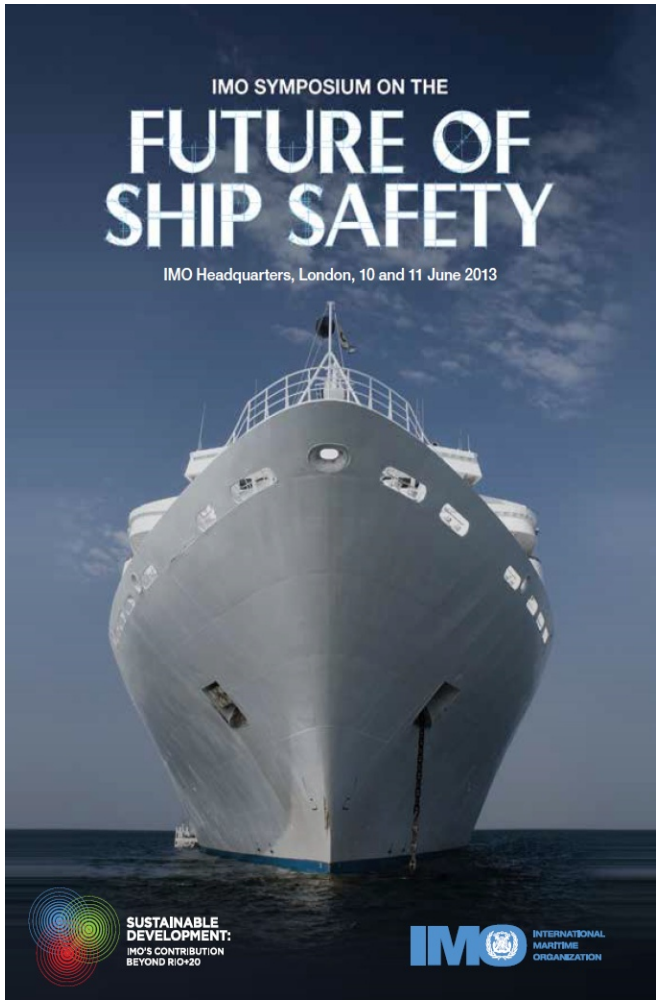



# Review of
# IMO SYMPOSIUM ON THE FUTURE OF SHIP SAFETY

Nov. 8, 2016

Jongkap Lee

# ※ CHARTER OF ASEF

**Article 1 Name**

Active Shipbuilding Experts' Federation (referred to hereinafter as 'ASEF') is **an international organization representing shipbuilding industry**.

For the purpose of the present Charter, 'shipbuilding' means new building, repair and conversion of ships and offshore structures.

**Article 2 Purposes**

ASEF, through technical communication and cooperation among shipbuilding industry, **contributes to sound development of international maritime transportation and further enhancement of the world maritime safety, marine environment protection and maritime security.**

**Article 3 Functions**

ASEF has the following functions which lead to smooth, sound and sustainable development of the shipbuilding industry:

- To hold the ASEF Forum;

**- To exchange views and opinions among members** on technical matters on shipbuilding including technical agenda in International Maritime Organization (referred to hereinafter as 'IMO') and International Organization for Standardization (referred to hereinafter as 'ISO');

**- To develop relationship with other international organizations** through promoting awareness to the relevant international organizations of issues handled by the shipbuilding industry; and

**- To contribute and offer opinions to external bodies** including IMO and ISO on their technical agenda.

# Table of Contents

# Outline of the Symposium

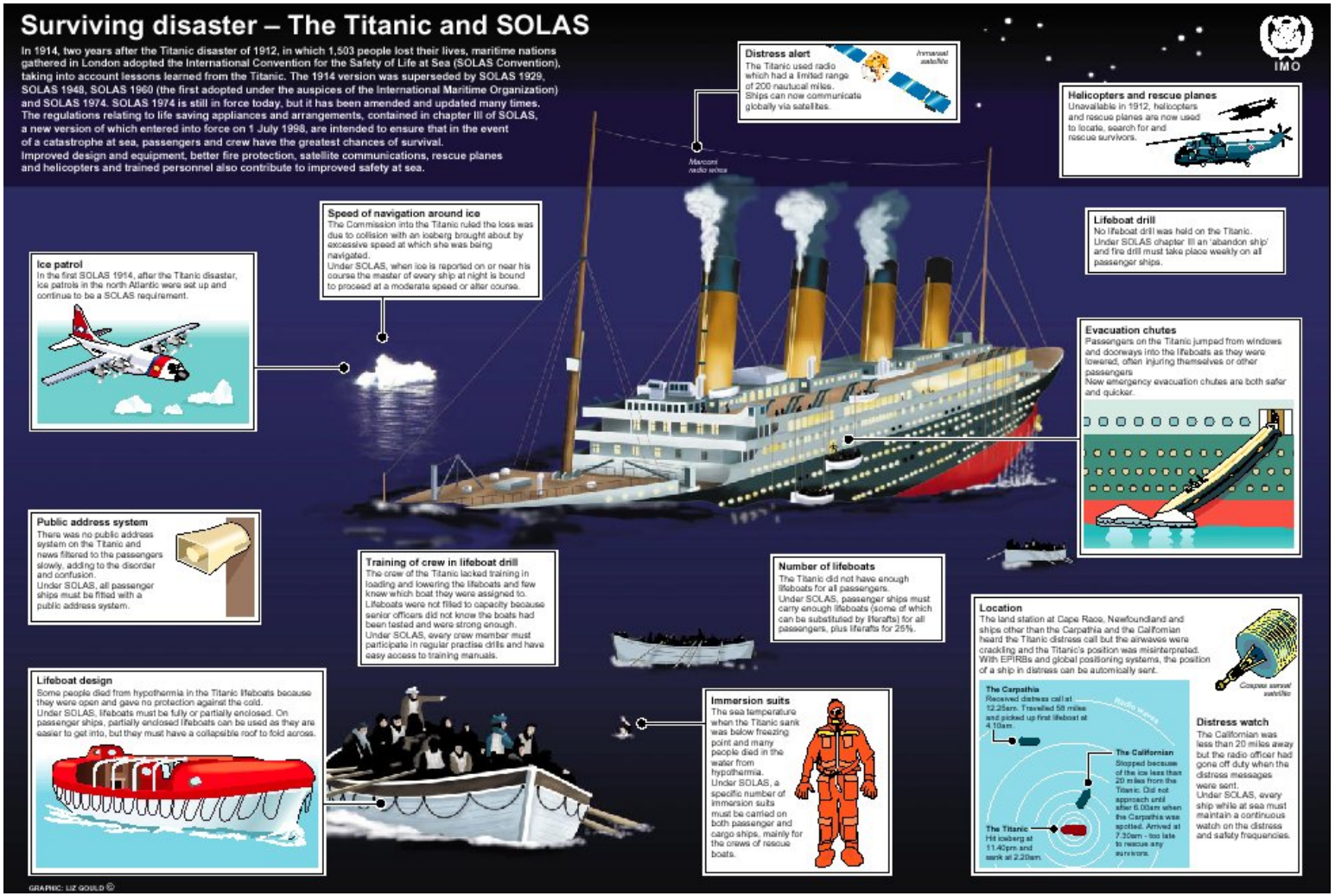
- **Date: June 10-11, 2013**
- **Venue: IMO Headquarters, London**
- **Participants: about 500,** including participants via web conferencing facility
- **Presentations and Discussions:**
  - By the highly influential/knowledgeable speakers from across the broad spectrum of ship design, construction, equipment, operation and regulation;
  - on a wide range of issues impacting the future of ship safety.

# Background

- **The Year 2013:**
  - the 100th anniversary of the sinking of the Titanic(1912) and the SOLAS (1914)
- **Continuous accidents occur, despite of strengthening the instruments and technology advancements**
  - the Costa Concordia accident, in 2012
- **Needs for a new regime and regulatory systems, with more scientific approaches, for the enhancement of ship safety and environment protection to shape what we want in 2050**


☞ *See the 'Opening Remarks' of Mr. Sekimizu, former Secretary General of IMO (http://www.imo.org/en/About/events/FSS)*

# ※ The Titanic and SOLAS



# ※Marine Accidents


Titanic(1912)


Herald of Free Enterprise (1987)


서해페리


Costa Concordia(2012)


Tory Canyon(1967)


Exxon Valdez(1989)


Sea Prince(1995)
Hebei Spirit(2007)


SeWoel(2014)


Erica(1999)


Prestige(2002)


MOL Comfort(2013)


Piper Alpha(1988)


Deepwater Horizon(2010)

# Topics /Programme

- **Day 1: Where Are We?**
  - **Future Impacts on Ship Safety**
  - **Meeting the Needs of Society and the Maritime Industry**
  - **Driving Forces on Maritime Safety**

- **Day 2: Achieving Our Goals**
  - **Responding to the Challenges and Opportunities**
  - **Dealing with the Human Elements**
  - **The Needs For Change**

# ※ Programme

## DAY 1: MONDAY, 10 JUNE, 2013
## SHIP SAFETY – WHERE ARE WE?

07.30 REGISTRATION

09:00 OPENING ADDRESS
**Mr Koji Sekimizu**
Secretary-General, IMO

**09.30 SESSION 1 – FUTURE IMPACTS ON SHIP SAFETY**

This session will highlight the recent trends in ship design and the likely impact on ship safety in the decades to come in the light of such trends and discuss how these future risks should be assessed.

**MODERATOR: Mr Bernard Meyer**
Managing Director, Meyer Werft

- **Trends in Passenger Ship Design**
  Mr Harri Kulovaara, Executive Vice President, Maritime, Royal Caribbean Cruises Ltd.
- **Trends in Containership Design**
  Dr Bo Cerup-Simonsen
  Senior Vice-President, Maritime Technology, Maersk
- **Trends Impacting Tanker Design**
  Mr Christopher Bailey
  Technical Vice President, BP Shipping
- **Future Engine Systems**
  Dr Masayoshi Kawakami
  Senior Technical Advisor, Niigata Power Systems

11.00 COFFEE/TEA – SPONSORED BY IACS

11:30 PANEL DISCUSSION: WHAT WILL BE THE IMPACT ON SAFETY IF THESE TRENDS CONTINUE?

12:00 LUNCH

**14.00 SESSION 2 – MEETING THE NEEDS OF SOCIETY AND THE MARITIME INDUSTRY**

This session will look at the way shipping responds to the needs of society, industry and global trade and looks to possible ways forward for the future.

**MODERATOR: Mr Tom Boardley**
Marine Director, Lloyd's Register

- **Sustainable Development and the Future of the Maritime Industry**
  Mr Claes Berglund
  Director of Public Affairs and Sustainability, Stena
- **Ship owners' perspective on the needs of the maritime industry**
  Ms Katharina B. Stanzel
  Managing Director, INTERTANKO
- **Meeting the needs of society and the maritime industry through ship design**
  Mr Wu Jiameng, Vice-Director, Merchant Ship Dept., Marine Design & Research Institute of China (CANSI)
- **Lessons learned from Fukushima**
  Mr James T. Stewart
  Transport Safety Unit, IAEA

15:30 PANEL DISCUSSION: ARE THESE VIEWS MUTUALLY EXCLUSIVE OR IS THERE A WAY FORWARD?

16.00 COFFEE/TEA – SPONSORED BY IACS

**16.30 SESSION 3 – DRIVING FORCES ON MARITIME SAFETY**

This session will look at the economic, environmental and consumer forces impacting maritime safety and how such forces will drive future ship design and operations.

**MODERATOR: Mr Peter Hinchliffe OBE**
Secretary-General, ICS

- **Future Challenges for the Maritime Industry**
  Ms Birgit Liodden
  Secretary-General, YoungShip International
- **Economic Imperatives**
  Dr Martin Stopford
  President, Clarkson Research Services Limited
- **Regulatory challenges and tools**
  Mr Philippe Corrignan
  Head, Safety, Energy & Environment Section, Bureau Veritas
- **Accident Zero Campaign**
  Mr Gary Prosser
  Secretary-General, IALA

17.50 PANEL DISCUSSION: CHALLENGES AND OPPORTUNITIES

18.30 EVENING RECEPTION - SPONSORED BY ICS

## DAY 2: TUESDAY, 11 JUNE, 2013
## SHIP SAFETY – ACHIEVING OUR GOAL

09:00 OPENING OF DAY 2
Introduction

09:10 KEYNOTE SPEAKER
**Dr Tor E. Svensen**
President, DNV Maritime and Oil & Gas

**09.30 SESSION 4 – RESPONDING TO REGULATORY CHALLENGES THROUGH RISK ASSESSMENT**

This session will discuss the availability and need for data collection and analysis methodologies necessary to provide the sound scientific basis for continuous improvement in the years to come.

**MODERATOR: Dr Kirsi Tikka**
President and COO, ABS Europe Division

- **Data Collection and Analysis Methodologies**
  Mr Koichi Yoshida, Director , Technology Department Ship Equipment Inspection Society of Japan
- **The Scientific Risk-Based Approach**
  Mr Jim Peachey and Mr Rae McIntosh
  Royal Institution of Naval Architects (RINA)
- **Setting Goals for Safety**
  Dr R. Hamann, Sr. Engineer, Department Safety & Environmental Research, Germanischer Lloyd (GL)
- **Residual Risks and Emergencies**
  Mr Vaughan Pomeroy
  IMarEST

11.00 COFFEE/TEA – SPONSORED BY IACS

11:30 PANEL DISCUSSION: IS A RISK-BASED REGULATORY APPROACH RIGHT FOR SHIP SAFETY?

12:00 LUNCH

**14.00 SESSION 5 – DEALING WITH THE HUMAN ELEMENT**

This session will seek to identify the best way of encouraging a safety culture beyond mere compliance with statutory requirements based on both theoretical and practical examples.

**MODERATOR: Mr Gerardo A. Borromeo**
President, Intermanager

- **Human Element and Maritime Safety**
  Professor Neil Greenberg
  Clinical Director, March on Stress
- **From Best Practice to Self-Regulation**
  Mr Andreas Nordseth
  Director General, Danish Maritime Authority
- **Education and Training**
  Professor Zhang Renping
  Dalian Maritime University

15.00 PANEL DISCUSSION: CAN WE LEGISLATE FOR PEOPLE?

15.30 COFFEE/TEA – SPONSORED BY IACS

**16.00 SESSION 6 – THE NEED FOR CHANGE**

This session will look at whether the current international safety regulatory framework will effectively respond to the future challenges discussed throughout the Symposium and identify the actions needed to get us from where we are today to where we need to be in that future world.

**MODERATOR: Dr Tom Allan**
International Maritime Consultant

- **Gaps and Pitfalls in the Current Regulatory Framework**
  Professor Dracos Vassalos
  University of Strathclyde, Glasgow
- **Making Better Use of Industry Consensus Standards**
  Captain Charles Piersall, Chairman, ISO Technical Committee on Ships and Marine Technology (TC 8)
- **The Need for Change**
  Ms Anneliese Jost, Deputy Head, Maritime Safety Division, German Federal Ministry of Transport
- **Shaping Safety into the Future**
  Mr Roberto Cazzulo
  Chief Operating Officer, Rina SpA

17.20 PANEL DISCUSSION: SOLAS 74 – IS IT TIME FOR A NEW SOLAS CONVENTION?

17.50 APPROVAL OF SYMPOSIUM RESOLUTION FOR CONSIDERATION BY THE MARITIME SAFETY COMMITTEE

18.00 CLOSING REMARKS
**Mr Koji Sekimizu**
Secretary-General, IMO

# Themes Highlighted (1):

- **increasing consumer demand**, especially in emerging markets, will continue to drive growth in both the number and size of ships with **a need for more innovative and complex ship designs**, which will have a related impact on vessel traffic control;
- **the incorporation of new technologies** will place increasing demands on regulators to keep the prescriptive safety regulatory framework relevant with the ever-increasing pace of change and technological advancements;
- **societal demands** to reduce the impact ships have on the environment and increasing energy prices are intensifying the need for ship owners to employ new technologies, such as alternative fuels, with consequential impacts on ship safety and thus the **need for a safety regulatory framework** that can better address technological innovation and novel solutions;
- **improved data collection** is urgently needed to better understand and identify current risks and future trends, undertake contingency planning and to support the **use of risk-based methodologies and analysis techniques** so that future safety regulations have a sound scientific and practicable basis to support their development;

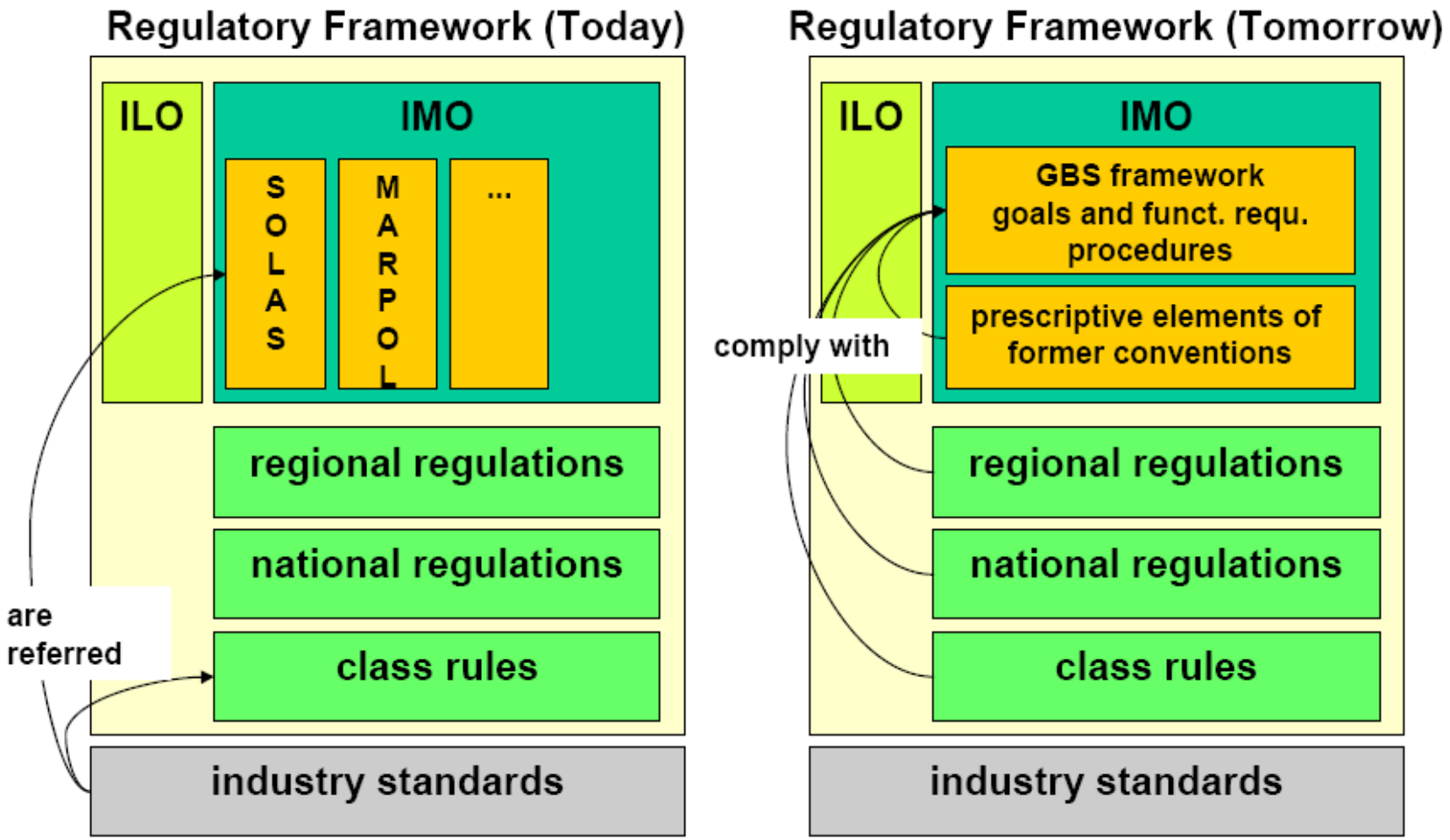
# Themes Highlighted (2):

- as ships become more complex, **a safety culture** that goes **beyond mere compliance** is essential to the future;
- **the human element** remains the primary cause of maritime casualties and the future safety regulatory regime should comprehensively address this important issue including, but not limited to, the burdens new regulations place on seafarers, the man-machine interface, **the impact of changing technologies and stress and fatigue**; and
- **a long-term comprehensive review of the safety regulatory framework** is necessary to ensure that it is fit for purpose to meet the future challenges addressed at the Symposium, taking into account the ever-increasing pace of change and technological advancements made since the 1974 SOLAS

# Outcome: Statement of the Participants

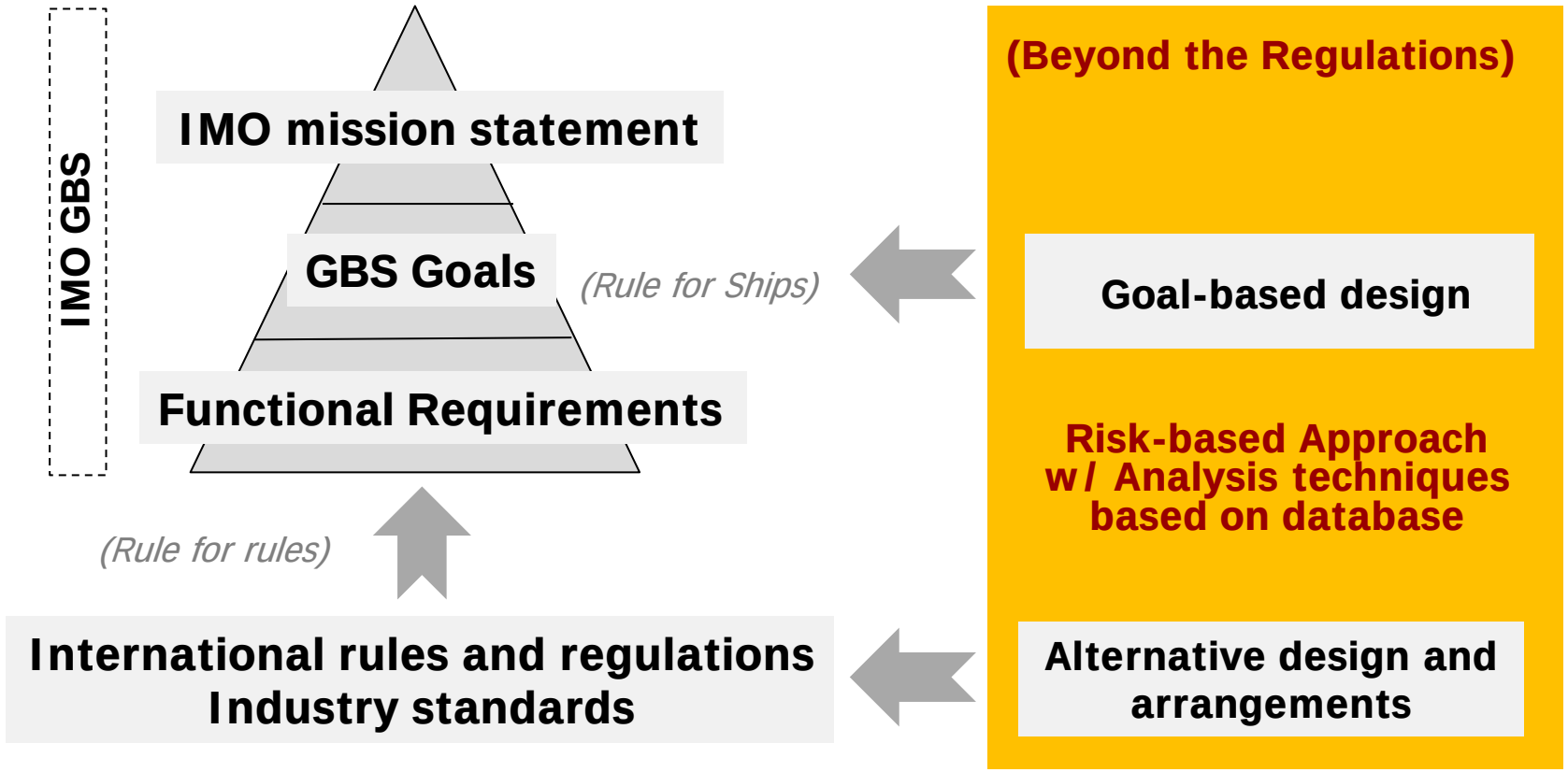
- **RECOMMENDATIONS to the MSC (MSC 92/23/3):**
  - To consider **how to improve data collection and increase its availability** in order to support monitoring and development of safety regulations;
  - To consider **how to better integrate risk-based methodologies and the latest analysis techniques into the safety regulatory framework** to provide a sound scientific and practicable basis for the development of future safety regulations;
  - To consider **ways of encouraging a safety culture** beyond mere compliance with regulatory requirements;
  - To take into account **the burden any new or changing regulation(s) place on the seafarers and how this burden can be minimized**;
  - To consider **undertaking a long-term comprehensive review of the existing safety regulatory framework** with a view to ensuring that it will meet the future challenges ..., taking into account the ever-increasing pace of change and technological advancements ...
- **URGES all Participants :**
  - to strengthen their **cooperation aimed at enhancing maritime safety** through internationally agreed uniform principles and rules.

# ※ Long-term Vision




*Sames (2008)*

# ※ GBS/SLA : A New Framework for the FSS



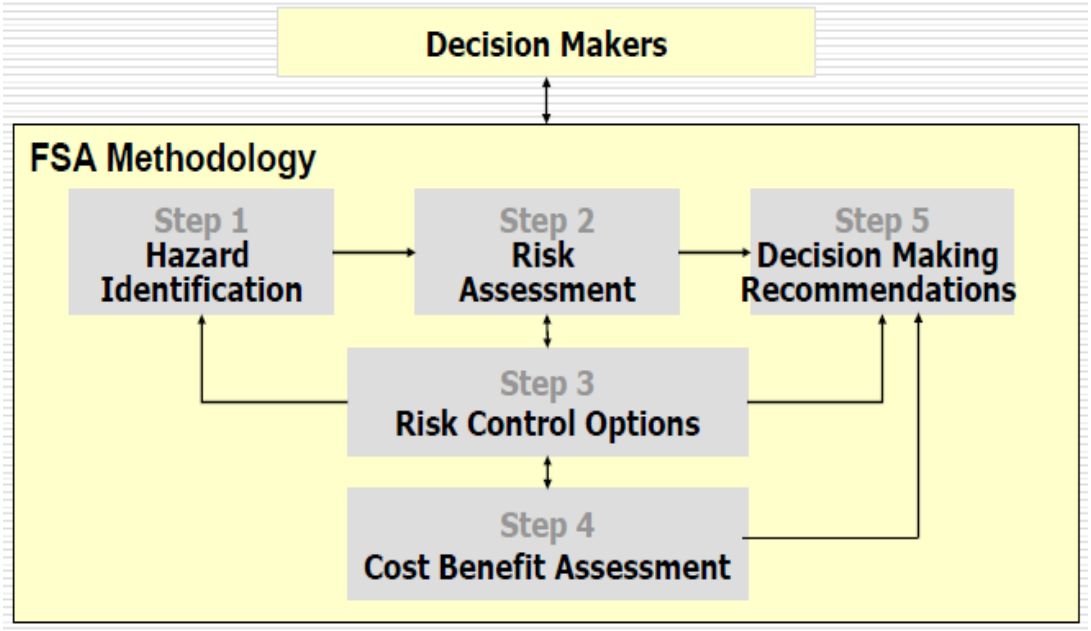

*Verification of rules and regulations according to the GBS verification procedure*

*Verification of the compliance with the goals and functional requirements according to the Guidelines on approval of the Novel Concepts*

*Juhl (2009)*

# ※IMO FSA (Formal Safety Assessment)

**"A structured and systematic methodology, aimed at enhancing maritime safety, including protection of life, health, the marine environment and property, by using risk and cost-benefit assessment." (MSC/Circ.1023-MEPC/Circ.392)**




*Flow Chart of the FSA methodology*

☞ *MSC/Circ.1023 - MEPC/Circ.392, Guidelines for Formal Safety Assessment (FSA)*
☞ *MSC/Circ.1022 - MEPC/Circ.391, Guidance for the use of HEAP and FSA*

# Related Discussions (1)

- **Tripartite Meeting (2015-2016)**

  *w/ holistic approach in design, certification, and operation:*

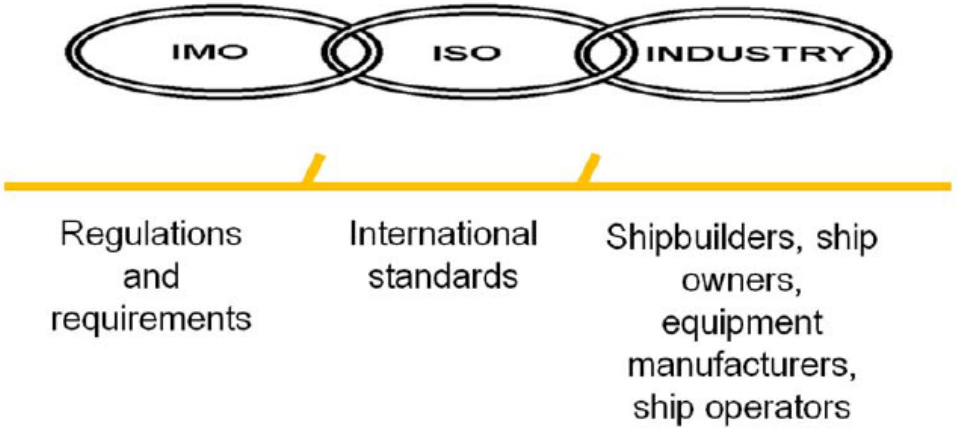
  - GBS/Hull Common Structural Rule (CSR)
  - Data collection and applications
  - Cyber risk and security
  - Ballast Water Management System (BWMS)
  - Interaction between SOLAS and MARPOL
  - Human element issues, ...

# Related Discussions (2)

- **ISO/TC8 (Ships and Marine Technology)**

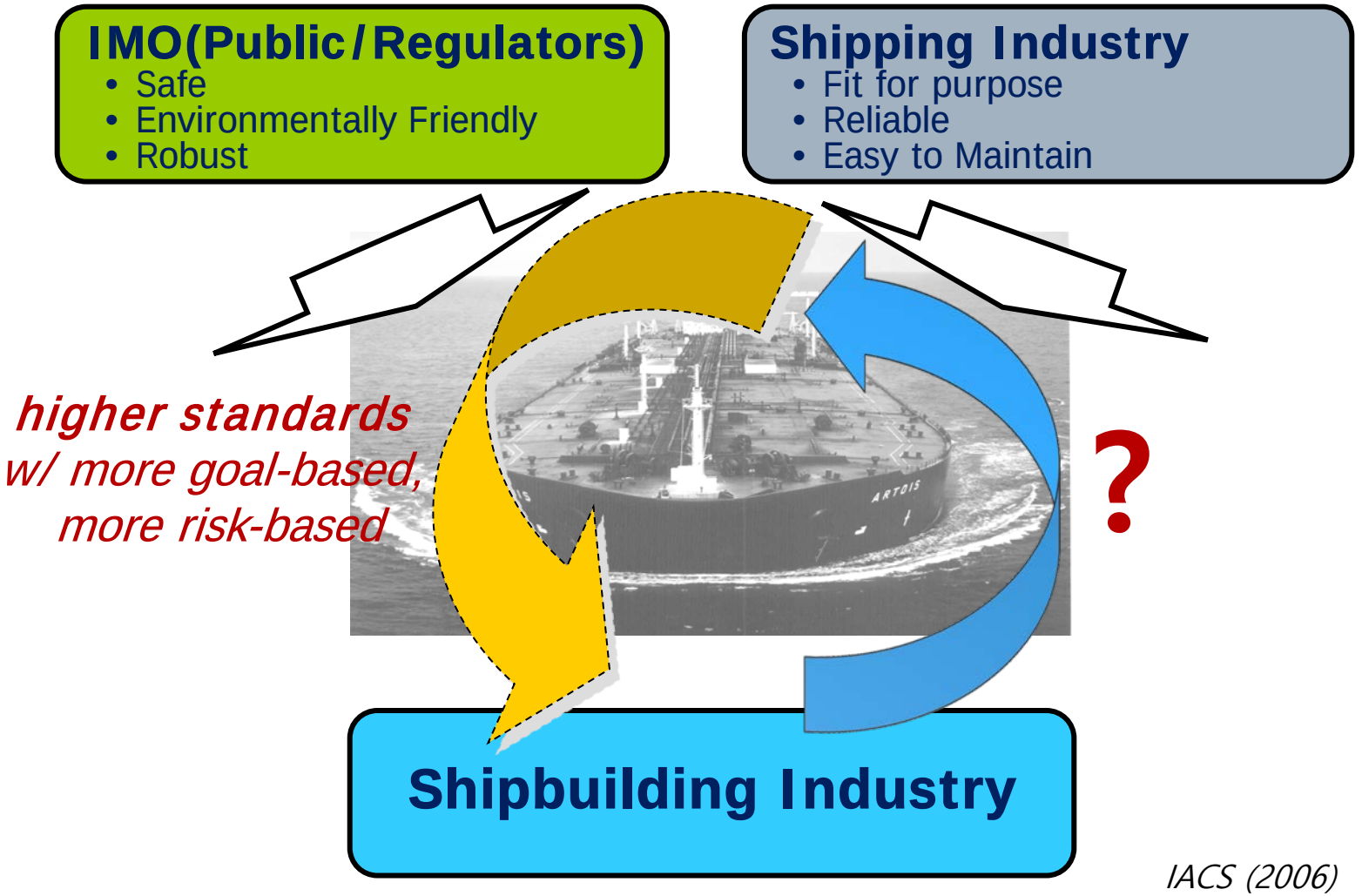
  *as Linking Instrument between IMO and Industry:*

  - Cyber safety / security for smart shipping
  - Ballast Water Management
  - LNG fueled ships / bunkering facilities
  - Arctic / Antarctic Navigation
  - ...




*Yanqing Li (2016)*

# Shipbuilders Perspectives




*IACS (2006)*

# Summary

- **The Future of ship safety:**
  - One of the most important factors in the future of shipbuilding industry
  - Challenges for the shipbuilders

- **Issues to be considered in the design and construction of the future ships:**
  - **Risk-based approach**
  - **Cyber safety and security** of the smart ships
  - **Data collection** and its application
  - **Human elements**
  - **GBS/SLA as new regulatory framework**
  - …

# Suggestions

**The ASEF, as a (candidate) NGO of the IMO :**

- **To be more proactive,**
  as a contributor for the enhancement of the maritime safety and environment protection
- **Needs more communications and close cooperation with:**
  - other stakeholders in the maritime industry;
  - related international organizations, including ISO/TC8
- **Establishment of a framework for cooperation inside/outside of the ASEF boundary**
- **Needs further discussions about key technical issues**

# Thank you for your kind attention!

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