

# Views on IACS Harmonized CSR from the Shipbuilding Industry

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# Challenge of Harmonized CSR

- The biggest challenge of Harmonization work
  - (a) Renewal of the current CSR by harmonization
  - (b) Inclusion of the requirement of GBS
- Tight schedule of Harmonization work and industries review
- Solution for difficult technological subjects





# Renewal by Harmonization

- **The main subjects for harmonization;**
  - @ Design wave load**
  - @ Buckling assessment**
  - @ Fatigue assessment**
  - @ Finite Element Analysis procedure etc.**
    - They should have been common to CSR-OT and CSR-BC at the originals.
- **After harmonization, the position of the vessels designed by the current CSR should be respected and not be considered as substandard .**





# Inclusion of GBS

- **The challenges for inclusion of GBS;**
  - (a) The requirements which have not been covered by the structural rules of the Class. Society.
  - (b) The requirements which is hard to be covered by the state-of-the-art technology of ship design.
- **These works need substantial experiences of structural design and construction of the ships.**
  - Sufficient review works with proper period are required with cooperation of cross-industry.





# Schedule of industries review

## ● Tight schedule of harmonization work and industries review

### --- Expected schedule ---

@ Release of the 1st draft of HCSR ;

At the beginning of 2012 (15 months to go)

@ Industries review and feedback ;

Earliest case; Until autumn of 2012 (for 10 months?)

Latest case; Until the end of 2012 (for 12 months)

→ These work periods are sufficient or not ?

## ● At the same time, the software tools for HCSR should also be released for review works.







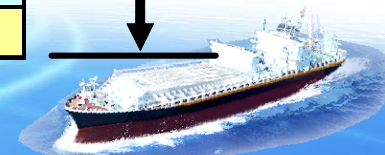
# Schedule of industries review

## ● Review of the track record of the current CSR

2004	Jun.	Release of 1st draft for review	
	Dec.	Deadline of Industries comments	
2005	Apr.	Release of 2nd draft for review	
	Sep.	Deadline of Industries comments	
	Oct.	Release of 3rd draft for review	
	Dec.	Release of 4th draft for review	
2006	Jan.	Adoption by IACS	
	Apr.	Implementation of CSR (OT and BC)	
	Sep.	Rule Change Notice 1 (for 2006 edition)	OT
2007	Nov.	Rule Change Notice 1 (for 2006 edition)	BC
2008	Feb.	Rule Change Notice 2 (for 2006 edition)	OT
		Rule Change Notice 2 (for 2006 edition)	BC
	Sep.	Rule Change Notice 3 (for 2006 edition)	BC
2009	Jan.	Rule Change Notice 1 (for 2008 edition)	BC
	Nov.	Rule Change Notice 1 (for 2008 edition)	OT
2010	Apr.	Rule Change Notice 2 (for 2008 edition)	OT
		Rule Change Notice 2 (for 2008 edition)	BC

27 months

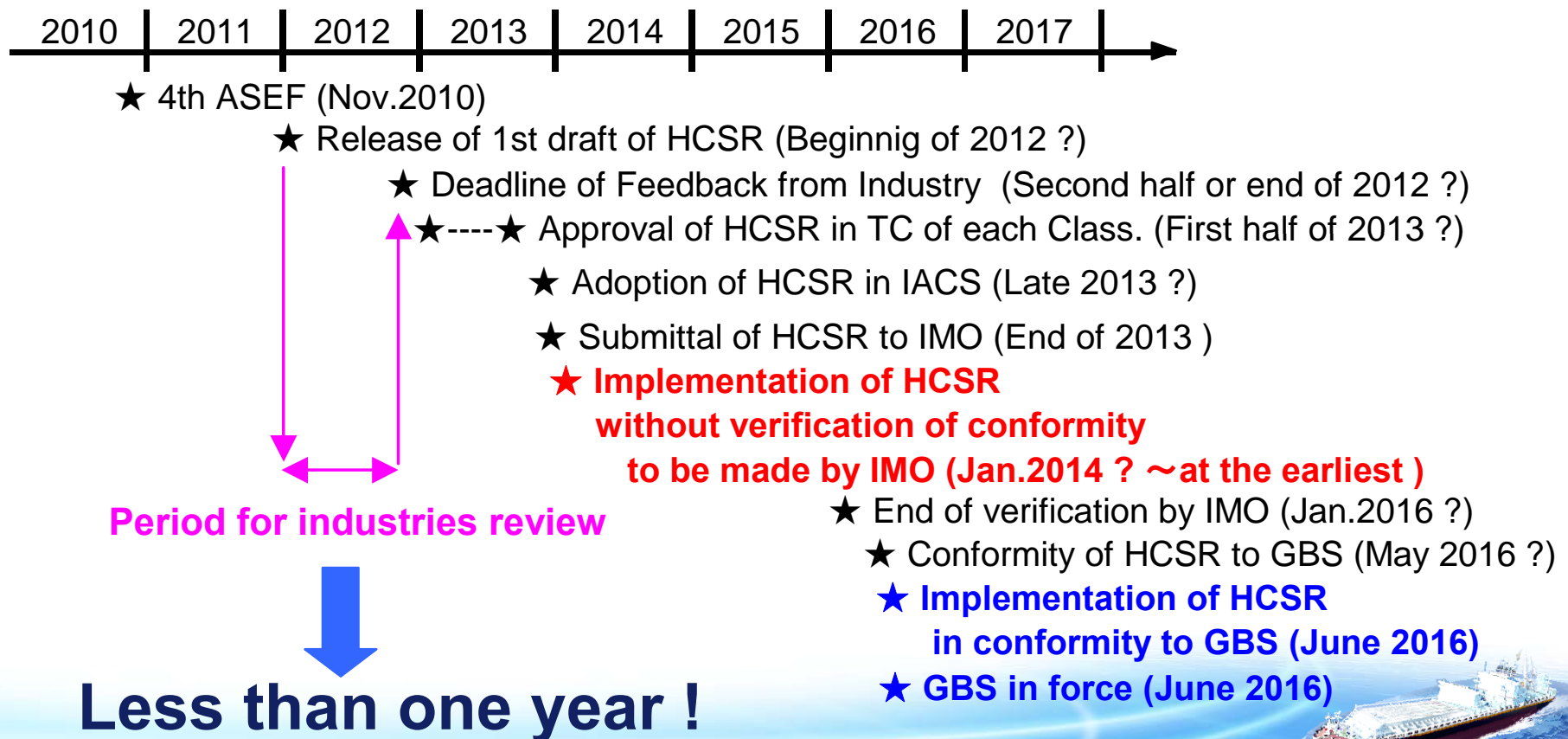
48 months





# Schedule of industries review

## ● Expected schedule for the release of HCSR and the industries review







## Schedule of industries review

- The draft of HCSR should be reviewed by the industries with the short verification period.
- The industries are required to promote the efficient verification works.
- Verification works should concentrate on the newly introduced parts of HCSR such as harmonization and implementation of GBS.





# Key points of GBS Implementation

- Requirement of **Vibration** level
  - The requirements which have not been covered by the structural rules of the Class. Society.
- GBS TierⅢ 9.3.3 Human Element Considerations
  - Do the rules address **structural or other measures** to reduce the generation and transmission of vibration to a level at or below the **acceptable ergonomic standards** for spaces normally manned or occupied by the crew ?
- The key is whether IACS can propose;
  - + Structural or other measures ?
  - + the acceptable ergonomic standards ?





# Key points of GBS Implementation

## ● Requirement of **Residual Strength**

→ The requirements which is hard to be covered by the state-of-the-art technology of ship design.

## ● GBS Tier II 11.5 Residual Strength

Ships shall be designed to have sufficient strength to withstand the wave and internal loads in specified damaged conditions such as collision, grounding or flooding. Residual strength calculations shall take into account the ultimate reserve capacity of the hull girder, including permanent deformation and post-buckling behavior. Actual foreseeable scenarios shall be investigated in this regard as far as is reasonably practicable.





# Key points of GBS Implementation

- **The key is whether IACS can propose;**
  - + the actual foreseeable scenarios for collision, grounding or flooding ?**
  - + how to consider residual strength of primary structures other than hull girder ?**
  - + how to perform residual strength calculation ?**
  - + how to estimate permanent deformation and post-buckling behavior ?**





# Key points of GBS Implementation

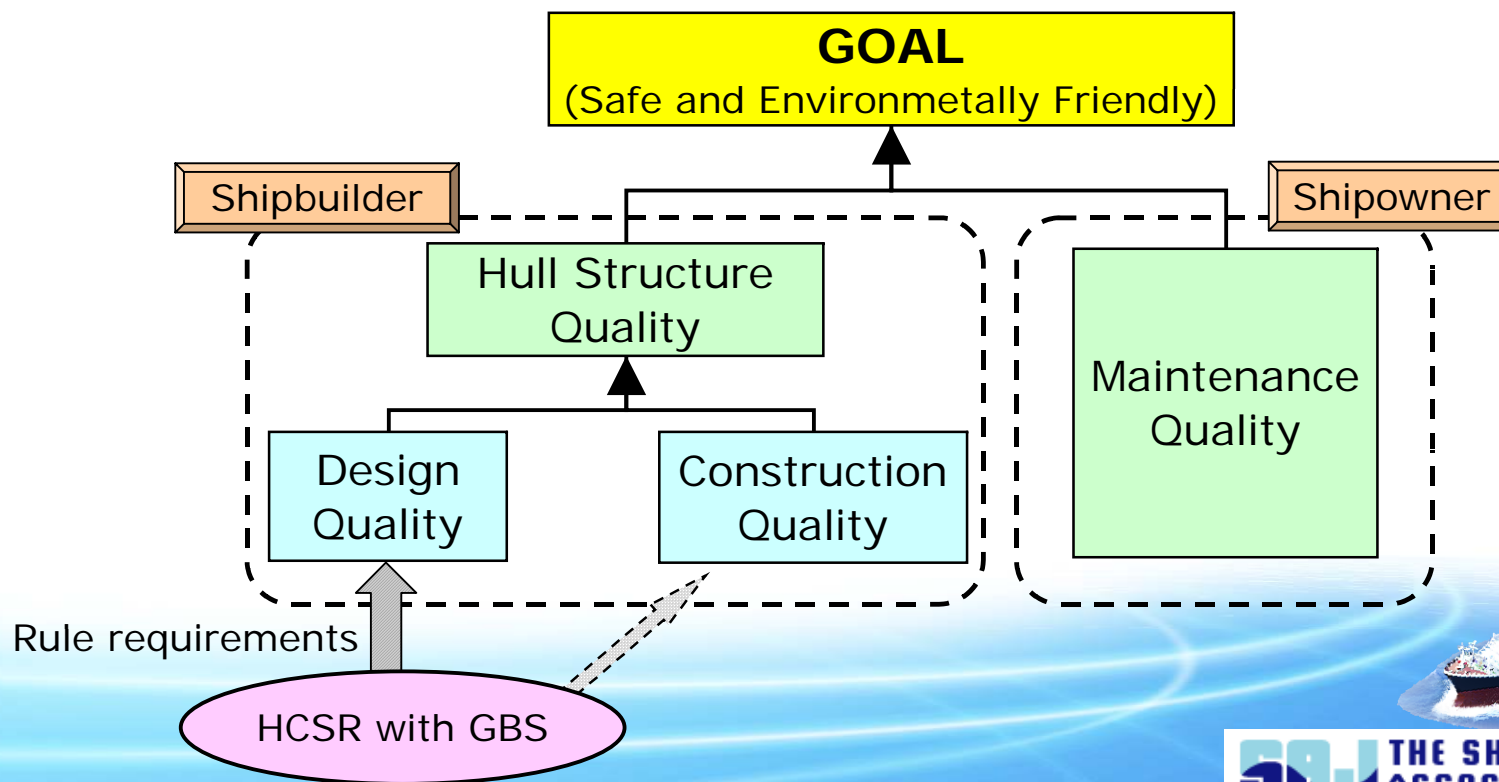
- Requirement of **Construction Quality Procedure**
- GBS TierⅢ 11.3.2  
Do the quality requirements include continuous design improvement based on experience ?
- This means the insufficient construction quality can be compensated by improvement of design.  
However it is not practical and actually the insufficient construction quality should be improved by upgrading construction quality itself.





# Key points of GBS Implementation

- Improvement of Construction Quality can be mainly achieved by quality assurance activity of shipbuilder recognized by the Classification Society more than the rule requirements.







## Conclusion

- The implementation of HCSR by IACS is very challenging to harmonize OT and BC and build GBS requirements into HCSR.
- The industries expect sufficient verification works in the limited period and should cooperate each other.
- Especially the shipbuilders will request IACS to have in-depth discussions together for the technical items which have not been solved by the state-of-the-art technology.





## Conclusion

- Finally IACS, Shipowners and Shipbuilders should strongly cooperate each other for the achievement of the common goal which is required by GBS.

### [ GBS Tier I GOALS ]

Ships shall be designed and constructed for a specified design life to be **safe and environmentally friendly**, when **properly operated and maintained** under the specified operating and environmental conditions, in intact and specified damage conditions, throughout their life.



# Thank you for your attention !

