Identification of internationally accepted standards of environmental management and quality assurance that should be incorporated into Maritime Safety Management System

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ABSTRACT

The requirements for management at sea are established by IMO conventions and EU directives. Technical progress, incidents at sea resulted in development of standards for ship and her supervision. However, ISM Code should comprise requirements established in ISO 14001 and 9001 and also in the European regulation EMAS.
Not only do the seafarers play an important role in the protection of marine environment, but also staff members of maritime institutions and administrations and other operators or managers are often in charge of marine pollution prevention and response.
ISM Code establishes that every shipping company should develop, implement and maintain Safety Management System which includes and relates to environmental protection policy in compliance with relevant international and flag State legislation. The Code also establishes that the shipping company should clearly define and document the master's responsibility with regard to implementing the safety and environmental protection policy of the company.
In order to broaden the range of instruments in the field of environmental protection and to encourage the shore-based operators and managers to adopt a pro-active approach in this field, the EU adopted EMAS regulation. On a voluntary basis such companies may gain added value in terms of regulatory control, cost savings and public image.
Many companies implement the ISO 14001 in order to provide-themselves means for managing and improving their environmental performance. For instance, Stocznia Szczecinska S.A. has taken actions to obtain ISO 14001 Quality Certificate in the field of environmental protection. Internal audits have led to work out the Environmental Management System Quality Book based on ISO 14001 norm. In this respect legal compliance, improvement of environmental performance and external communication as well as employee involvement were relevant.
The ISM Code should also require shore-based companies to work out and implement the ISO 9001 standards. This process should take into account needs, organizational solutions and pertinent activities of a company through development of implementation of systems with a corresponding spirit pertaining to the ISO standards with total commitment of people involved TQM at getting a quality system certified.
As a result, the SMS would be a complete and almost a perfect system. It would guarantee a good environmental management and high quality standards among shore-based maritime companies.

1. Introduction

It is impossible to have a completely safety system. Human make mistakes and equipment can fail. It is necessary though to anticipate what might cause an accident and ensure that risks can be avoided before they become critical (Chauvel,1997). The establishment of the maritime safety management system (MSMS) in the international maritime society is then paramount. The evolution of safety concepts in shipping was made through establishment by IMO of Load Line Convention, Safety of Life at Sea Convention (SOLAS), Marine Pollution Prevention Convention (Marpol), Safety Management (ISM Code), STCW Convention and other. The improvement of MSMS will be reached if the environmental management and quality assurance standards are incorporated into the MSMS in a more cohesive manner.
Also not only do the seafarers play an important role in the protection of marine environment, but also staff members of maritime institutions and administrations and other operators or managers are often in charge of marine pollution prevention and response ('organisations' – as defined in ISO 9001 :2000). The shore-side operations may lead to disaster linked with human lost and pollution of the environment if the operators are not trained how to plan and perform properly and safely their tasks and also how to minimize the risk, deal with emergency and non-standard situations effectively.
Some selected requirements of environmental management and quality assurance are presented below as being worth to be studied and eventually to be incorporated into MSMS.

2. ISM Code

The ISM Code (chapter IX. of SOLAS) recommends safety and environmental policy to be drafted by describing how the objectives will be implemented. The ISM Code is based on a new approach to safety, because it sets out to provide a management system which will anticipate possible contingencies and focuses on the unique characteristics of ships as mobile units and the need to protect the marine environment. The purpose of this mandatory code is to stimulate and encourage the development of a safety based culture in the maritime sector. William A O'Neil, Secretary-General of IMO said:

'[...] the ISM Code aims at contributing to safer shipping and cleaner oceans by laying down requirements for a clear link between shore and sea staff of a company and for a designated person to strengthen that link. A key aspect of the ISM Code is that companies must have a verifiable safety management system in place. For the system to be effectively implemented there must be a commitment from the top, responsibilities assigned and measures in place to remedy deficiencies [...]...the ISM Code represents a component of invaluable importance and significance in IMO's strive to improve safety at sea and preserve the marine environment from pollutions by ships.' (Chauvel,1997). This statement shows how important the ISM Code is for safe operations at sea. Also in this respect F. Lorentzen, President of BIMCO added :

'[...] the mandatory nature of the ISM Code will ensure that no shipping company will be able to escape the process. ISM will accentuate the positive aspects of the Safety Management System and everyone in the company can benefit from the enhancement of safe practices in ship operations. Reduced damage, improved safety consciousness, greater professionalism and improved morale are likely to bring genuine cost savings and better efficiency...' (Chauvel 1997). For the above reasons this Code must be a key-element of the MSMS.

3. ISO 14000 Standards

The ISO 14000 standards were established in order to promote the environmental management policy within an organization to minimize its negative impact on the environment. They specify requirements for an Environmental Management System (EMS) so that an organization could formulate a policy and objectives taking into account legislative requirements and information about significant environmental impacts.

This standard is applicable to any organization that wishes to :

- implement, maintain and improve an EMS;
- ensure itself of its conformance with its stated environmental policy;
- demonstrate such conformance to others;
- seek certification/registration of its environmental management system by an external organization;
- make a self-determination and self-declaration of conformance with this International Standard (www.praxiom.com/ ISO-14001).

Any environmental management system should comply with all the requirements of ISO 14000 standards.

For instance, ISO 14001 is organized around the following five principles:

1.Environmental policy
2.Planning actions
3.Implementation and operation
4.Checking and corrective actions
5.Management review (www.praxiom.com/ISO -14001).

The EMS should be periodically reviewed with a focus to continual improvement (www.praxiom.com/ISO-14001).

For example, in Poland Stocznia Szczecinska S.A. shipyard has taken actions to obtain ISO 14001 Quality Certificate in the field of environmental protection. Internal audits have led to work out the Environmental Management System Manual based on ISO 14001 standard. This led to legal compliance, improvement of environmental performance and external communication as well as employee involvement.

4. EMAS Regulation

On the 19th of March 2001 the European Parliament and the Council of the European Union have adopted the regulation allowing voluntary participation by organizations in a Community eco-management and audit scheme (EMAS). This regulation took over and replaced Regulation (EEC) 1836/93 of 29 June 1993. By establishing this regulation the Community wants to promote sustainable growth, broaden the range of instruments in the field of environmental protection and commit organizations to adopt a pro-active approach in this field. On a voluntary basis the organizations may gain added value in terms of regulatory control, cost savings and public image. The EMAS is available to all organizations that have environmental impacts, providing a means to manage these impacts and to improve their overall environmental performance. Organizations are encouraged also to produce and make publicly available periodic environmental statements. Special significance is given to : legal compliance, improvement of environmental performance, external communication and employee involvement.

The process of implementation involves seven steps :

1) Environmental Policy

Before working towards any improvement of the organization's impact on the environment, one should formalize the nature of overall approach, and produce an environmental policy for organization.

2) Environmental Review

One should review the site wished to be registered to identify all its environmental effects and judge their significance. This should be compared to stated policy and to environmental regulations. Finally it should be identified what needs to be improved.

3) Environmental Programme

One should include specific targets in the environmental programme and compile a list of priority areas. The programme exists in order to put the organization's environmental policy into practice. Once the priorities have been set, the programme must be implemented ensuring a clear chain of responsibility at every stage.

4) Management System

The programme must be properly organized and documented, with fully trained personnel responsible for. It at all levels, and it must be fully integrated into the organization's existing management structure.

5) The Audit

The programme's progress must be audited at regular intervals. Some activities, such as the treatment of effluents and hazardous waste, should be audited more often than others. These audits must be objective, systematic, and fully documented.

6) Environmental Statement

The EMAS requires all participating organizations to issue a public statement linked to the audit, outlining in clear and concise language exactly how they have met their stated objectives. Summary data on the environmental impacts needs to be in the statement.

7) Validation

Before publication, the environmental statement must be validated by an accredited verifier, who is independent of the site's auditor (www.praxiom.com/EMAS).

Many other European rules, some directives f. ex., could be a also matter of consideration while elaborating the MSMS.

5. Quality management standard : ISO 9001 : 2000

ISO 9001:2000 applies to all types of organizations. It doesn't matter what size they are or what they do. It can help both product and service oriented organizations achieve standards of quality that are recognized and respected throughout the world.

ISO 9001 2000 has replaced the previous ISO 9001:1994 standard. In addition, the former ISO 9002 : 1994 and ISO 9003 : 1994 quality standards have been discontinued. The requirements of the family of ISO 9000 Series, and the ISO 9002 in particular, were used to develop the ISM Code. (Dendura, 1997)

The ISO 9002 standard adopted by International Organization for Standardization concerned quality management within the framework of contractual relations between a company and its clients (Jedral, 2000). This standard was precisely used where a contract between two parties requires demonstration of a supplier's capability to provide the product or service supplied. It contained 18 provisions which form the quality management system focusing mainly on four issues :

- management commitment and responsibility
- contract review
- production process control
- methods of inspection and prevention of quality deficiencies (Chauvel, 1997).

According to Willingale (1998) the Quality Assurance system will highlight that ship management is a people-based industry relying almost entirely on the human element. If the people involved do not have the correct levels of training, experience, ability and attitude then the best designed management system will ultimately fail.

6.Conclusion

The MSMS need to be broaden by environmental and quality management standards. They can be found in various codes, regulations and conventions as IMO Conventions : SOLAS and ISM Code, ISO standards, European Community regulations like EMAS (fig.1). As a result, the MSMS would be a complete and almost a perfect system. It would guarantee a good environmental management and high quality standards not only among seafarers but also among shore-based maritime companies. The possible scheme for MSMS is presented below.

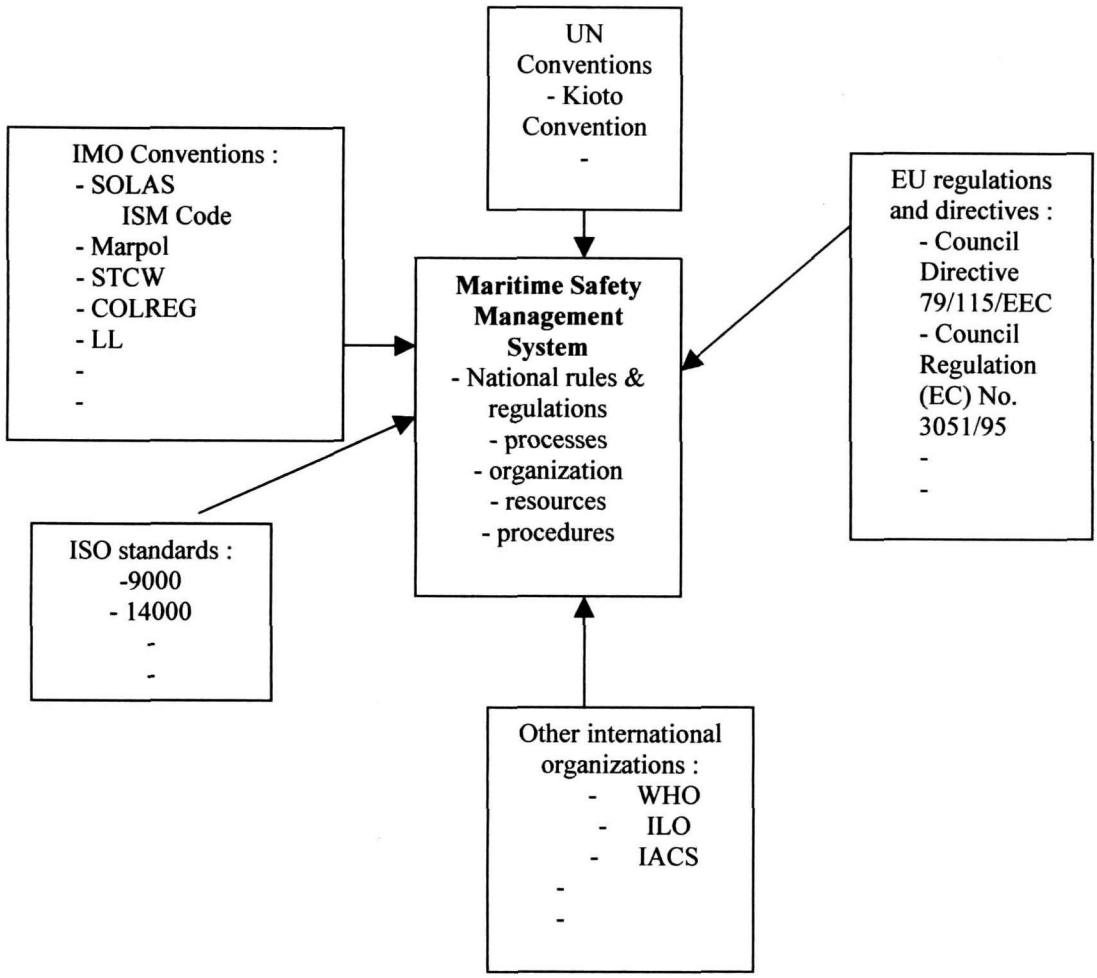

Fig. 1 Scheme of requirements taken into account for MSMS.

William A O'Neil, Secretary-General of IMO said:
„...Adequate standards of safety and environmental protection exist in many companies but this, by itself, is not enough. Good safety management requires a commitment through all levels of a company's hierarchy and effective communication channels between the management ashore and those on board ship are perquisite of safe sea operations." This is provided by the above mentioned codes, standards and regulations. Hopefully the incorporation of quality and environmental standards to the MSMS will prevent us from catastrophes at sea and on the shore.

Many other standards and regulations haven't been presented in this manuscript. The others, which would contribute to strengthening the MSMS, exist perhaps or will appear in the near future. This will be an interesting subject for further research.

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