Quality Systems and International Safety Management Code

Dr Martin Ziarati, C4FF, UK
Dr Sadan Kaptanoglu, KS, TR
Dr Basak Akdemir, BAU, TR

1. Quality System in Shipping Industry

The maritime industry is directly influenced by the policies of International Maritime Organisation (IMO) and its international conventions. IMO has established three major pillars, viz., SOLAS (Safety Of Life At Sea), MARPOL (Maritime Pollution) and STCW (Standards of Training, Certification and Watchkeeping. In addition there are several international organisations such as ILO which regulate the labour rules and regulations. Maritime sector is very sensitive on two topics safety at sea and environment. These two concepts can be found in almost every shipping company's mission statement. Despite of the existed sensitivity accidents in Maritime Sector especially on vessels still continue.

IMO was monitoring and working on a quality system which can be accepted by all the member countries in order to be sure that every shipping company in the world is obliged to apply same basic safety rules and to the same standards. For this reason, the ISM (International Safety Management) Code was developed to provide an International standard for the safe management and operation of ships and for pollution prevention.

The purpose of ISM Code is:

* To ensure Safety at Sea

* To prevent human injury or loss of life

* To avoid damage to the environment and to the ship.

SOLAS adopted the ISM Code in 1994 and incorporated it into the main body of the legislation (what is known as Chapter IX). By 1998 much of the commercial shipping community was required to be in compliance with the ISM code. By 2002 almost all of the international shipping community was required to comply with the ISM Code.

In order to comply with the ISM Code, each ship class must have a working Safety Management System (SMS). Each SMS consists of the following elements:

* Commitment from top management

* A Top Tier Policy Manual

* A Procedures Manual that documents what is done on board the ship

* Procedures for conducting both internal and external audits to ensure the ship is doing what is documented in the Procedures Manual

* A Designated Person to serve as the link between the ships and shore staff

* A system for identifying where actual practices do not meet those that are documented and for implementing associated corrective action

* Regular management reviews

Another part of the ISM is the mandatory Planned Maintenance System which is used as a tool maintaining the vessel according to the specified maintenance intervals.

Each ISM compliant ship is audited, first by the Company (internal audit) and then each 2,5 to 3 years by the Flag State Marine Administration to verify the fulfilment and effectiveness of their Safety Management System. Once SMS is verified and it is working and effectively implemented, the ship is issued with The Safety Management Certificate. Comments from the auditor and/or audit body and from the ship are incorporated into the SMS by headquarters.

The full requirement of ISM Code 2002 is given later in this Appendix. In creating the family business knowledge framework the ISM code are carefully consider as it plays an important role and needs to be fully included in the intended knowledge framework.

2. ISO 9000 - Quality Standard

To ensure that there are procedures to implement a set of basic quality system, industry is encouraged to apply ISO 9001 which is internationally recognised standard for the quality management of businesses.

•   it applies to the processes that create and control the products and services an organisation supplies

•   prescribes systematic control of activities to ensure that the needs and expectations of customers are met

•   is designed and intended to apply to virtually any product or service, made by any process anywhere in the world

ISO 9001 is one of the standards in the ISO 9000 family.

The benefits of implementing ISO 9001

Implementing a Quality Management System will motivate staff by defining their key roles and responsibilities. Cost savings can be made through improved efficiency and productivity, as product or service deficiencies will be highlighted. From this, improvements can be developed, resulting in less waste, inappropriate or rejected work and fewer complaints. Customers will notice that orders are met consistently, on time and to the correct specification. This can open up the market place to increased opportunities.

How do you start to implement ISO 9001? What is involved?

•   Identify the requirements of ISO 9001 and how they apply to the business involved.

•   Establish quality objectives and how they fit in to the operation of the business.

•   Produce a documented quality policy indicating how these requirements are satisfied.

•   Communicate them throughout the organisation.

•   Evaluate the quality policy, its stated objectives and then prioritise requirements to ensure they are met.

•   Identify the boundaries of the management system and produce documented procedures as required.

•   Ensure these procedures are suitable and adhered to.

•   Once developed, internal audits are needed to ensure the system carries on working.

3. ISO 14000 Environmental Management Systems

The shipping industry is also encouraged to apply the ISO 14001 2004 which is an environmental management standard. It specifies a set of environmental management requirements for environmental management systems. The purpose of this standard is to help all types of organizations to protect the environment, to prevent pollution, and to improve their environmental performance.

ISO 14001 is now implemented in more than 159 countries and has provided organizations with a powerful management tool to improve their environmental performance. More than 223 149 organizations have been certified worldwide against ISO 14001 at the end of 2009, which is an increase of 18 % compared to 2008. Many companies have improved their operations and reduced the impact of their activities, processes, products and services on the environment by using a systematic approach that seeks continual improvement.

The benefits of positively addressing environmental issues not only cover the preservation of the environment, but are also linked to business performance and profitability while improving the corporate image, enhancing access to export markets, providing a common reference for communicating environmental issues with customers, regulators, the public and other stakeholders, etc.

Despite of all the efforts in maritime industry all these quality tools while they apply to regulatory activities they do not solve the family problems faced in many family owned shipping companies. These quality tools do not address shareholders' structures, business governance, succession planning or the position of the shareholders who are active in the business.

4. International Safety Management (ISM) Code 2002

Preamble

The ISM Code is a set of rules set by the International Maritime Organisation (IMO) Assembly which is the legislative body for the shipping industry. The following describes the purpose of, and the reasons, for the Code.

1 The purpose of this Code is to provide an international standard for the safe management and operation of ships and for pollution prevention.

2 The Assembly adopted resolution A.443 (XI), by which it invited all Governments to take the necessary steps to safeguard the shipmaster in the proper discharge of his responsibilities with regard to maritime safety and the protection of the marine environment.

3 The Assembly also adopted resolution A.680(17), by which it further recognized the need for appropriate organization of management to enable it to respond to the need of those on board ships to achieve and maintain high standards of safety and environmental protection.

4 Recognizing that no two shipping companies or ship-owners are the same, and that ships operate under a wide range of different conditions, the Code is based on general principles and objectives.

5 The Code is expressed in broad terms so that it can have a widespread application. Clearly, different levels of management, whether shore-based or at sea, will require varying levels of knowledge and awareness of the items outlined.

6 The cornerstone of good safety management is commitment from the top. In matters of safety and pollution prevention it is the commitment, competence, attitudes and motivation of individuals at all levels that determines the end result.

4.1 Part A - Implementation

1 General

1.1 Definitions

The following definitions apply to parts A and B of this Code.

1.1.1 "International Safety Management (ISM) Code" means the International Management Code for the Safe Operation of Ships and for Pollution Prevention as adopted by the Assembly, as may be amended by the Organization.

1.1.2 "Company" means the owner of the ship or any other organization or person such as the manager, or the bareboat charterer, who has assumed the responsibility for operation of the ship from the ship owner and who, on assuming such responsibility, has agreed to take over all duties and responsibility imposed by the Code.

1.1.3 "Administration" means the Government of the State whose flag the ship is entitled to fly.

1.1.4 "Safety management system" means a structured and documented system enabling Company personnel to implement effectively the Company safety and environmental protection policy.

1.1.5 "Document of Compliance" means a document issued to a Company which complies with the requirements of this Code.

1.1.6 "Safety Management Certificate" means a document issued to a ship which signifies that the Company and its shipboard management operate in accordance with the approved safety management system.

1.1.7 "Objective evidence" means quantitative or qualitative information, records or statements of fact pertaining to safety or to the existence and implementation of a safety management system element, which is based on observation, measurement or test and which can be verified.

1.1.8 "Observation" means a statement of fact made during a safety management audit and substantiated by objective evidence.

1.1.9 "Non-conformity" means an observed situation where objective evidence indicates the non-fulfilment of a specified requirement.

1.1.10 "Major non-conformity" means an identifiable deviation that poses a serious threat to the safety of personnel or the ship or a serious risk to the environment that requires immediate corrective action and includes the lack of effective and systematic implementation of a requirement of this Code.

1.1.11 "Anniversary date" means the day and month of each year that corresponds to the date of expiry of the relevant document or certificate.

1.1.12 "Convention" means the International Convention for the Safety of Life at Sea, 1974, as amended.

1.2 Objectives

1.2.1 The objectives of the Code are to ensure safety at sea, prevention of human injury or loss of life, and avoidance of damage to the environment, in particular to the marine environment and to property.

1.2.2 Safety management objectives of the Company should, inter alia:

- 1 provide for safe practices in ship operation and a safe working environment;

- 2 establish safeguards against all identified risks; and

- 3 continuously improve safety management skills of personnel ashore and aboard ships,

including preparing for emergencies related both to safety and environmental protection.

1.2.3 The safety management system should ensure:

- 1 compliance with mandatory rules and regulations; and

- 2 that applicable codes, guidelines and standards recommended by the Organization, Administrations, classification societies and maritime industry organizations are taken into account.

1.3 Application

The requirements of this Code may be applied to all ships.

1.4 Functional requirements for a safety management system

Every Company should develop, implement and maintain a safety management system which includes the following functional requirements:

-1 a safety and environmental-protection policy;

- 2 instructions and procedures to ensure safe operation of ships and protection of the environment in compliance with relevant international and flag State legislation;

- 3 defined levels of authority and lines of communication between, and amongst, shore and shipboard personnel;

- 4 procedures for reporting accidents and non-conformities with the provisions of this Code;

-5 procedures to prepare for and respond to emergency situations; and

- 6 procedures for internal audits and management reviews.

2 Safety and Environmental-Protection Policy

2.1 The Company should establish a safety and environmental-protection policy which describes how the objectives given in paragraph 1.2 will be achieved.

2.2 The Company should ensure that the policy is implemented and maintained at all levels of the organization, both ship-based and shore-based.

3 Company Responsibilities and Authority

3.1 If the entity/person who is responsible for the operation of the ship is other than the owner, the owner must report the full name and details of such entity should be given to the Administration.

3.2 The Company should define and document the responsibility, authority and interrelation of all personnel who manage, perform and verify work relating to and affecting safety and pollution prevention.

3.3 The Company is responsible for ensuring that adequate resources and shore-based support are provided to enable the designated person or persons to carry out their functions.

4 Designated Person(s)

To ensure the safe operation of each ship and to provide a link between the Company and those on board, every Company, as appropriate, should designate a person or persons ashore having direct access to the highest level of management. The responsibility and authority of the designated person or persons should include monitoring the safety and pollution-prevention aspects of the operation of each ship and ensuring that adequate resources and shore-based support are applied, as required.

5 Master's Responsibility and Authority

5.1 The Company should clearly define and document the master's responsibility with regard to:

- 1 implementing the safety and environmental-protection policy of the Company;

- 2 motivating the crew in the observation of that policy;

- 3 issuing appropriate orders and instructions in a clear and simple manner;

- 4 verifying that specified requirements are observed; and

- 5 reviewing the safety management system and reporting its deficiencies to the shore-based management.

5.2 The Company should ensure that the safety management system operating on board the ship contains a clear statement emphasizing the master's authority. The Company should establish in the safety management system that the master has the overriding authority and the responsibility to make decisions with respect to safety and pollution prevention and to request the Company's assistance as may be necessary.

6 Resources and Personnel

6.1 The Company should ensure that the master is:

-1 properly qualified for command;

- 2 fully conversant with the Company's safety management system; and

- 3 given the necessary support so that the master's duties can be safely performed.

6.2 The Company should ensure that each ship is manned with qualified, certificated and medically fit seafarers in accordance with national and international requirements.

6.3 The Company should establish procedures to ensure that new personnel and personnel transferred to new assignments related to safety and protection of the environment are given proper familiarization with their duties. Instructions which are essential to be provided prior to sailing should be identified, documented and given.

6.4 The Company should ensure that all personnel involved in the Company's safety management system have an adequate understanding of relevant rules, regulations, codes and guidelines.

6.5 The Company should establish and maintain procedures for identifying any training which may be required in support of the safety management system and ensure that such training is provided for all personnel concerned.

6.6 The Company should establish procedures by which the ship's personnel receive relevant information on the safety management system in a working language or languages understood by them.

6.7 The Company should ensure that the ship's personnel are able to communicate effectively in the execution of their duties related to the safety management system.

7 Development of Plans for Shipboard Operations

The Company should establish procedures for the preparation of plans and instructions, including a family business knowledge framework as appropriate, for key shipboard operations concerning the safety of the ship and the prevention of pollution. The various tasks involved should be defined and assigned to qualified personnel.

8 Emergency Preparedness

8.1 The Company should establish procedures to identify, describe and respond to potential emergency shipboard situations.

8.2 The Company should establish programmes for drills and exercises to prepare for emergency actions.

8.3 The safety management system should provide for measures ensuring that the Company's organization can respond at any time to hazards, accidents and emergency situations involving its ships.

9 Reports and Analysis of Non-Conformities, Accidents and Hazardous Occurrences

9.1 The safety management system should include procedures ensuring that non-conformities, accidents and hazardous situations are reported to the Company, investigated and analysed with the objective of improving safety and pollution prevention.

9.2 The Company should establish procedures for the implementation of corrective action.

10 Maintenance of The Ship and Equipment

10.1 The Company should establish procedures to ensure that the ship is maintained in conformity with the provisions of the relevant rules and regulations and with any additional requirements which may be established by the Company.

10.2 In meeting these requirements the Company should ensure that:

- 1 inspections are held at appropriate intervals;

- 2 any non-conformity is reported, with its possible cause, if known;

- 3 appropriate corrective action is taken; and

- 4 records of these activities are maintained.

10.3 The Company should establish procedures in its safety management system to identify equipment and technical systems the sudden operational failure of which may result in hazardous situations. The safety management system should provide for specific measures aimed at promoting the reliability of such equipment or systems. These measures should include the regular testing of stand-by arrangements and equipment or technical systems that are not in continuous use.

10.4 The inspections mentioned in 10.2 as well as the measures referred to in 10.3 should be integrated into the ship's operational maintenance routine.

11 Documentation

11.1 The Company should establish and maintain procedures to control all documents and data which are relevant to the safety management system.

11.2 The Company should ensure that:

- 1 valid documents are available at all relevant locations;

- 2 changes to documents are reviewed and approved by authorized personnel; and

- 3 obsolete documents are promptly removed.

11.3 The documents used to describe and implement the safety management system may be referred to as the Safety Management Manual. Documentation should be kept in a form that the Company considers most effective. Each ship should carry on board all documentation relevant to that ship.

12 Company Verification, Review and Evaluation

12.1 The Company should carry out internal safety audits to verify whether safety and pollution-prevention activities comply with the safety management system.

12.2 The Company should periodically evaluate the efficiency of and, when needed, review the safety management system in accordance with procedures established by the Company.

12.3 The audits and possible corrective actions should be carried out in accordance with documented procedures.

12.4 Personnel carrying out audits should be independent of the areas being audited unless this is impracticable due to the size and the nature of the Company.

12.5 The results of the audits and reviews should be brought to the attention of all personnel having responsibility in the area involved.

12.6 The management personnel responsible for the area involved should take timely corrective action on deficiencies found.

4.2 PART B - CERTIFICATION AND VERIFICATION

13 Certification And Periodical Verification

13.1 The ship should be operated by a Company which has been issued with a Document of Compliance or with an Interim Document of Compliance in accordance with paragraph 14.1, relevant to that ship.

13.2 The Document of Compliance should be issued by the Administration, by an organization recognized by the Administration or, at the request of the Administration, by another Contracting Government to the Convention to any Company complying with the requirements of this Code for a period specified by the Administration which should not exceed five years. Such a document should be accepted as evidence that the Company is capable of complying with the requirements of this Code.

13.3 The Document of Compliance is only valid for the ship types explicitly indicated in the document. Such indication should be based on the types of ships on which the initial verification was based. Other ship types should only be added after verification of the Company's capability to comply with the requirements of this Code applicable to such ship types. In this context, ship types are those referred to in regulation IX/1 of the Convention.

13.4 The validity of a Document of Compliance should be subject to annual verification by the Administration or by an organization recognized by the Administration or, at the request

of the Administration, by another Contracting Government within three months before or after the anniversary date.

13.5 The Document of Compliance should be withdrawn by the Administration or, at its request, by the Contracting Government which issued the Document when the annual verification required in paragraph 13.4 is not requested or if there is evidence of major non-conformities with this Code.

13.5.1 All associated Safety Management Certificates and/or Interim Safety Management Certificates should also be withdrawn if the Document of Compliance is withdrawn.

13.6 A copy of the Document of Compliance should be placed on board in order that the master of the ship, if so requested, may produce it for verification by the Administration or by an organization recognized by the Administration or for the purposes of the control referred to in regulation IX/6.2 of the Convention. The copy of the Document is not required to be authenticated or certified.

13.7 The Safety Management Certificate should be issued to a ship for a period which should not exceed five years by the Administration or an organization recognized by the Administration or, at the request of the Administration, by another Contracting Government. The Safety Management Certificate should be issued after verifying that the Company and its shipboard management operate in accordance with the approved safety management system. Such a Certificate should be accepted as evidence that the ship is complying with the requirements of this Code.

13.8 The validity of the Safety Management Certificate should be subject to at least one intermediate verification by the Administration or an organization recognized by the Administration or, at the request of the Administration, by another Contracting Government. If only one intermediate verification is to be carried out and the period of validity of the Safety Management Certificate is five years, it should take place between the second and third anniversary dates of the Safety Management Certificate.

13.9 In addition to the requirements of paragraph 13.5.1, the Safety Management Certificate should be withdrawn by the Administration or, at the request of the Administration, by the Contracting Government which has issued it when the intermediate verification required in paragraph 13.8 is not requested or if there is evidence of major non-conformity with this Code.

13.10 ,Notwithstanding the requirements of paragraphs 13.2 and 13.7, when the renewal verification is completed within three months before the expiry date of the existing Document of Compliance or Safety Management Certificate, the new Document of Compliance or the new Safety Management Certificate should be valid from the date of completion of the renewal verification for a period not exceeding five years from the date of expiry of the existing Document of Compliance or Safety Management Certificate.

13.11 ,When the renewal verification is completed more than three months before the expiry date of the existing Document of Compliance or Safety Management Certificate, the new Document of Compliance or the new Safety Management Certificate should be valid from the date of completion of the renewal verification for a period not exceeding five years from the date of completion of the renewal verification."

14 Interim Certification

14.1 An Interim Document of Compliance may be issued to facilitate initial implementation of this Code when:

- 1 a Company is newly established; or

- 2 new ship types are to be added to an existing Document of Compliance,

following verification that the Company has a safety management system that meets the objectives of paragraph 1.2.3 of this Code, provided the Company demonstrates plans to implement a safety management system meeting the full requirements of this Code within the period of validity of the Interim Document of Compliance. Such an Interim Document of Compliance should be issued for a period not exceeding 12 months by the Administration or by an organization recognized by the Administration or, at the request of the Administration, by another Contracting Government. A copy of the Interim Document of Compliance should be placed on board in order that the master of the ship, if so requested, may produce it for verification by the Administration or by an organization recognized by the Administration or for the purposes of the control referred to in regulation IX/6.2 of the Convention. The copy of the Document is not required to be authenticated or certified.

14.2 An Interim Safety Management Certificate may be issued:

- 1 to new ships on delivery;

- 2 when a Company takes on responsibility for the operation of a ship which is new to the Company; or

- 3 when a ship changes flag.

Such an Interim Safety Management Certificate should be issued for a period not exceeding 6 months by the Administration or an organization recognized by the Administration or, at the request of the Administration, by another Contracting Government.

14.3 An Administration or, at the request of the Administration, another Contracting Government may, in special cases, extend the validity of an Interim Safety Management Certificate for a further period which should not exceed 6 months from the date of expiry.

14.4 An Interim Safety Management Certificate may be issued following verification that:

- 1 the Document of Compliance, or the Interim Document of Compliance, is relevant to the ship concerned;

- 2 the safety management system provided by the Company for the ship concerned includes key elements of this Code and has been assessed during the audit for issuance of the Document of Compliance or demonstrated for issuance of the Interim Document of Compliance;

-3 the Company has planned the audit of the ship within three months;

- 4 the master and officers are familiar with the safety management system and the planned arrangements for its implementation;

- 5 instructions, which have been identified as being essential, are provided prior to sailing; and

- 6 relevant information on the safety management system has been given in a working language or languages understood by the ship's personnel.

15 Verification

15.1 All verifications required by the provisions of this Code should be carried out in accordance with procedures acceptable to the Administration, taking into account the guidelines developed by the Organization.

16 Forms Of Certificates

16.1 The Document of Compliance, the Safety Management Certificate, the Interim Document of Compliance and the Interim Safety Management Certificate should be drawn up in a form corresponding to the models given in the Code. If the language used is neither English nor French, the text should include a translation into one of these languages.

16.2 In addition to the requirements of paragraph 13.3, the ship types indicated on the Document of Compliance and the Interim Document of Compliance may be endorsed to reflect any limitations in the operations of the ships described in the safety management system.

Although ISM code brings all the industry to a minimum standard for safety, leading shipping companies adopt further quality management standard as well as environmental standards.