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**GENERIC GUIDELINES FOR DEVELOPING IMO
GOAL-BASED STANDARDS**

1 The Maritime Safety Committee, at its eighty-ninth session (11 to 20 May 2011), with a view to providing the process for the development, verification, implementation and monitoring of goal-based standards (GBS) to support regulatory development within IMO, approved the annexed Generic guidelines for developing IMO goal-based standards.

2 Member Governments are invited to use the annexed Guidelines and to bring them to the attention of all parties concerned.

ANNEX

GENERIC GUIDELINES FOR DEVELOPING IMO GOAL-BASED STANDARDS

Purpose

1 These Guidelines describe the process for the development, verification, implementation and monitoring of goal-based standards (GBS) to support regulatory development within IMO. GBS establish "rules for rules".

2 It should be noted that these Guidelines are generic and where they use phrases such as "required level of safety", this does not imply any preference for a specific technical approach.

Definitions and terminology

3 **A goal-based standards framework** consists of goal-based standards and the associated detailed requirements of rules and regulations for ships (see Figure 1). An example of a structure of goal-based regulations is included in the appendix.

4 **Accident** is an unintended event involving fatality, injury, ship loss or damage, other property loss, damage or environmental damage.

5 **Goal-based standards** are high-level standards and procedures that are to be met through regulations, rules and standards for ships. GBS are comprised of at least one goal, functional requirement(s) associated with that goal, and verification of conformity that rules/regulations meet the functional requirements including goals.

6 **Risk** is the combination of the frequency and the severity of the consequence.

7 **Rule/regulation commentary** is an explanation of what functional requirement(s) is (are) intended to be covered by the rule/regulation (section or chapter), and how it is intended to be covered, including a synopsis of the analysis performed to prove that the rules/regulations conform to the functional requirements the rules/regulations intend to cover.

8 **Safety** is the absence of unacceptable levels of risk to life, limb and health (from unwilful acts).

Basic principles

9 IMO goal-based standards are:

- .1 broad, over-arching safety, environmental and/or security standards that ships are required to meet during their lifecycle;
- .2 the required level to be achieved by the requirements applied by classification societies and other recognized organizations, Administrations and IMO;
- .3 clear, demonstrable, verifiable, long-standing, implementable and achievable, irrespective of ship design and technology; and
- .4 specific enough in order not to be open to differing interpretations.

Goals (Tier I)

10 Goals are high-level objectives to be met. A goal should address the issue(s) of concern and reflect the required level of safety.

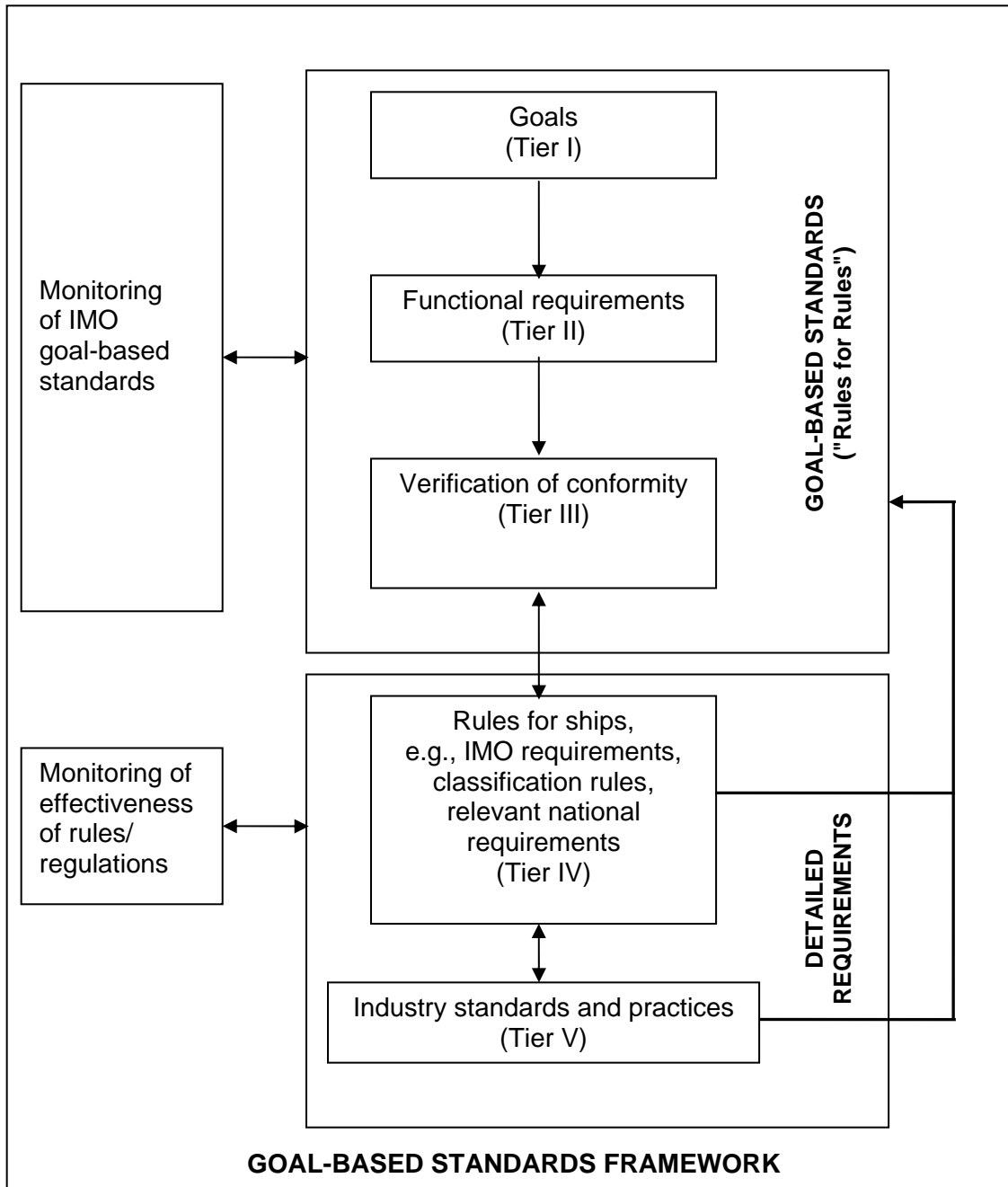


Figure 1
Goal-based standards framework

Functional requirements (Tier II)

11 Functional requirements provide the criteria to be satisfied in order to meet the goals. Once a goal has been set, functional requirements are defined. They should cover all functions/areas necessary to meet the goal, and be developed based on experience, an assessment of existing regulations, and/or systematic analysis of relevant hazards.

12 Figure 2 illustrates a simplified example of how goal-based functional requirements for ship structure could be derived.

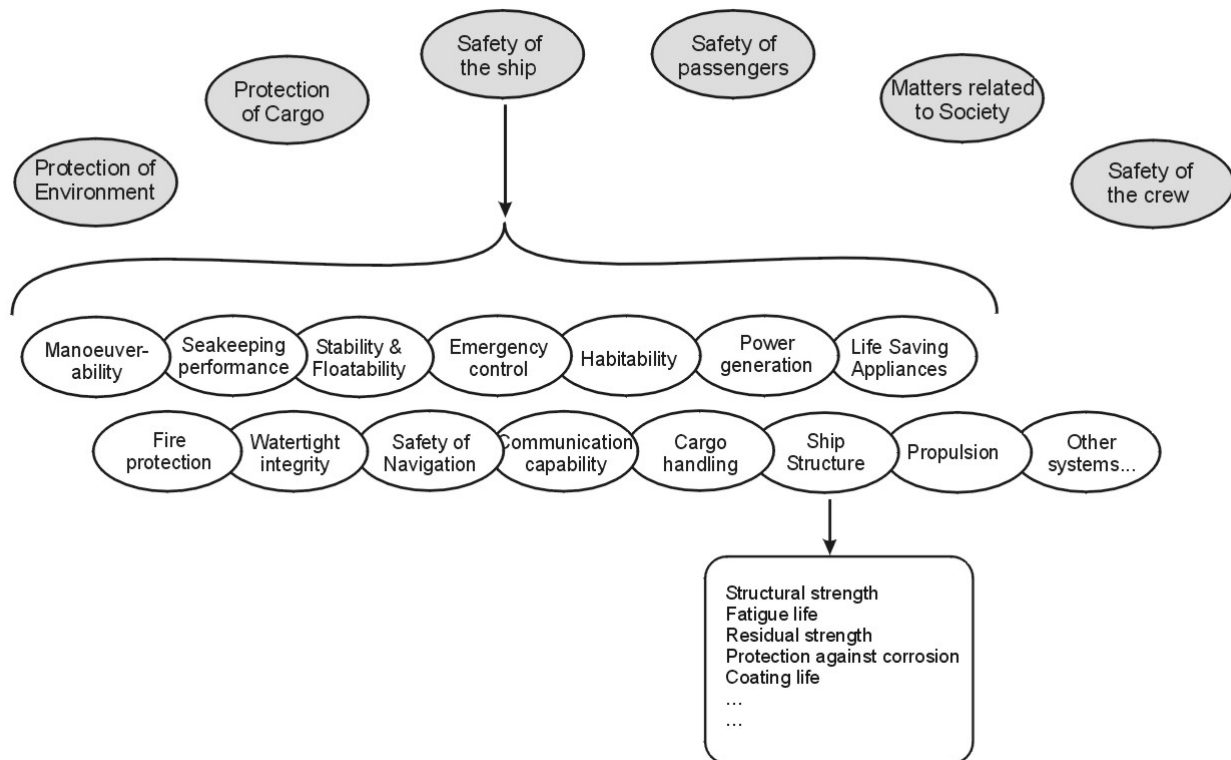


Figure 2
Simplified example of how goal-based functional requirements for ship structure could be derived

Verification of conformity (Tier III)

13 Verification of conformity provides the instruments necessary for demonstrating and verifying that the associated rules and regulations for ships conform to the goals and functional requirements. The verification process should be focused on conformity with the functional requirements. The verification process should be transparent and result in a consistent outcome irrespective of the evaluator.

14 Verification of conformity should establish the method and criteria to be applied during the verification process, and should consider the following elements:

- .1 identification of the functional requirement(s) that are being addressed by the rules/regulations;
- .2 extent to which the rules/regulations cover the functional requirements and contribute towards meeting the goal(s);
- .3 rule/regulation commentary;

- .4 technical documentation, which may include:
 - .4.1 mechanism of how the rules/regulations meet the functional requirements (operational, technical, design, etc.);
 - .4.2 explanation, including technical background information, of the way the rule/regulation was formulated/drafted; and
 - .4.3 methodology used to derive the rule/regulation along with supporting rationale/justification;
 - .5 quality assurance procedures applied throughout rule/regulation development process; and
 - .6 methods for obtaining feedback on the effectiveness of the rules/regulations and for promoting continuous improvement.
- 15 Verification of conformity should:
- .1 be based on techniques varying from first principle models to historic data;
 - .2 be based on analyses using proven and established technology;
 - .3 be based on defined clear qualitative and quantitative criteria with a preference of quantitative values; and
 - .4 check whether currently known modes and causes of failure are covered;
 - .5 be verified by independent auditors and/or appropriate IMO organs, as decided by IMO.
- 16 The developer of the rules/regulations under consideration is responsible for performing an analysis that the rules/regulations conform to the functional requirements the rules/regulations intend to cover.

Rules and regulations for ships (Tier IV)

17 Rules and regulations for ships are the detailed requirements developed by IMO, national Administrations and/or classification societies and applied by national Administrations and/or classification societies acting as recognized organizations in order to meet the goals and functional requirements. These detailed requirements become a part of a GBS framework when they have been verified as conforming to the GBS.

Industry practices and standards (Tier V)

18 Industry standards, codes of practice and safety and quality systems for shipbuilding, ship operation, maintenance, training, manning, etc., may be incorporated into or referenced in the rules/regulations. The responsibility for justifying the suitability of such industry standards and practices, when referenced or incorporated in a rule set, rests with the rule/regulation submitter. This justification should be provided during the verification of conformity process.

Monitoring

19 Monitoring is a method of evaluating the effectiveness of goals (Tier I), functional requirements (Tier II), rules and regulations (Tier IV) and standards/practices (Tier V) as well as attempting to identify risks not addressed in the initial rules/regulations development. In order to verify that the risk of shipping is kept as low as reasonably practicable, GBS framework should be continuously monitored and systematically analysed. The degree of detail for the data recording depends on the item to be monitored.

20 As illustrated by Figure 1 of these Guidelines, two monitoring processes are distinguished:

- .1 the monitoring of the effectiveness of single rules/regulations; and
- .2 the monitoring of the effectiveness of the goals (Tier I) and the functional requirements (Tier II).

21 The monitoring system to be established should address (list without any prioritization):

- .1 safety of passengers;
- .2 matters related to society;
- .3 occupational safety and health of seafarers;
- .4 safety of ship;
- .5 protection of environment; and
- .6 protection of cargo.

22 For both processes monitoring should consider, but not be limited to, historical data, such as casualty reports, in-service experience, accident investigation, incident reports, near miss reports, new scientific research results as published in the industry, as well as risk analysis.

23 Monitoring responsibilities should be assigned with respect to monitoring tasks as follows:

- .1 Tier I:
 - .1 Monitoring (including data collection): IMO
 - .2 Analysis: IMO
 - .3 Evaluation: Committees
- .2 Tier II:
 - .1 Monitoring (including data collection): Sub-Committees
 - .2 Analysis: Sub-Committees
 - .3 Evaluation: Sub-Committees

.3 Tier IV:

- .1 Rules: monitoring (including data collection) and analysis by rule maker, evaluation by rule maker, supervision by IMO
- .2 Requirements: monitoring and analysis by IMO/Sub-Committees, evaluation by IMO/Sub-Committees, rule maker.

24 The organization(s) responsible for the monitoring and analysis is (are) also responsible for the development and update of the reporting format.

APPENDIX

AN EXAMPLE OF A STRUCTURE OF GOAL-BASED REGULATIONS

Preamble

- 1 The International Code of ...
- 2 This Code has been developed ...
- 3 Reference to relationship to other relevant codes/standards

General

...

Introduction

This part of the Code contains the ...

Definitions

For the purpose of the Code, unless expressly provided otherwise, the terms used have the meanings defined in the following paragraphs. Terms used, but not defined in the Code, are to be interpreted as they are defined in the relevant Conventions.

Application

...

Goals

The goal of this Code is to ...

Functional requirements

In order to achieve its goal, this Code embodies ...

Regulation A-1

Goals

The goal of this regulation is to provide ...

Functional requirements

To achieve the above mentioned goals, the following functional requirements ...:

- .1 providing ...;
- .2 providing ...;

Regulations/requirements

...

Regulation A-2

Goals

The goal of this regulation is to provide ...

Functional requirements

To achieve the above mentioned goals, the following functional requirements ...:

.1 providing ...;

.2 providing ...;

Regulations/requirements

...

Regulation A-3

Goals

The goal of this regulation is to provide ...

etc.
