International Maritime Environmental And Safety Legislation, A Case Study Of Implementation Of The ISM Code In Gdynia Maritime University

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ABSTRACT

The requirements for safety management at sea are established by IMO conventions (STCW Convention, Solas). ISM Code (Solas Convention, Ch.IX) specifies 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 owner's responsibility with regard to implementing the safety and environmental protection policy of the company.

ISM Code requirements are obligatory for Gdynia Maritime University as the owner of training vessels: s.v. "Dar Młodzieży" and m.v. "Horyzont II". ISM Code implementation was made through establishment of the University policy for safety and pollution prevention and through issuance of safety management manual and introduction of documented procedures: operational and emergency. Also the responsibilities and communication links were documented. Staff and students' trainings and audits necessary for the system implementation were provided together with corrective and preventive actions, management reviews and certification process.

Despite some relatively low costs connected with the implementation of the ISM Code in GMU, there are a lot of benefits of this process, i.e. compliance with IMO conventions, better control and prevention of potential accidents, costs saving as regards possible fines.

GMU - by implementation of the ISM Code on its training vessels - is in compliance with international maritime environmental and safety legislation. Thus, GMU contributes to safe sea operation.

1. Introduction

The evolution of international maritime environmental and safety legislation was made throughout establishment by International Maritime Organisation 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 European Union is also seeking to strenghten environmental protection through different regulations and directives (Council Directive 79/115/EEC, Council Regulation (EC) No. 3051/95).

In particular, technical progress, incidents at sea resulted in development of standards for ship and her supervision. The requirements for safety management at sea are established by IMO conventions (STCW Convention, ISM Code). Seafarers play a crucial role in safe operation at sea, the protection of marine environment. Also staff members of maritime institutions and administrations and other operators or managers are often in charge of marine pollution prevention and response [Przybylowski 2001].

Gdynia Maritime University as the owner of two training vessels: 'Dar Młodzieży' and 'Horyzont II' implemented ISM Code in order to be in compliance with international maritime legislation and to ensure safe sea operation. This aim was achieved by introduction of documentation and ISM Code surveillance system and proper students training.

The implementation of the system, despite some relatively low costs, gives numerous benefits and may be an example to be followed by other maritime universities.

1. ISM Code requirements

The ISM Code (SOLAS Convention, Ch. IX) 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 marine vehicles and the need to protect the marine environment [SOLAS, Ch. IX].

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).
The above 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).

ISM Code establishes that every shipping company should develop, implement and maintain Safety Management System which includes and relates to safety and 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 the environmental protection policy of the company.

2. ISM Code implementation in Gdynia Maritime University

2.1 ISM Code implementation on GMU's training vessels

ISM Code requirements are obligatory for GMU as the owner of training vessels: SV "Dar Młodzieży" and MV "Horyzont II". As both ships are bigger than 500gt, ISM Code implementation was compulsory by July 2002. This process was commenced in 1999 by the establishment of the owner policy for safety and pollution prevention which is defined as follows: 'To ensure safety of trainees and passengers and also health protection and safe work conditions for all employees and protection of the environment' [Szymoński 2001]. The implementation of the Code was also made by issuing of safety management manual and by introduction of documented procedures for company and for ships (operational and emergency).

Also the responsibilities and communication links were documented. Trainings and audits necessary for system implementation were provided together with corrective and preventive actions, management reviews and certification process. The Company Department directly under Vice Rector for Maritime Matters plays a very important role in implementation of the system. It makes communication link between shore side and the ships effective and efficient. To achieve this aim, the Designated Person having a direct access to Executive Board of the University was appointed. This person is responsible for:

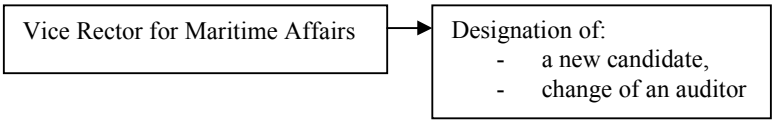
- effective implementation of safety management system
- assurance of shore side back up in case of emergency or accident on board
- analysis of the lack of compliance reported by ships and employees of the Company
- identification of necessary resources and training needs for crew members and shore side personnel

For the implementation of the system a number of training were carried out for all crewmembers of both ships and for shore side employees (table 1).

Table 1. Training while implementing safety management system in Company's Department of GMU and on training vessels.

Type of training	Company's employees	Crew of "Dar Młodzieży"	Crew of "Horyzont II"	Internal auditors
General concerning ISM Code	X	X	X	X
Concerning company's policy	X	X	X	X
Related to drafting documentation on safety management system	X	X	X	
Training of internal auditors				X
Knowledge of implemented documentation and responsibilities aspiring from ISM Code	X	X	X	X
Related to changes in documentation	X	X	X	X

The Vice Rector for Maritime Matters, acting on Designated Person's advice, nominates candidates for internal auditors. Seven persons have been trained by the Designated Person and ISM Code Specialist (fig. 1 below).



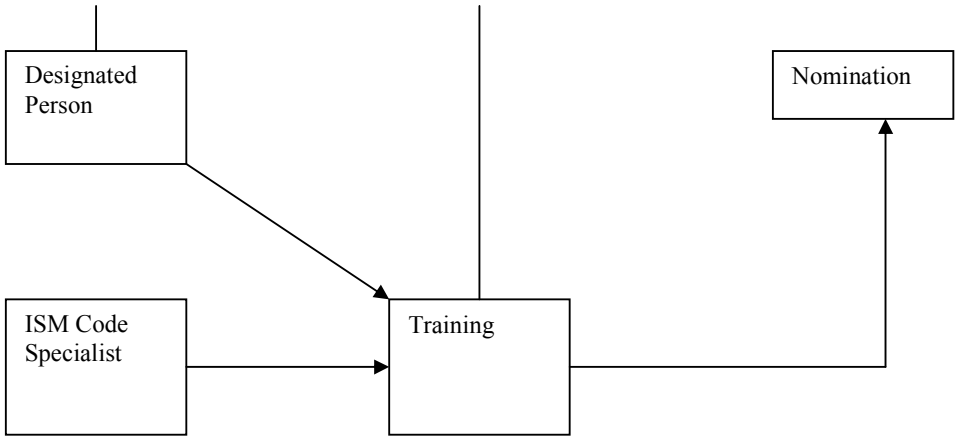


Fig.1 SMS Auditors Training

As far as training is concerned, it specifically covered knowledge related to:
- ISM Code,
- Safety Management Manual,
- Internal audit process steps,
- Methods and techniques of inspection,
- Documents and notes necessary to conduct audits,
- Methods of control list filling and documents recognition,
- Internal audit procedure [Piglowski and Pawlowska (2001)].

Internal audits may concern: the Rector, Vice Rector for Maritime Affairs, Head of Company Department, Designated Person, ISM Code Specialist, Head of Human Resources Department and Technical Inspector.

An auditor may control if:
- SMS documents are in compliance with ISM Code requirements,
- SMS documents are in compliance with other requirements (SOLAS, MARPOL, etc.),
- Notes are in compliance with SMS documents,
- Training is in compliance with SMS documents,
- Training is in compliance with notes,
- Training is in compliance in relation to SMS.

In case of noncompliance with any of the above factors, corrective and preventive acts must be undertaken by heads of departments no later than three weeks after the audit.

2.2 ISM Code documentation

ISM Code requires a Company to implement a documented safety management system. After having completed training about ISM Code and company's policy, the Safety Management Manual (SMM) containing company's policy, procedures and instructions was then drafted to document the system (fig. 2).

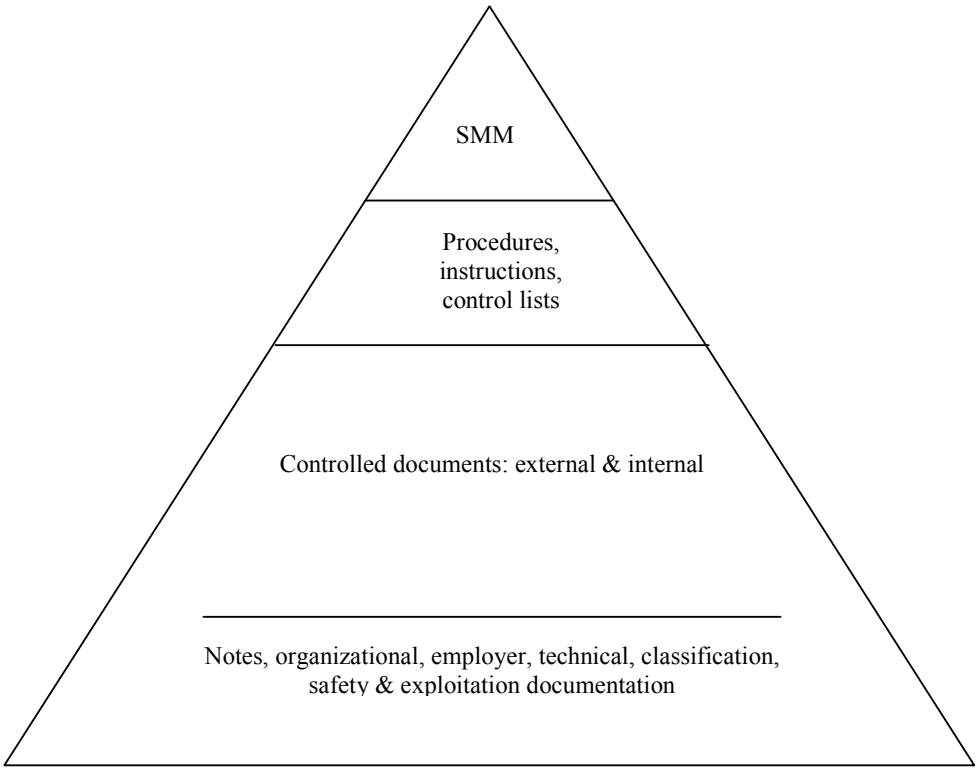


Fig.2 Components documentation of safety management system

As far as procedures are concerned, they are divided into 2 groups:
- companies
- ships: operational and emergency

Company procedures define:
- ship maintenance rules,
- how to react while different emergency situations,
- Company's Emergency Team's composition and working rules; its duties and responsibility of all its members, way of calling them up and mobilizing them,
- communication methods with ships in emergency,
- kinds, frequency and scope of emergency training
- internal control of the system (internal audits) and management review by directors.

Ship procedures contain:
- operational ones which describe basic actions allowing safe sea operation, ship operation and protection of the environment
- emergency describing potential threats, duties of crew members and measures of reaction (emergency training)

To evaluate if the system has been correctly implemented, internal audits and external ones made by PRS have been carried out [Szymoński 2001].

2.3 ISM Code surveillance

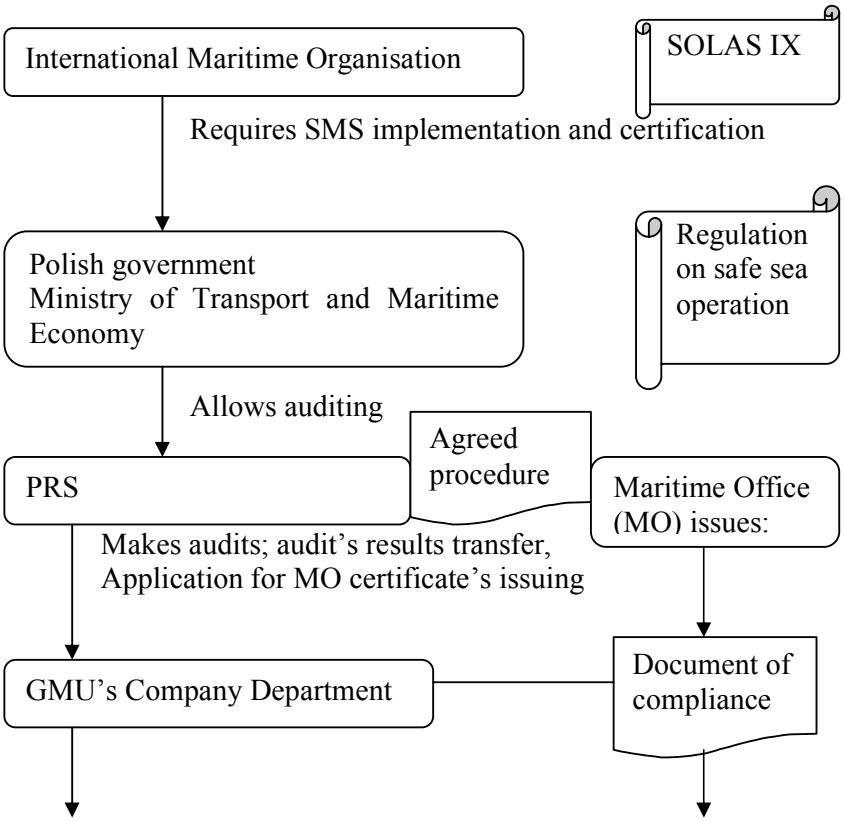
In order to maintain and develop the system, training for shore side employees and crewmembers is carried out [Szymoński 2001]. To maintain best technical ship condition and

to ensure exploitation needs, safety and PSC requirements and also crew and ship's expectations, inspections are carried out (see below).

Table 2. Inspections and periods of their execution

Kind of inspection	**Periods**	**Person responsible**
Technical	Min. 4 times a year	Technical Inspector
Safety of work, fire prevention	Once a year	Inspector for fire prevention Inspector for work safety
Company's	As to the needs	Rector, Vice-rector for Maritime Affairs, Head of Company's Department, Designated Person, Specialist For ISM Code
PRS, Maritime Office	As to the needs	Coordinated by Technical Inspector
PSC	According to external requirements	Coordinated by: - Captain - Chief Eng.

Certification process of the Safety Management System is presented on the figure 3:



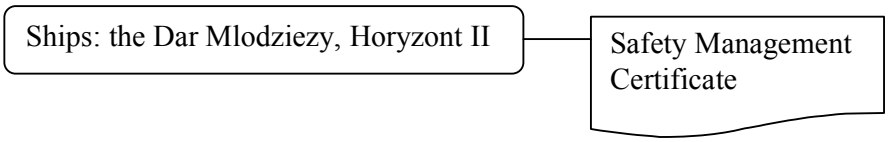


Fig. 3 Compulsory certification of the Safety Management System in GMU

The certification process covered:
- The Company Department – Document of Compliance was issued;
- Two ships – two Safety Management Certificates were issued [Piglowski and Pawlowska (2001)].

2.4 Student safety education & training

Gdynia Maritime University provides also students with knowledge related to the requirements of STCW Convention and ISM Code. Engineering Faculty students study Safety Management of Ship: 2 months of the II semester on the training vessels and 6-8 months of the VIII semester as a motorman or cadet while having training on ships in compliance with program in Training Record Book and also while having lectures and tutorials on the X semester [Tarnowski 2001]. In 1998, Engineering Faculty had gained certificate of compliance with ISO 9001:1994, according to Regulation I/8 STCW 78/95.

Students are brought to the training and merchant ship to participate in so-called exploitation practice according to Training Record Book. The successful completion of the program is approved by the signature of the Chief Engineer. Students deal with alarm and get knowledge about responsibilities while alarm on board. They also get accustomed to placement of safety, fire and first aid medical equipment. Equally, students must know functioning of closing emergency exits. In addition, they follow the execution of operational or alarm procedure according to ISM Code procedure, SOPEP and learn how to draft plans of alarm and environmental devices.

On the last (10th) semester students have 15 hours of lectures and 15 hours of tutorials. Below, a detailed list of subjects of the program is presented.

Table 3. Safety Management of Ship program

Subject	Lectures	Tutorials
Safe ship operations conventions and regulations.	1	1
Ship's technical condition and equipment surveillance. Legitimate, classification and safety documentation.	1	1
Crew's qualifications and membership surveillance.	1	1
Safe sailing and rescue surveillance.	1	1
Quality, safe ship operation and environmental management in maritime economy. ISO and IMO requirements.	3	3
ISM Code and STCW requirements	6	6
Company's responsibilities.	1	1
Crew members' responsibilities according to ISM Code and other …	1	1

So GMU integrates the SMS with education on Safety Management of Ship for students by:
- implementation of ISM Code on training vessels (since 1999),
- basic training for students on training vessels using ISM procedures,

- implementation of ISM requirements as a part of Training Record Book (fulfilled on training vessel and on sea practice under Chief Engineer supervision),
- lectures and tutorials on last semester of education (using ISM Code documentation). [Przybylowski 2002].

Additionally, before sea practice students have passed in the University four basic trainings required for each crewmember (fire, medical, rescue and social responsibility). Also records about familiarization with ships are provided in Training Record Book.

3. Costs and benefits related to implementation of the ISM Code in GMU

Costs related to implementation of the ISM Code in GMU can be divided into four categories:
- certification audits,
- functioning of the Company Department,
- training and
- literature.

The most expensive enterprises were audits of the Company Department, audits for training vessels and certificates issued by Maritime Administration. All costs were around 7500 Euro.

Benefits of the implementation of the ISM Code are numerous:
- compliance with IMO conventions,
- better control and prevention of potential accidents,
- cost saving as regards possible fines and also
- training onboard for students using established procedures on training vessels while having practice in compliance with program in Training Record Book.

GMU authorities have always been taking a great care of being in compliance with IMO convention. It is also the case of the ISM Code implementation.
The prevention of potential accidents is achieved through the regular trainings. For example, crewmembers and students must have trainings about alarm procedures within 48 hours and passengers within 24 hours. The captain designs a person responsible for the training.
As far as the emergency procedures are concerned, the crew must be trained two times a year. The scope of student and passenger training is determined by the captain.
In case of SOPEP training for the crewmembers, it is made two times a year under the supervision of the chief.

Conclusion

In conclusion, the GMU - by implementation of the ISM Code on its training vessels - is in compliance with international maritime environmental and safety legislation.
The ISM Code requires implementation of safety management system on ships. GMU, as the owner of two training vessels: ‘Dar Młodzieży’ and ‘Horyzont II’, was obliged to implement the ISM Code. This aim was achieved by introduction of documentation and ISM Code surveillance system and proper staff and students training.
Despite some relatively low costs connected with implementation of the ISM Code in GMU, there are a lot of benefits of this process like costs savings, for example.
Thus, by implementation of the ISM Code, GMU prepare staff for safe sea operation and is in compliance with international environmental and safety legislation.

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