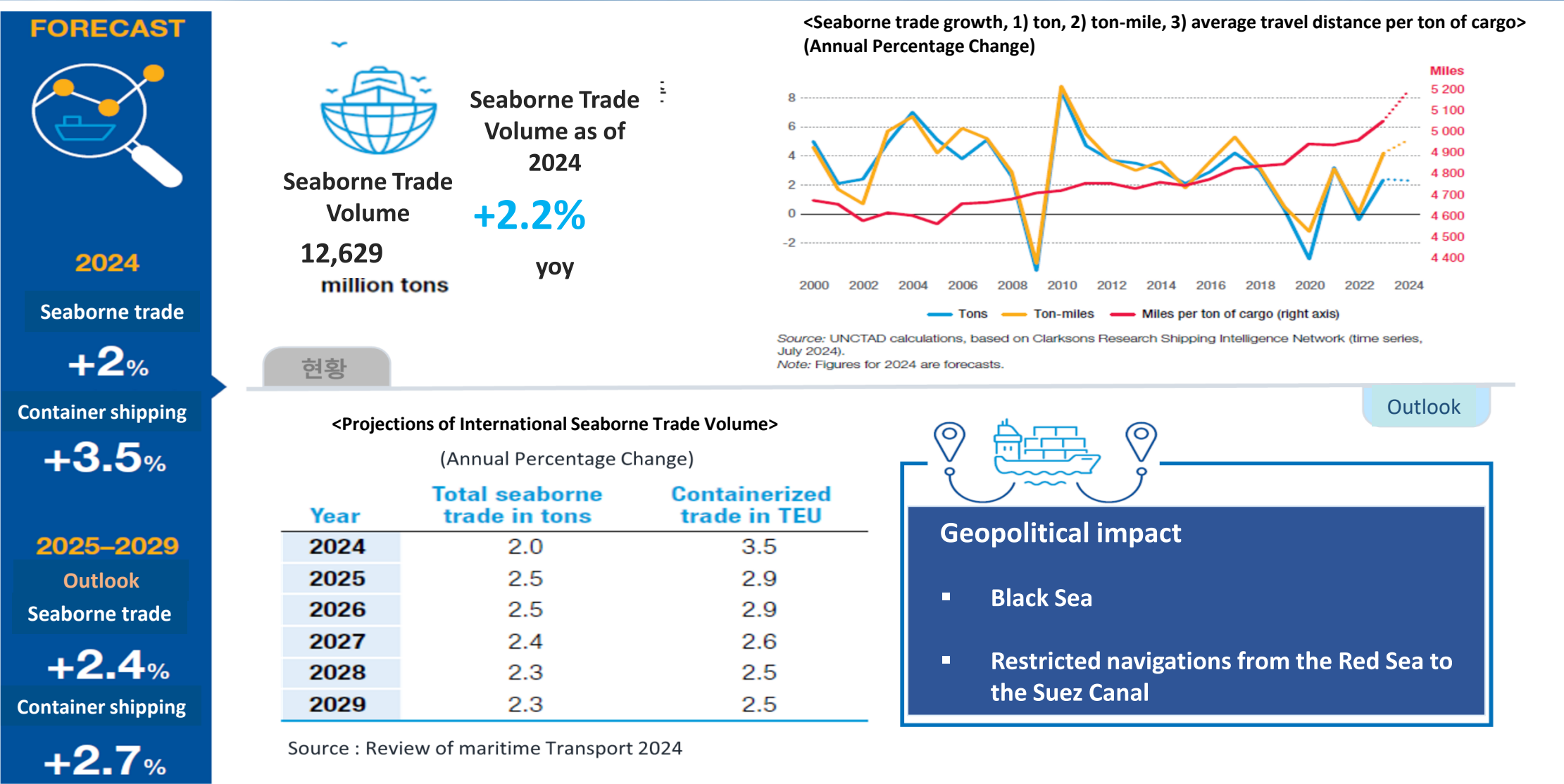
- ❑ **2015 UN Sustainable Development Goals (SDGs), adoption of 17 goals,**
including Goal 14: Conservation and sustainable use of oceans
- UN Ocean Conference (held every 3 years; Korea is seeking to host in 2028), Our Ocean Conference (held annually)
- The UN is currently advancing an integrated ocean management system

**The advent of the new maritime era
toward Blue Economy**

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2. Global Seaborne Trade and the International Shipping Fleet

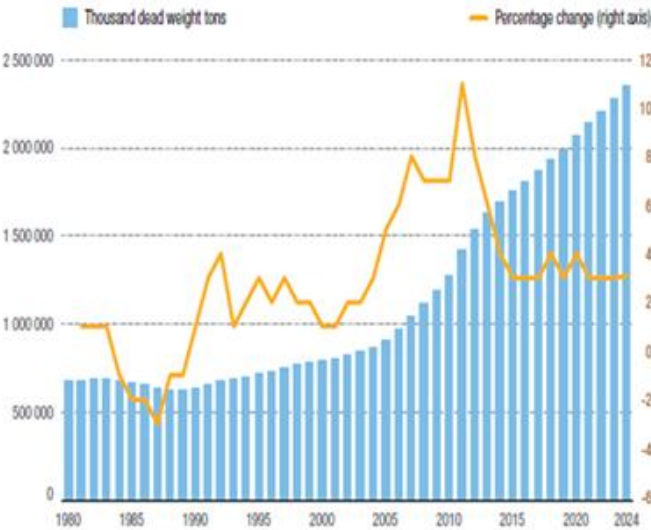
A. Seaborne Trade Volume: Current Status and Outlook



2. Global Seaborne Trade and the International Shipping Fleet

B. Global Shipping Fleet

<Global Fleet Growth Outlook>
(Continued growth in 2023–2024,
but below long-term average)



Source: UNCTAD calculations, based on data from Clarksons Research Shipping Intelligence Network.



(2024) **total fleet**: 2,352 million tons
Approx. 2.5-fold increase from 2005
923 million tons)

<Global Fleet Distribution by ship count & DWT>

Country or territory of ownership	Number of vessels			Dead weight tons			Foreign flag as a percentage of total	Total as a percentage of world dead weight
	National flag	Foreign flag	Total	National flag	Foreign flag	Total		
1 Greece	580	4 406	4 992	49 985 667	344 971 148	394 977 181	87.3	16.9
2 China	6 600	2 772	9 418	130 737 555	178 336 427	309 870 897	57.6	13.3
3 Japan	959	3 142	4 104	38 689 931	203 666 970	242 366 672	84.0	10.4
4 Singapore	1 350	1 445	2 824	67 827 285	78 156 951	146 047 319	53.5	6.3
5 Hong Kong, China	869	1 104	2 000	76 961 461	57 939 090	135 586 887	42.7	5.8
6 Republic of Korea	826	852	1 688	19 896 324	77 045 438	97 020 891	79.4	4.2
7 Germany	172	1 918	2 091	7 492 926	66 931 088	74 427 230	89.9	3.2
8 Taiwan Province of China	144	890	1 043	5 826 691	54 846 644	60 735 889	90.3	2.6
9 United Kingdom including Isle of Man	334	928	1 267	9 070 489	47 538 877	56 980 416	83.4	2.4
10 Norway	936	898	1 836	17 331 399	36 441 844	53 903 936	67.6	2.3
30 Malaysia	442	164	618	6 435 077	3 539 337	10 016 263	35.3	0.4
31 Canada	216	158	375	2 645 448	7 351 057	9 996 989	73.5	0.4
32 Nigeria	218	72	298	5 341 412	3 371 996	9 344 789	36.1	0.4
33 Oman	3	69	72	518	7 727 130	7 727 648	100.0	0.3
34 Qatar	47	88	135	608 178	7 006 679	7 614 857	92.0	0.3
35 Bangladesh	276	6	282	5 107 202	190 469	5 297 671	3.6	0.2
Top 35	23 620	27 318	51 155	615 959 613	1 579 361 821	2 199 328 358	71.8	94.2
World	26 692	30 135	58 173	650 553 871	1 650 129 315	2 334 036 650	70.7	100.0

Source: UNCTAD calculations, based on data provided by Clarksons Research Services.
Note: Propelled seagoing vessels of 1,000 gross tons and above, as of 1 January 2024. The totals include vessels for which the flag is unknown. Thus, the sum of national and foreign flags equals the total. Foreign flag as a percentage of total is calculated as share of vessels with known flag.



(2023) **Top 35** countries
= **approx. 94%** of global capacity

2. Global Seaborne Trade and the International Shipping Fleet

C. Shipping and Shipbuilding Industries

<Interconnection between shipping and shipbuilding>

Shipping Industry

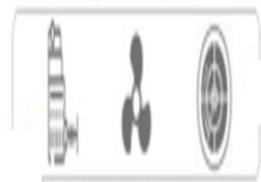


Shipyard



- L Size : 3
- M Size : 4
- S Size : 80

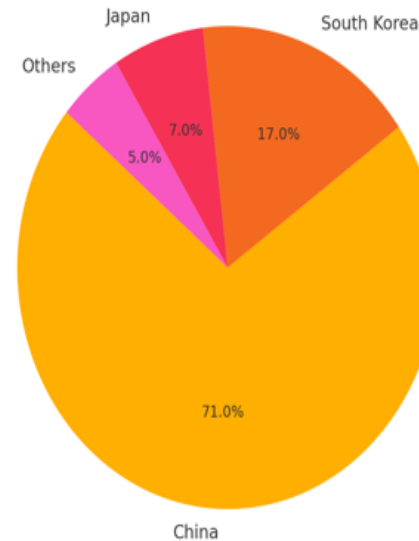
2,700 Company



Marine Equipment Company

- The shipbuilding industry accounts for ~3% of Korea's exports & manufacturing employment.

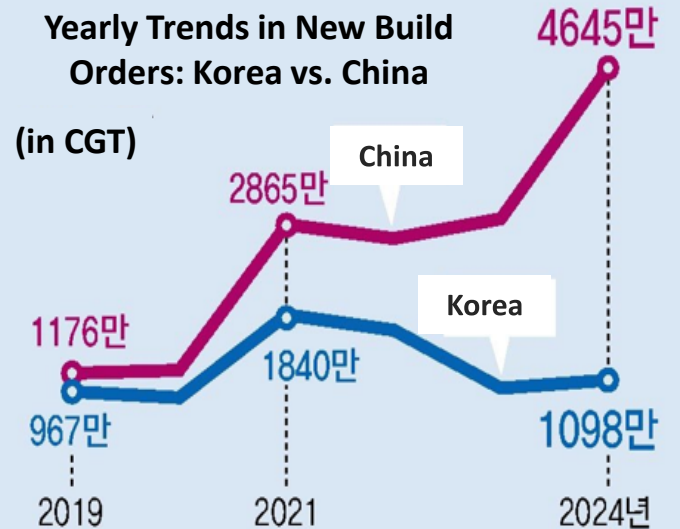
<Country-specific share of orders, 2024>



- In 2024: approx. **66 million CGT** in new orders (the highest figure in the past 17 years)
- Total order value: **USD 204 billion**

Yearly Trends in New Build Orders: Korea vs. China

(in CGT)



Source: Clarkson Research

Orders by Country (H1 2025)

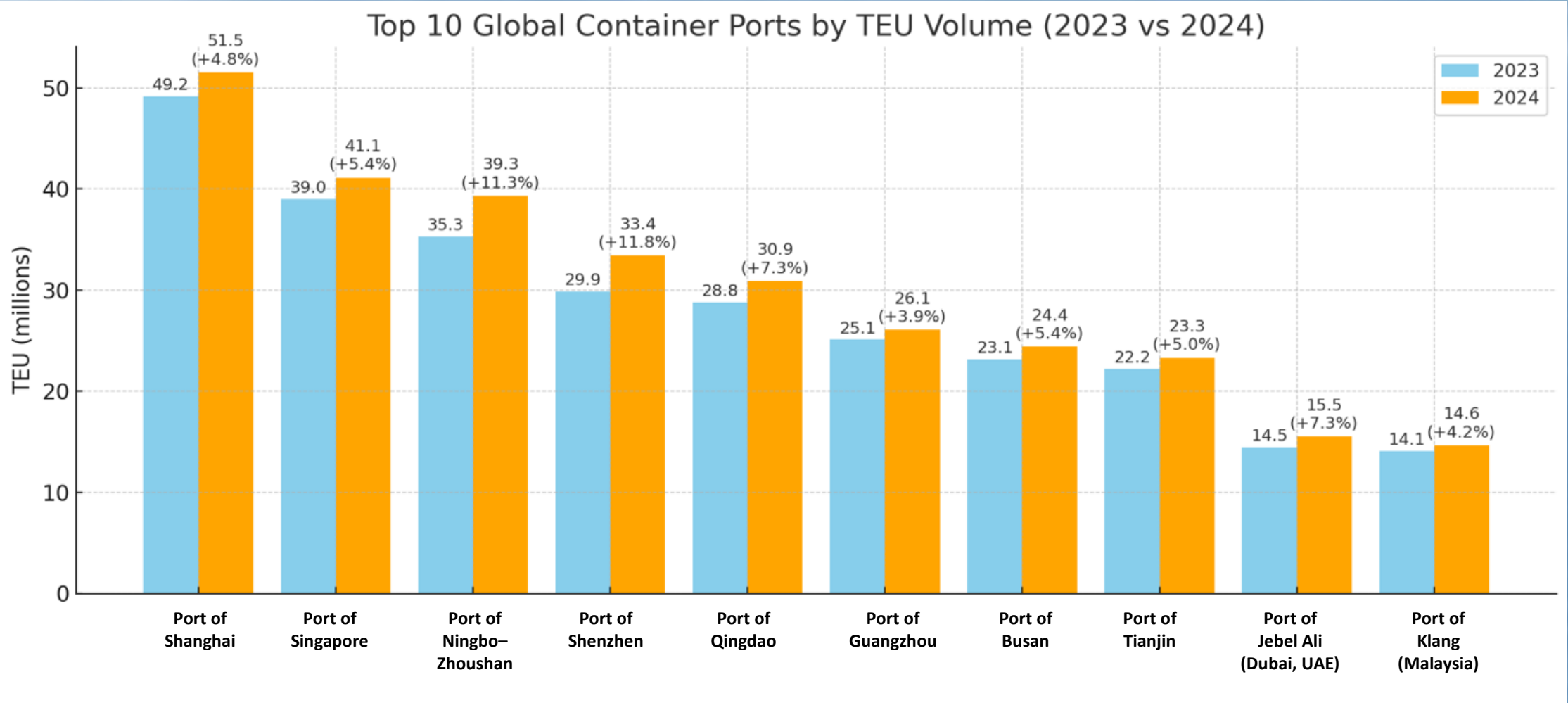
China: 52% (10.04m CGT)

Republic of Korea: 25% (4.87m CGT)

Japan: ~8%

2. Global Seaborne Trade and the International Shipping Fleet

D. Major Global Ports Cargo Volume



3. The IMO and Global Challenges

❑ 15 Specialized UN Agencies

- IMO, FAO, ICAO, IFAD(International Fund for Agricultural Development), ILO, IMF, ITU, UNESCO, UNIDO, UNWTO, UPU, WB, WHO, WIPO(World Intellectual Property Organization), WMO(World Meteorological Organization)

IMO



History

- **Adoption** of the IMCO Convention: March 6, 1948 (UN Conference)
 - * Inter-Governmental Maritime Consultative Organization
- **Establishment of IMCO**: January 6, 1959
- Name changed to **International Maritime Organization** (IMO) : May 22, 1982



Purpose

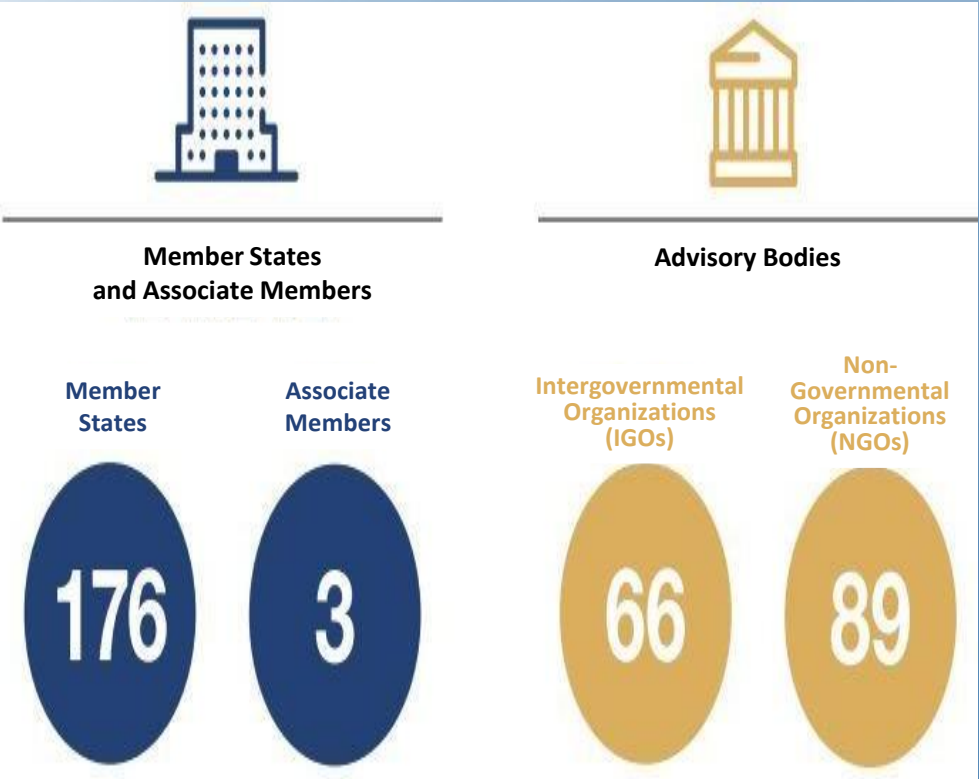
- To adopt and revise **international conventions on ship safety** and **prevention of marine pollution**
- To promote the **efficiency and facilitation** of maritime transport and to **support capacity building** in developing countries



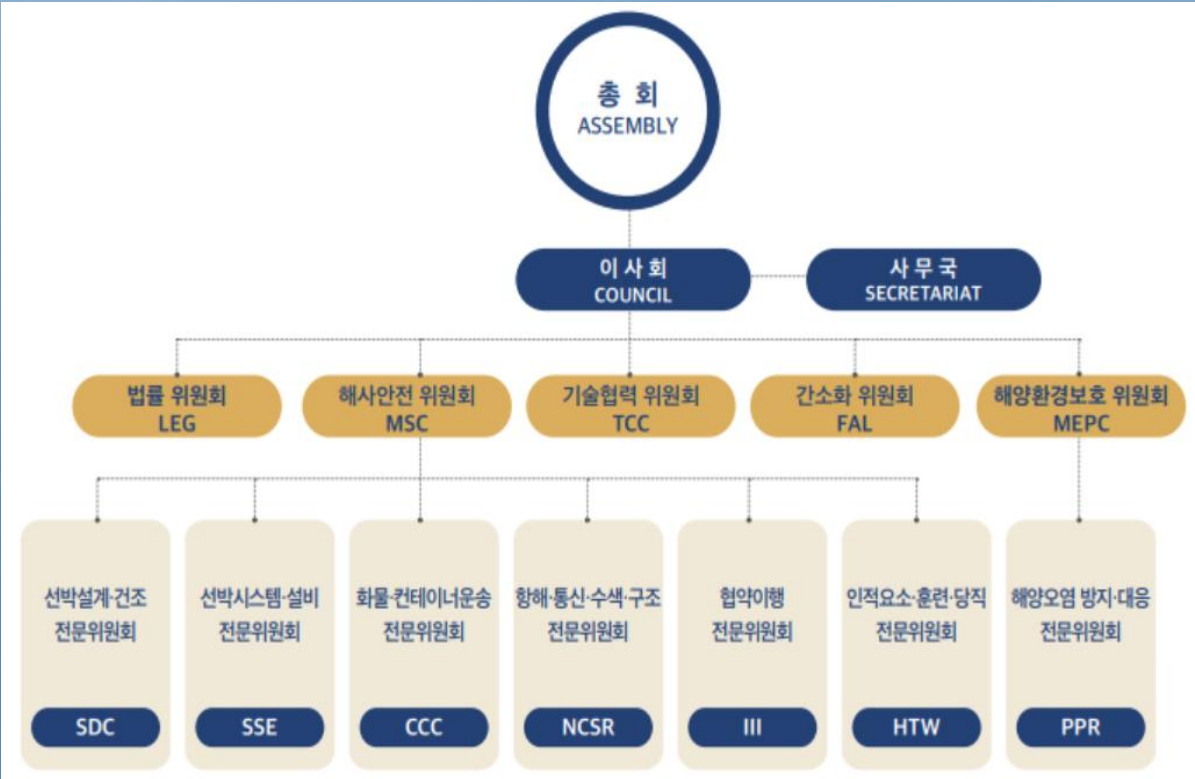
The very first IMCO Assembly took place in January 1959 at Church House, in Westminster, London, attended by delegates from 30 countries

3. The IMO and Global Challenges

Membership and Advisory body



Organizational structure of IMO



IMO (International Maritime Organization)



IMO MEPC Meeting



3. The IMO and Global Challenges

Challenges

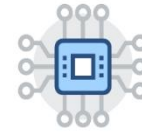
➤ Decarbonization and Digitalization



탈 탄소 (Decarbonization)



- Comprehensive **global strategy & cooperation** essential
- **Mandatory** measures for decarbonization (**Net-Zero**)



디 지 털 (Digitalization)



- **Integration of digital technologies** in ships & ports
- **Maximized efficiency in shipping operations**, including ships and ports

3. The IMO and Global Challenges

Challenges

➤ IMO's mid-term decarbonization strategy

IMO GHG Strategy toward 2050 adopted unanimously by 175 member states in July 2023

- **Net-Zero GHG emissions:** Net-Zero GHG emissions by ~2050 (by or around, i.e. Close to, 2050)
- **Interim Targets:** **≥20% reduction by 2030 (strive for 30%), ≥70% reduction by 2040 (strive for 80%)**
(baseline: 2008 total GHG emissions)
- **Fuel Transition Goal:** **by 2030, ≥5% (strive for 10%)** of total energy **from low-/zero-emission fuels**

Mid-term Measures to be adopted by end-2025

- **Fuel standards:** GHG content (CO₂, CH₄, N₂O)
- **Support for developing countries:** incentives for SIDS, and LDCs
- **Market-based measures:** e.g. carbon tax under discussion

3. The IMO and Global Challenges

Challenges

➤ IMO MEPC 83 outcomes

Draft amendments on **mid-term measures** (e.g., fuel standards) **approved** in April 2025
and to **be adopted** in October 2025

Issue 1

Fuel Standards (technical elements)

- Reduction Factors
 - 2028 : 4~17%
 - 2030 : 8~21%
 - 2035 : 30~43%
 - 2040 : 65%



Issue 2

Carbon Pricing (economic elements)

- Tier 1~2 : 100 USD per tons of CO₂eq
 < Tier 1 : 380 USD per tons of CO₂eq
- 2008~2030 : Applied from above
- 2030~ : To be decided by Jan 2028



Issue 3

Net-zero Fund (disbursement)

- Reward for ZNZs
- Needs of Developing countries, SIDS + LDCs
 - Maritime infrastructure,
 - Support for seafarers & maritime workforce
 - Fleet renewal + upgrade
 - Food security



Scope of application: **Ships ≥5,000 tons**
(Ships ≥400 tons: possible expansion to be discussed at future convention review)

3. The IMO and Global Challenges

Challenges

➤ **Joint Statement on Protecting U.S. Consumers and the Shipping Industry (August 12, 2025)**

- The IMO's Global Carbon Tax Must Be Blocked... (Joint Statement by the Dept of State, Dept of Commerce, Dept of Energy, and Dept of Transportation)

- ❖ “President Trump has made it clear that the United States will not accept any international environmental agreement that unduly or unfairly burdens the United States or harms the interests of the American people.” ...(발췌)
- ❖ “Whatever its stated goals, the proposed framework is effectively a global carbon tax on Americans levied by an unaccountable UN organization.” ...(발췌)
- ❖ “The Trump Administration unequivocally rejects this proposal before the IMO and will not tolerate any action that increases costs for our citizens, energy providers, shipping companies and their customers, or tourists.” ...(발췌)
- ❖ “Our fellow IMO members should be on notice that we will look for their support against this action and not hesitate to retaliate or explore remedies for our citizens should this endeavor fail.” ...(발췌)

3. The IMO and Global Challenges

🎯 Challenges

➤ MASS & Digitalization

Issue 1

MASS

International Maritime Organization (IMO) is developing the MASS Code to establish essential international technical standards for autonomous ships.



- **27 chapters in 3 parts**
(overview, basic principles, core functional requirements)
- ✂ Covers essential elements for ship operations: navigation, communication, remote operation, fire control, ship structure, life-saving appliances, etc.

Issue 2

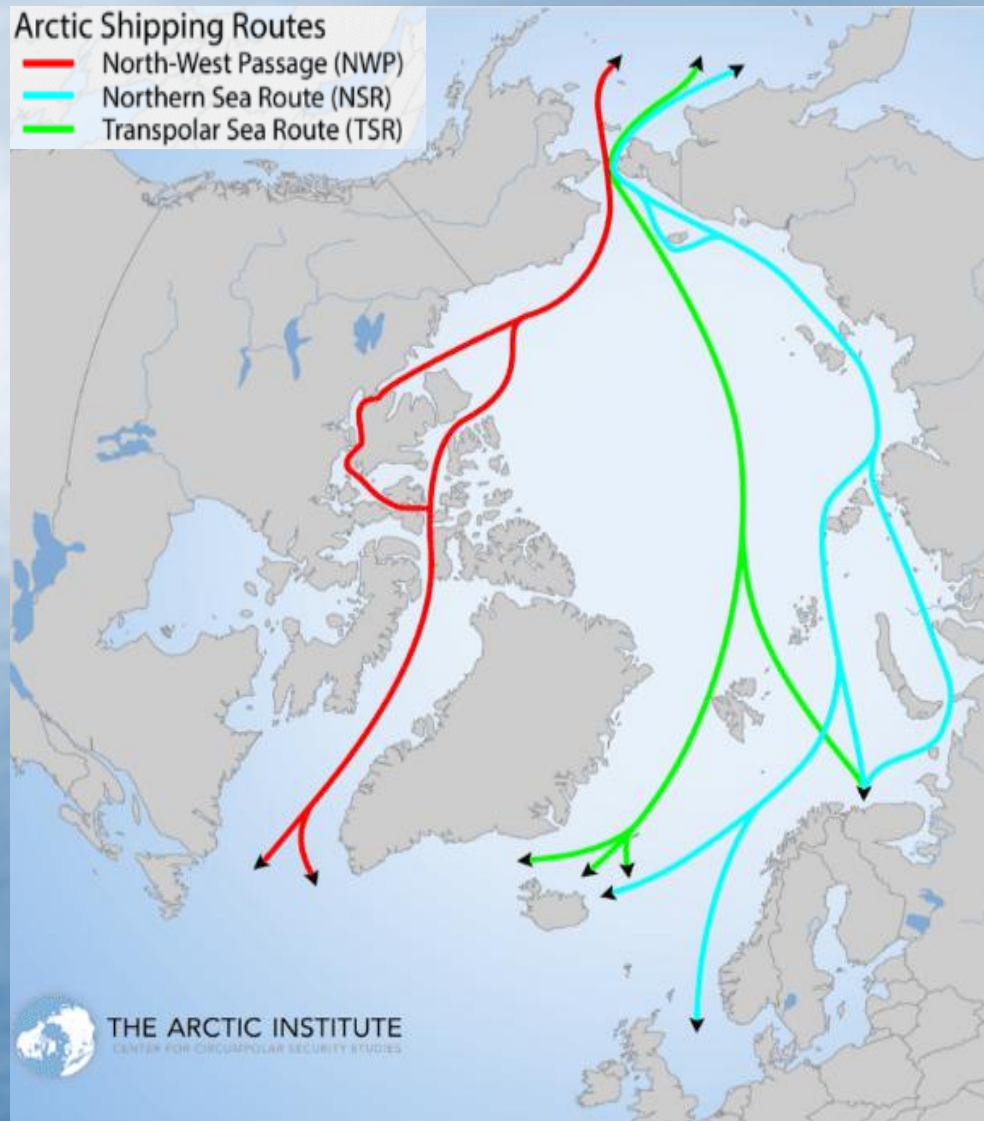
Digitalization

Ongoing digital technology discussions:

- **E-Navigation** guidelines adopted
- **Maritime cyber security** guidance established
- **Development of standards for next-gen navigation and communication systems** discussed
- Discussions on **Single Window**, smart aids to navigation, and **advancement/standardization of maritime PNT** (Positioning, Navigation, Timing)



4. The Era of Arctic Sea Route and Its Challenges



❑ Northern Sea Route (NSR) Status (as of 2025)

- Navigation window (summer): **3–4 months**, expanding due to climate change - By mid-2030s: **7–9 months** of annual navigation expected
- Busan–Rotterdam route: **Up to 10–15 days** shorter → fuel cost & carbon emission savings
- Challenges: **Requires icebreaker support**; persistent risks of high-latitude navigation

❑ Preparations for Expanded NSR Use

- Ensure safe navigation, environmental protection, and crisis-response systems
 - EPPR: Emergency Prevention, Preparedness and Response
 - PAME: Protection of the Arctic Marine Environment

❑ Consultations with Russia and the Arctic Council

5. South Korea's Role at the Dawn of New Maritime Era



Our mission in the new maritime era under the current international geopolitical conditions.

- ❑ Collaboration + Cooperation

- ❑ Sustainable **Blue Economy**

→ Our Next Generation

An aerial photograph of a large port facility, likely in Asia, featuring numerous container cranes and stacks of colorful shipping containers. In the background, a dense urban area is visible, followed by a range of mountains under a cloudy sky. The entire image has a light blue tint.

Thank you.