The Assessment and Evaluation of International Safety Management Code

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Abstracts

A series of international standards in connection with safety of ships, safety management and operation of company, and pollution prevention at sea has been provided in ISM. And that Chapter IX has been adopted in SOLAS with ISM as its annex gives this code mandatory effect. On the eve of the implementation of ISM by IMO, Administrations, classifications, other maritime industry organizations as well as all shipping companies, assessment and evaluation have been made in this paper to the development of marine safety culture through the discussion of the general recognition of safety culture by IMO and her Contracting States, the necessity for establishing unity of benefit and safety in a shipping company, the development of scientific safety management systems and new reflections of safety culture in international shipping industries.

1 Introduction

The International Management Code for the Safe Operation of Ships and for Pollution Prevention (International Safety Management (ISM) code) was adopted on 4th November 1993 by International Maritime Organization (IMO) by resolution A.741(18) and given mandatory effect on 24th May 1994 by Chapter IX of the SOLAS Convention "Management for the Safe Operation of Ships". Regulation 2 of Chapter IX of SOLAS provides that all passenger ships including passenger high speed craft, oil tankers, chemical tankers, gas carriers, bulk carriers and cargo high speed craft of 500 gross tonnage and upwards shall comply with the requirements of ISM Code not later than 1st July 1998 and that other cargo ships and mobile offshore drilling units of 500 gross tonnage and upwards not later than 1st July 2002. It is provided in its Regulations 3 that all ships shall be operated by a company holding a Document of Compliance (DOC) which evidences that the company complies with the ISM Code. In its Regulation 4 contains the requirement that a ship shall obtain a Safety Management Certificate (SMC) from the

Administration or the organization recognized by the Administration which has verified that the company and its shipboard management operate in accordance with the approved safety management system. And proper functioning and maintaining of the ship's safety management system shall be annually verified by the Administration of another Contracting Government to SOLAS Convention at the request of the Administration or an organization recognized by the Administration. Conclusion can be drawn that in the near future the ships and their operating companies can hardly survive in the international shipping industries unless they obtain SMC and DOC before the designated time.

On the eve of the implementation of ISM by IMO, Administrations, classifications, other maritime industry organizations as well as all shipping companies, assessment and evaluation have been made in this paper to the development of marine safety culture through the discussion of the general recognition of safety culture by IMO and her Contracting States, the necessity for establishing unity of benefit and safety in a shipping company, the development of scientific safety management systems and new reflections of safety culture in international shipping industries.

2 The New Cognition of Safety by IMO and all her Contracting States

In the process of maintaining high standards of maritime safety in international shipping industries and control and improvement of marine environment of the globe, IMO has done a great deal by establishment of various codes, regulations and conventions for the safe management and operation of ships. IMO and her achievements have been generally recognized and accepted, with the number of the contracting States and areas and their total tonnage of vessels still increasing.

However, the codes, regulations and conventions are all focusing respectively on ships, crew, cargoes or equipment rather than on companies, such as International Convention on Loadlines 1966, International Convention on Tonnage 1969, International Regulations for the Prevention of Collision at Sea 1972, International Convention for the Safety of Life at Sea 1974, International Convention for the Prevention of pollution from Ships 1973 and the Protocol 1978 and the International Convention on Standards of Training, Certification and Watchkeeping 1978, International Maritime Dangerous Goods Code 1995. It is only recognized by IMO in ISM that the cornerstone of good safety management is commitment from the top, and that in matter of safety and pollution it is the commitment, competence, attitudes and motivation of individuals at all levels that determines the end result. This shows that the attitude of IMO to the cognition of maritime safety has been raised to a higher level which has never been reached.

2.1 Serious and Major Accidents Attract IMO's Attention to the Establishment of Safety Management System

The accident of Amoco Cadiz in 1978 led to IMO's adoption of resolutions A.441(XI) and 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. This was the first time that IMO intervened the safety management of company.

In 1987, the accident of British Passenger Ro/Ro Vessel, Herald Free Enterprise, flooded and capsized off Zeebrugge of Belgium led to IMO's adoption of resolution A.596(XV) which requires that its Maritime Safety Committee prepare and establish guidelines for the safety management and pollution prevention for passenger Ro/Ro vessels which was its first document directed to the management and control of inland administrative organs.

The accident of US tanker, Exxon Valdez, which run against rock and leaked in 1989 led to the adoption by IMO A.647(16) and its annex by which it was suggested that companies establish safety objectives and develop, implement and maintain a safety management system. This resolution was the embryo of ISM.

2.2 Human Factor, the Insufficiency of Safety Management of the Company and IMO New Cognition of Safety Culture

The statistical summary of marine occurrences 1992 by Transportation Safety Board of Canada showed that around 80% of marine accidents were resulted from or contributed by human factors. The report on the investigation of human factors in marine accidents from a economics research institute in Bremen of Germany revealed that, based on 481 vessels involved in 330 marine accidents from 1987 to 1991, some 75% of the accidents arose from either fault and omission of the crewmembers due to their heavy workload and tiredness, or carelessness or negligence owing to their lack of training and unfitness to the work on board vessel. Obviously, the obligations of and liabilities for the fault and negligence of the crewmembers on board can hardly be avoided by the shipping companies and their crew control departments.

In accordance with statistics, the average age of the 80,655 ships greater than 100 gross tonnage in the world is over 18 years old, and their rate of accidents is far more higher than that of newly built ships. Quite a few of the vessels are substantially unseaworthy due to their ages or losses of or damages suffered to the hull, machinery and/or equipment although they are still busy with the carriage of various kinds of cargoes even dangerous cargoes. In spite of their high rate of accidents the number of convenient flag vessels is still increasing. All these indicate that had the sufficiency and adequacy of safety management systems of shipping companies and their technical management departments been properly maintained the standards of marine safety and pollution prevention would have been raised to a higher level.

Marine statistics and investigations will thoroughly reveal the insufficiency and inadequacy of safety management of shipping companies and their contributions to marine accidents. The report on Herald Free Enterrice accident resolved that the ferry company was infected from the very top to its individuals with sluggishness and negligence, and the report of Exxon Valdez accident concluded that her owner has never manned her with a competent captain and qualified crewmembers. The high media pressure against the companies which have suffered accident attract IMO to re-establish its recognition and apperception of marine safety management. IMO in 1991, based upon the experience of two years operations of resolution A.647(XVI), amended Guidelines for the Control of Operational Requirements Related to the Safety of Ships and Pollution Prevention which was annexed to its resolution A.680 (XVII). In its resolution A.681(XVII), IMO requests the Maritime Safety Committee to develop and promulgate, as a matter of urgency, more detailed Guidelines for the Control of Operational Requirements Related to the Safety of Ships and Pollution Prevention. Two years later that was 1993, IMO adopted resolution A.741(XVIII)and its annex which was ISM Code, and revoked resolution A.680

(XVII), this being the preparation for the adoption of Chapter IX of SOLAS. In its resolution of A.742 (XVIII) with Procedures for the Control of Operational Requirements Related to the Safety of Ships and Pollution Prevention as its annex which revoked resolution A.681(XVII), it was acknowledged that, with regard to foreign ships in their ports, the need for port States not only to monitor compliance at all times with applicable maritime safety and pollution-prevention standards, but also to include in their endeavors an assessment of the ability of ships' crews in respect of operational requirements relevant to their duties, especially with regard to passenger ships and ships which may present a special hazard.

2.3 Support and Encourage from IMO for the Development of Safety Culture

IMO in 1995 required in its resolution A.788 (XIX) and its annex, i.e. Guidelines for the Administrations for the Implementation of ISM Code, that the development of safety culture be supported and encouraged, and pointed out that effective elements are commitment, attitude and beliefs, etc.

From the point of view of laws, mandatory implementation of IMO's codes necessitates the organizations, both on board and ashore, to establish proper safety standards and to develop a structured safety management system; Otherwise, it will be difficult for companies to implement effectively ISM Code and realize their objectives. From the point of view of safety culture, present safety standards and management systems which are in need of improvement and enhancement could only meet the requirements under prevailing circumstances and conditions. To support and encourage the development of safety culture will not only lead to improvement and development of present codes and regulations, but also to the standardization and coordination of companies and ships in fields such as prestige, morality, view of value and belief, etc. in which codes and regulations will play an ambiguous role. This cognition of IMO which has never been reached in the previous codes and regulations indicates a leap or breakthrough in its perception of marine safety culture.

3 Unity of Benefit and Safety

While materials, financial resources and human resources are needed for the development of a SMS, it will certainly improve the sufficiency of the management of, or avert and minimize loss of or damage to the ships of the companies. Investment in the development of safety culture will to certain extent benefit the company in all respects.

3.1 The Companies Will Be Prohibited from the Competition of International Shipping Industries unless They Comply with ISM

W. O'Nell, secretary general of IMO, said that a company or a State which attempts to compete with others in international shipping industries must comply with all the codes and regulations developed by IMO in the past thirty years; and that if not, they will be prohibited from the competition with others who are going to do so. To establish scientific management systems for the insurance of marine safety by implementation of ISM is not only a correct course to be followed in marine industries by the Contracting States to SOLAS, but also their obligation or

responsibility. Should a company be denied of the right to compete with others it would in fact be driven out of the shipping industries. In this connection, ISM Code is therefore considered one of the international mandatory requirement.

3.2 To Comply with ISM Will Benefit the Company in All Respects

The protection of environment of the globe can only be achieved by full efforts of the whole world, and it is the responsibility and obligation of every company to ensure the safe operations of its ships and pollution prevention especially marine pollution prevention. Those which have willfully or accidentally done any damage to the environment of the world will be condemned and accursed by all nations in the course of safety culture history. The companies or States will be refused by all others in the shipping field unless they fully comply with ISM to intensify their cognition of marine safety and improve their safety management. On the other hand, safety means benefits, and only under safe management can a company obtain low its cost and increase its revenue by being granted best premium and avoidance of claims resulted in consequence of serious accident.

3.3 Implementation of ISM Should Be Achieved by Establishment of Safety Culture of Company

To comply with ISM will ensure by law the unity of benefit and safety of a company. However, if the establishment of safety culture has not been obtained with full effort by the whole staff of the company the unity will not be maintained constantly.

The commitment from the very top of a company is essential for the realization of the objectives of safety management. This means the complete and continuous commitment of directors, mangers, supervisors and all senior decision makers within the company. They should actively involve in the establishment of the safety culture and motivate others to contribute to objectives of the company. Senior management should consider the provision of material, financial and human resources suitable to task and provide all the necessary means by which to develop and adequate SMS which complies with the requirements of the ISM Code.

All employees involved in the company's activities should be convinced of its purpose and need. As for the safety and pollution prevention, the effectiveness depends upon the commitment, attitudes, competence and motivation of the personnel at all positions of the company.

Besides above-mentioned aspects, safety culture consists cognition, morality, social ethics, view of value, ideal, beliefs, etc. Under the effluence of safety culture the staff will enthusiastically do hard thinking, positively act, which will benefit the company in the improvement and development of the management system.

4 Scientific Safety Management

ISM Code has, based upon the international shipping practice, been developed from scientific safety management which is the hybrid of safety system engineering and modern management theory.

4.1 To Adhere the Principles and Objectives of ISM

The principles and objectives of ISM which reflect the demands and requirements of marine safety and pollution prevention are the summary of international shipping practice and experience. All ships put into the competitions of international shipping industries are to meet the requirements of ISM. Therefore, it is essential for a company to adhere these principles and objectives.

4.2 To Combine the Principles and Objectives with Practical Circumstances and Conditions of the Company

This combination will be recognized by ISM Code, and proper implementation of the code necessitates the combination. No two companies are the same, and every company has its own experience, practice and management systems, some of which are of success and effectiveness. To implement ISM is to improve, enrich and develop its experience, practice and management systems. And the existing problems and defects could be solved with the implementation of ISM. This is one of the necessary way to be followed in the course of modernization of the scientific safety management of a shipping company.

4.3 To Establish Complete Safety Management Regime

To implement ISM, every company should establish its own SMS. Under the circumstances and conditions of Chinese shipping companies, it is essential to develop a complete safety management regime. This requires that between the systems of organizations, regulations and monitoring there should be created a complete safety regime in possession of the properties of proper operations, monitoring and feeding back, self-adjusting and inter-impelling.

5 New Aspects of Marine Safety Culture

Safety culture refers to both material and spiritual produces created in the process of their living, multiplying and developing and in the fields of social production and daily lives, by human beings for the protection of themselves from being injured or attacked and for the prevention of pollution of their environment. In common sense, safety culture consists of spiritual produces such as safety science, safety theory, safety technology, safety education, etc. If benefits and safety are the ends of all human activities, safety culture, with marine safety culture as one of its branch, was borne long ago and has been developed into an enormous system of science.

5.1 The Characteristics of Marine Safety Culture

Marine safety culture was borne with in international shipping industries. One of the characteristics of marine safety culture is that it is international with the whole world as its growing ground. The other one is its sensitivity to high-tech since shipping industries are of big-investment with high risks and intensive high technology. The safety culture of every State has its own national or regional characteristics owing to the effluence of its politics, economics, social

science. etc.. As a consequences. the development of marine safety culture depends. to certain extent. upon the State and its shipping industries.

5.2 The Development of Safety Culture

The development of marine culture proceeds in the course of history with marine disasters. None of SOLAS. MARPOL. COLREG. IMDG. STCW even ISM was not borne with the effluence of serious accidents such as Titanic hitting iceberg with loss of thousands of lives in 1921 and Exxon Valdez striking rock and causing leakage of oil in 1989.

The existing codes and regulations are great achievements with ISM at the eminent position. From the point of view of marine safety culture. it can be imagined that, with the implementation of ISM which is not only generally accepted and supported by most of sates and administrations but also monitored and audited by them. the strive for the establishment is imminent. We believe that marine safety culture is proceeding to a new stage.