3rd ASEF 2009, Shanghai, China

Maritime Regulation and Action from Industry

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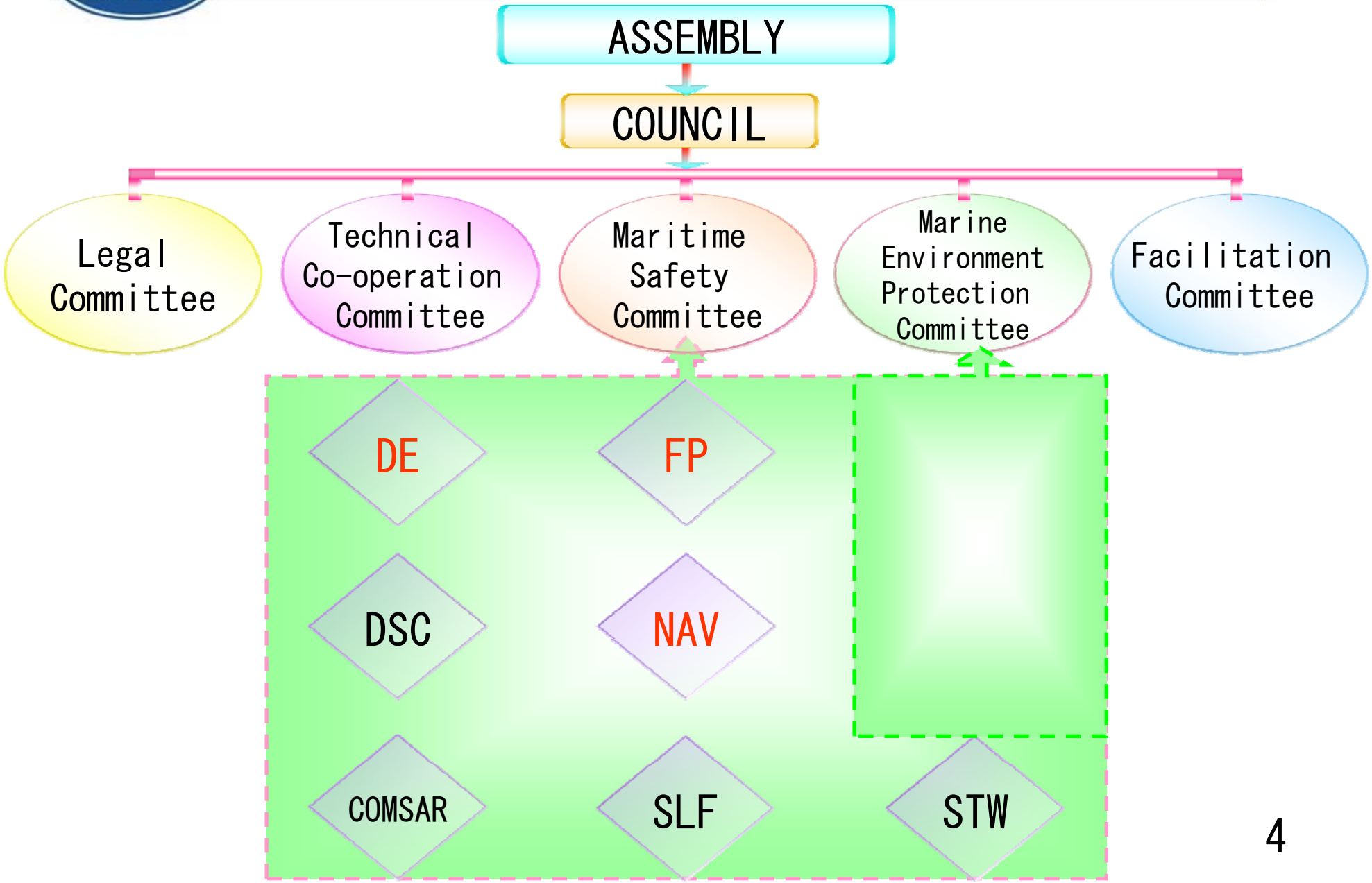
Contents

I. IMO Regulation Overview

IMO Framework



MSC Focus on Maritime Safety

SHIPPING

- Piracy and armed robbery against ships
- Role of the human element
- Formal safety assessment

Guidance for preventing and suppressing piracy and armed robbery against ships

Joint IMO/ILO working group on areas of common interest. The implementation of the guidelines concerning fair treatment of seafarers

FSA Guidelines

MSC Focus on Maritime Safety

Tier II Functional requirements

1) Design life(25years)
2) Environment conditions
3) Structural strength
4) Fatigue life
5) Residual strength
6) Protection against corrosion
7) Structual redundancy
8) Watertight and weathertight integrity
9) Human element consideration
10) Design transparency
11) Construction quality procedures
12) Survey
13) Maintenance
14) Structural accessibility
15) Recycling

MEPC Focus on Maritime Environment Protection

SHIPBUILDING

Recycling of ships	Green House Gas Emission Reduction	Harmful anti-fouling systems for ships
the design, construction, operation and preparation of ships so as to facilitate safe and environmentally sound recycling	EEDI, EEOI, SEMP, MBI	Coatings, Sea chest Gratings, Sacrificial anodes, Bio-fouling management plan, Bio-fouling record book

MEPC Focus on Maritime Environment Protection

Harmful aquatic organisms in ballast water

to prevent, minimize and ultimately eliminate the transfer of harmful aquatic organisms and pathogens through the control and management of ships' ballast water and sediments

MARINE EQUIPMENT

Prevention of air pollution from ships

Nitrogen Oxides (NOx):

Tier I, Tier II, Tier III

SC Stretches Even Further - DE

1)Revision of the code on alarms and indicator
2)Draft revised MODU Code
3)Measures to prevent accidents with lifeboats
4)Compatibility of life-saving appliances
5)Amendments to the guidelines for ships operating in arctic ice-covered waters
6)Guidelines for maintenance and repair of protective coatings
7)Cargo oil tank coating and corrosion protection

SC Stretches Even Further - FP

1)Performance testing and approval standards for fire safety systems

2)Fire resistance of ventilation ducts

3)Measures to prevent fires in engine-rooms and cargo pump-rooms

4)Fixed hydrocarbon gas detection systems on double-hull oil tankers

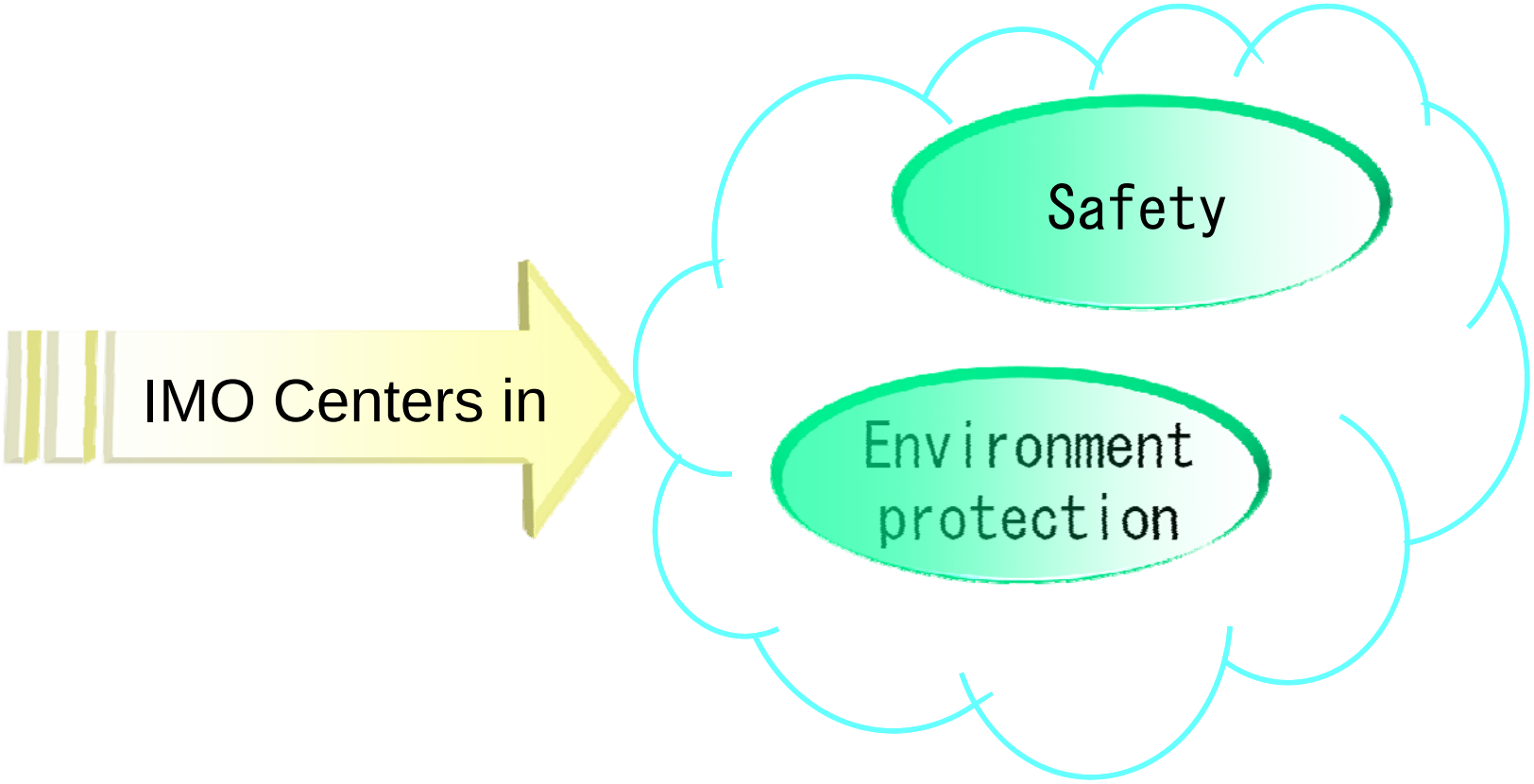
SC Stretches Even Further – BLG

1) Development of guidelines and other documents for uniform implementation of the 2004 BWM Convention
2) Review of MARPOL ANNEX VI and the NO_x technical code
3) Evaluation of safety and pollution hazards of chemicals and preparation of consequential amendments
4) Development of provisions for gas-fuelled ships
5) Review of the recommendation for material safety data sheets for MARPOL ANNEX I cargoes and marine fuels

SC Stretches Even Further – NAV

1) Routing of ships, ship reporting and related matters
2) Development of an e-navigation strategy
3) Evaluation of the use of ECDIS and ENC development
4) Revision of the performance standards for INS and IBS

Safety and Environment Protection are core focus



II. Shipbuilding Industry in face of Maritime Regulation

Impact of Maritime Regulation on Shipbuilding Industry

Technology Innovation

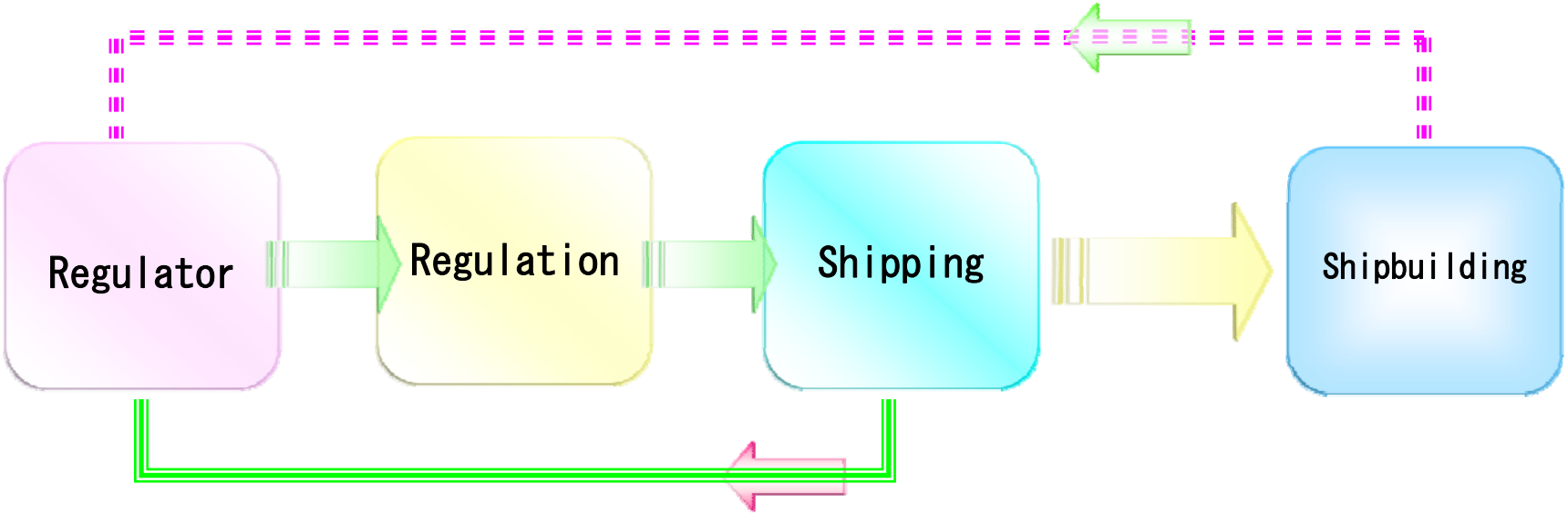
face a series of new technology that has little relationship with conventional ones

New Competition Pattern

Possible Transformation

change from simple manufacturer to lifetime service provider and take corporate social responsibility into consideration

Shipbuilding Industry in Face of Maritime Regulation



GHG--Energy Efficiency Design Index (EEDI)

Shipping Industry made initial proposal

IMO

$$EEDI = \frac{\text{Propulsion load} + \text{Auxiliary/ hotel load} - \text{Innovative technologies}}{\text{Transport work}}$$

GBS-- Ship Construction File

Structural strength

	General Design	Applied Rule (date & revision)	Applied design method	SCF-specific
1	Deformation and Failure Mdes	Applied alternative to Rule Calculating conditions and results; Assumed loading conditions Operational restrictions due to structural strength	alternative to Rule and subject structure(s) Allowable loading pattern Maximum allowable hull girder bending moment and shear force	Capacity Plan Loading Manual Trim & Stability Booklet Loading Instrument Instruction Manual Operation and Maintenance Manuals
2	Ultimate Strength			
3	Safety Margins	Strength calculation results Gross hull girder section modulus	Maximum allowable cargo density or storage factor Bulky output of strength calculation	General Arrangement Key Construction Plans
4		Minimum hull girder section modulus along the length of the ship to be maintained throughout the ship's life	Plan showing highly stressed areas prone to yielding and/or buckling	Rudder and Rudder Stock
		Gross scantlings of structural items	Structural drawings	Structural Details
		Net scantlings of structural items	Rudder and Stern Frame	
		Hull form	Structural details of typical members	

Production Plans

Lines Plan

Continuous review for the past experience in face of the new concept.

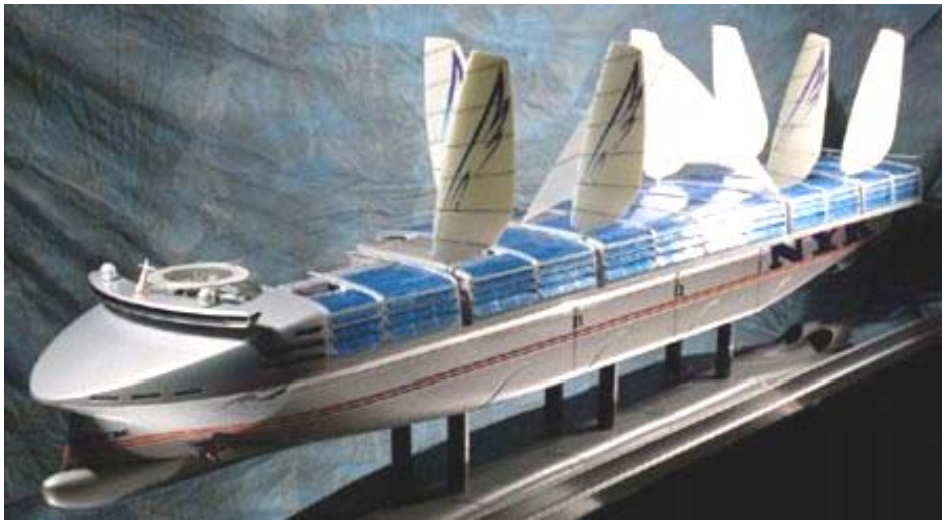
A series of shipbuilding technology including design, construction and marine equipment needs to be improved.

Broader industries besides shipbuilding will get involved.

Energy efficiency and environment protection should be taken into consideration at the meantime, which requires new ship type development instead of part update.

Improvement of ships needs efforts from multi-industry

NYK Super Eco Ship 2030: a reduction of CO_2 by 69 percent per container carried



Friction-resistant material

Fuel cells

Control

Wind power

Solar cells

III. Action from Shipbuilding Industry

Shipping Industry Takes Proactive Role

The Danish Initiative Green Ship of the Future

- Dual / Multi MCR Certification
- Automated Engine Monitoring
- Electronic Engine and VTR
- Trim Optimisation
- Turbo charging with variable nozzle rings
- Scrubber Systems
- Air Cavity Systems
- EGR systems
- Optimized Control for Ship Cooling
- Innovative Propeller Design
- Waste Heat Recovery Systems
- LNG Powered Fast Ferry
- Forum of Ship Officer Students
- Auxiliary Systems
- Lab on a Ship
- Performance Monitoring of Silicone Anti-Fouling
- Weather Routing

Shipping Industry Takes Proactive Role

The Danish Initiative Green Ship of the Future

Classes Are Stepping Forward

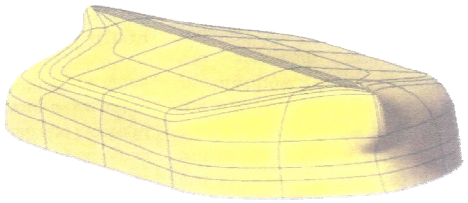
DNV Triple-E: Environmental & Energy Efficiency Rating Scheme

CCS: “Green Ship Plan”

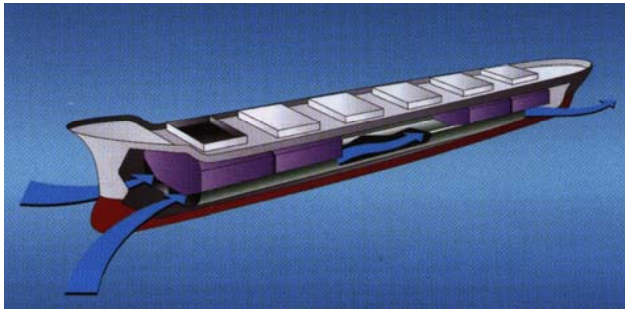
Action from Shipbuilding Industry

The Shipbuilding Research Center of Japan：
The main feature of the NOBS is a transversely ranked bottom-required to maintain a draught in order to sail safely without ballast water.
The resulting decrease in displacement is compensated for by widening the breadth.

Non-ballast water ship



Ballast-free ship



University of Michigan ：Instead of hauling potentially contaminated water across the ocean, then dumping it in a Great Lakes port, a ballast-free ship would create a constant flow of local seawater through a network of large pipes, called trunks, that runs from the bow to the stern, below the waterline.

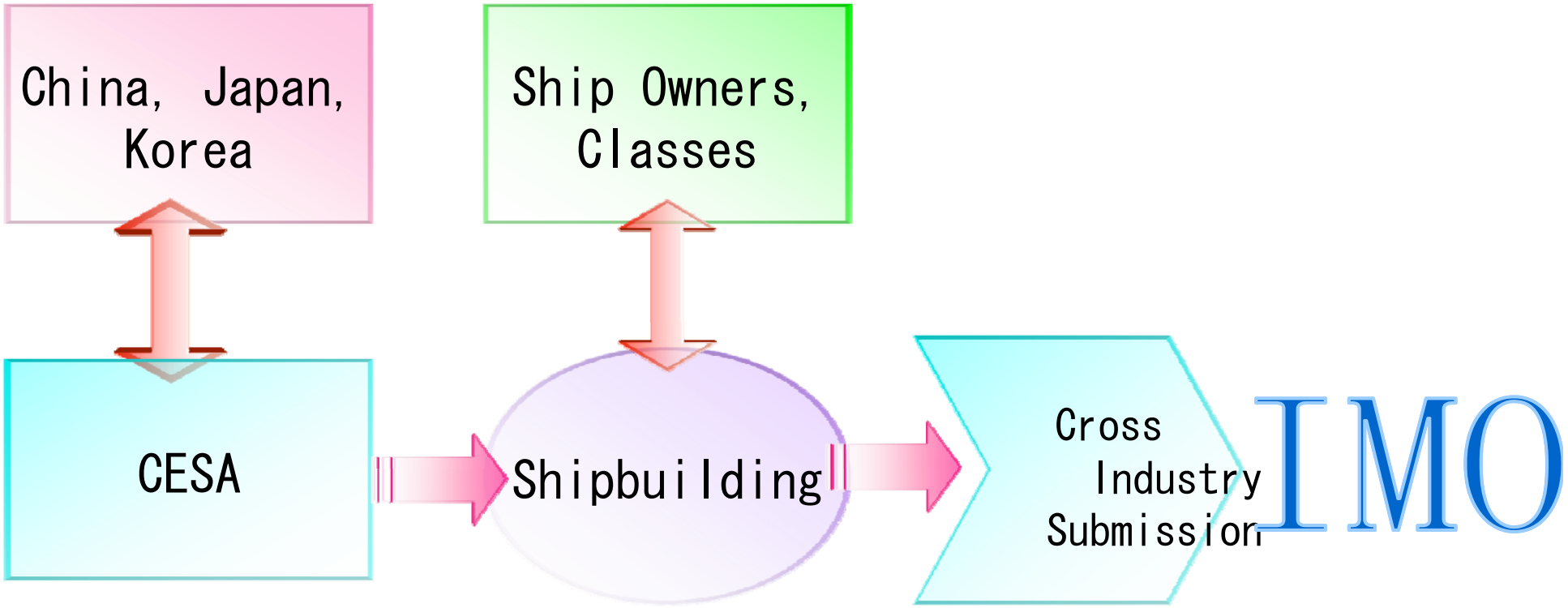
Action from Shipbuilding Industry

Committee of
Elimination
Substandard Ships

Committee for
Expertise
of Shipbuilding
Specifics

response to the maritime regulations among shipbuilding industry.

Action from Shipbuilding Industry



Action from Shipbuilding Industry

Item 1

Finalizing amendments to the text of the draft SCF guideline, verification guidelines and SOLAS amendments (if necessary and possible).

Item 2

Drafting list of information to be included in the SCF on board and SCF Supplement ashore. This would be a comprehensive list including highly intellectual property sensitive information which shall be stored ashore.

Item 3

Preparing a "standard" ranking of SCF information from intellectual property sensitivity point of view. It was agreed that a complete ranking would not be necessary for the MSC 87 submission. Nevertheless, the industry should be able to develop a concept and provide concrete examples (either as part of the submission or as part of a separate info paper).

Action from Shipbuilding Industry

Item 4

Developing an overall framework of the security system for SCF (hardware and software methods of protection).

Item 5

Drafting "standard" procedures for access to SCF. Both ship owner experts and yard experts shall provide practical examples and the reasoning behind.

Item 6

Designing a plan for archive centre(s) There can be many solutions. For instance, individual class might be interested in entering into contractual relationships for SCF Supplement storage purposes

ISO/TC8 Links IMO and Industry

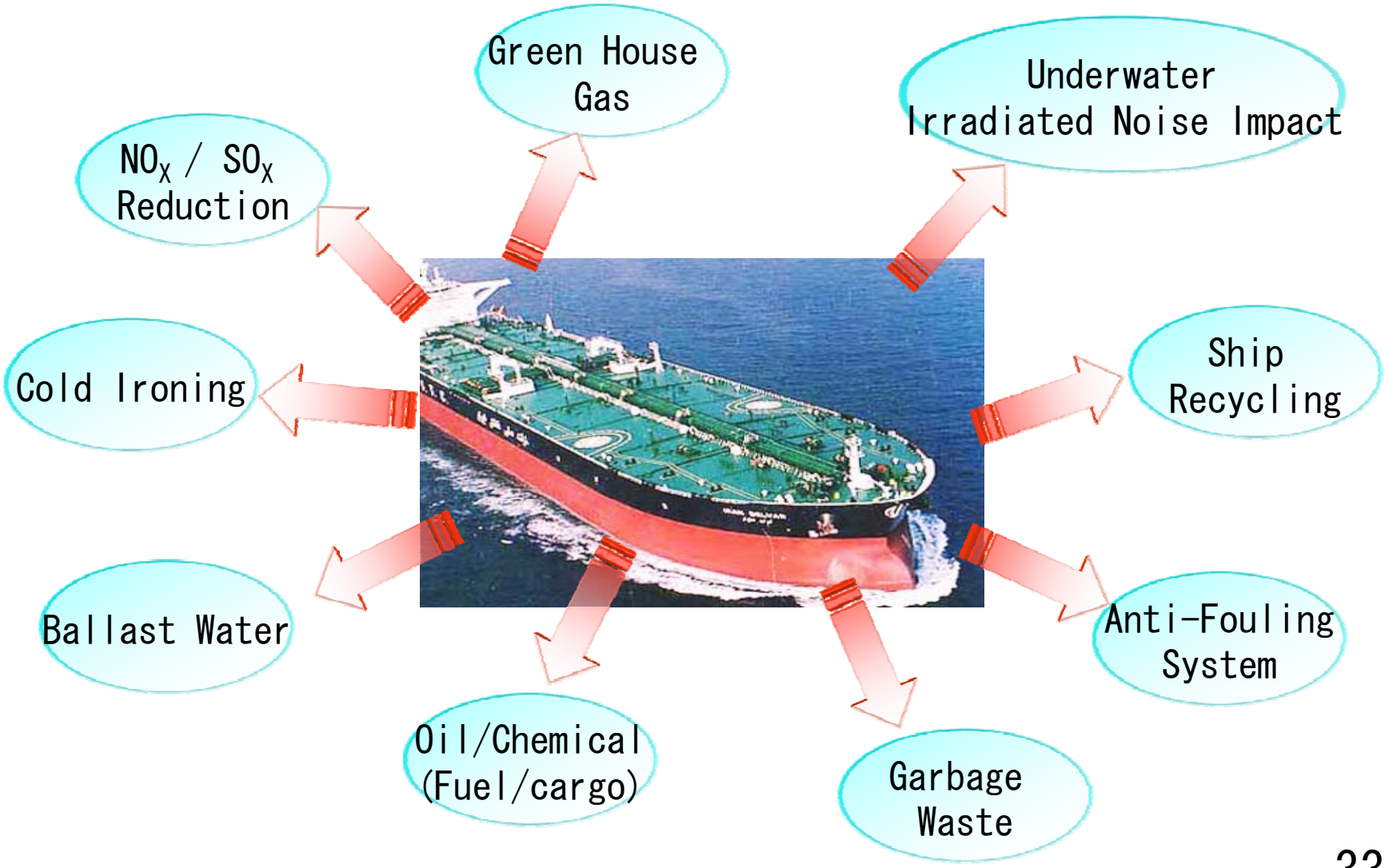
ISO 28000: Security Management Systems for the Supply Chain

	Title	Status
ISO 28000	Specification for security management systems for the supply chain	Published
ISO 28001	Security management systems for the supply chain- Best practices for implementing supply chain security- Assessments and plans- Requirements and guidance	Published
ISO 28002	Resilience in the Supply Chain - Requirements with guidance for use	Under development
ISO 28003	Security management systems for the supply chain- Requirements for bodies providing audit and certification of supply chain security management systems	Published
ISO 28004	Security management systems for the supply chain- Guidelines for the implementation of ISO 28000	Published
ISO 28005-1	Security management systems for the supply chain- Electronic port clearance (EPC)- Message structures	Under development
ISO 28005-2	Security management systems for the supply chain- Electronic port clearance (EPC)-Core date elements	Under development
ISO 20858	Ships and marine technology - Maritime port facility security assessments and security plan development	Published

ISO 30000: Ship Recycling Management Systems

	Title	Status
ISO 30000	Ship recycling management systems - Specifications for management systems for safe and environmentally sound ship recycling facilities	Published
ISO 30001	Ship recycling management systems - Best practice for ship recycling facilities - Assessment and plans	Under development
ISO 30002	Ship recycling management systems - Guidelines for selection of ship recyclers (and pro forma contact)	Under development
ISO 30003	Ship recycling management systems - Requirements for bodies providing audit and certification of ship recycling management systems	Published
ISO 30004	Ship recycling management systems - Guidelines for implementing ISO 30000	Under development
ISO 30005	Ship recycling management systems - Information control for hazardous materials in the manufacturing chain of shipbuilding and ship operations	Under development
ISO 30006	Ship recycling management systems- Illustration of the location of hazardous materials onboard ships	Under development
ISO 30007	Ship recycling management systems- Guideline for measures to minimize asbestos emission and exposure at ship recycling	Under development
ISO 30008	Ships and marine technology - Large yachts - Ship recycling management systems - Yachts recycling	Under development

Environment Activities of ISO/TC8

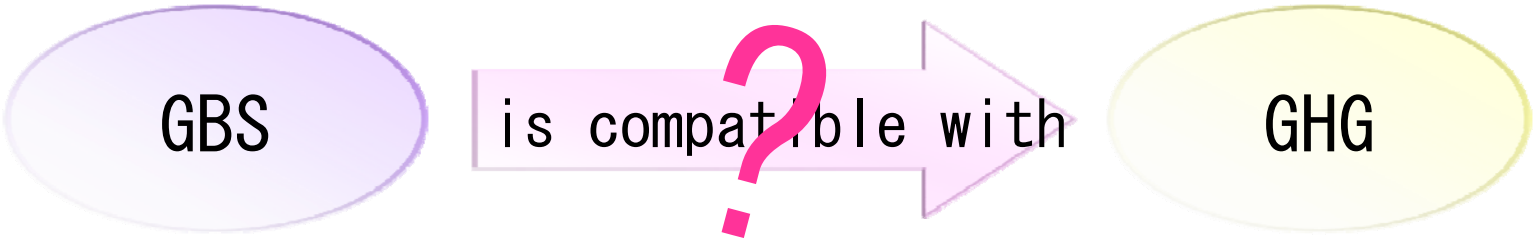


Ballast Water Management

Outline of Hitachi ClearBallast

VLCC Ballast water capacity	Type	Treatment rated capacity	Hour consumption	Power consumption	Energy consumption	Facility size
100000 m^3	1	200m^3/h	500h	20 kw	10000 kwh	20 ft bulk container
100000 m^3	2	400m^3/h	250h	40 kw	10000 kwh	40 ft bulk container
100000 m^3	3	800m^3/h	125h	60 kw	7500 kwh	35 m^2Foot Print
100000 m^3	4	1,200m^3/h	83h	120 kw	9960 kwh	52 m^2Foot Print
100000 m^3	5	1,600m^3/h	63h	130 kw	8190kwh	69 m^2Foot Print

Regulation Feasibility Needs Further Consideration



Asian Shipbuilders Should Be More Active

Market Share: 95.5%

Ship Type：all except luxury ship

Regulation：long way to go

Action for the Future

Working Groups between ASEF meetings (basic platform)?

ISO/TC8 Ships and Marine Technology Committee (cross industry platform)?

Committee for Expertise of Shipbuilding Specifics (CESS)?

Thank You for Your Attention !

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