

**EFFECTIVENESS OF SAFETY MANAGEMENT SYSTEM (SMS) BY
MALAYSIAN SHIPPING COMPANIES IN COMPLIANCE TO THE
INTERNATIONAL SAFETY MANAGEMENT (ISM) CODE.**

by:-

Mohamad Rosni Othman
Marine Department Labuan Federal Territory.
email: rosin@marine.gov.my

Abstract

ISM Code claimed as an effective and valuable method in improving the safety culture in Maritime Industry that could lead to the continuous improvement of safety performance. The benefit of the implementation of the ISM Code for Maritime Industry in Malaysia needs to be evaluated. The key essentials of this ISM Code need to be examined for its effectiveness. However, An effective Safety Management System (SMS) highly depend upon a well documented and structure system to address the cause of the Safety, Environmental protection and pollution prevention problem and to correct it. Therefore this study will give an overall idea of the safety management framework being implemented by these companies.

This study was carried out involved 46 Shipping companies and auditing of SMS was done through interviews with 120 responders by using Safety Management Audit Questionnaires form. The data was analyzed using Gap Analysis and *t-test* to obtain the value of conformance.

The result show that the percentage average conformity between companies Safety Management System (SMS) with the standard key elements in the ISM Code is 79.3 %. On the other hand, the percentage average non-conformity between SMS of companies with the standard key elements in the ISM Code was 20.7 %. Therefore, the companies have effectively implemented their SMS according to the requirements of the ISM Code.

1.1 Introduction

At the SOLAS conference of International Maritime Organization (IMO) held in May 1994, the International Safety Management (ISM) Code was formally incorporated in Chapter IX of the Safety of Life At Sea (SOLAS) Regulation (Appendix 1) which Malaysia rectify in 19 October 1983 and enforced in 19 January 1984, the ISM Code was adopted in national law under safety requirement on July 1998 (Appendix 2).

The Code has been developed by IMO in response to the pressure applied by society in general as a result of the loss of life and environmental pollution associated with reported incident, for an example in Malaysia Between 1975 to 1995 reported ships casualties are 475 casualties. The purpose of this Code is to provide an international standard for the safe management and operation of ships and for pollution prevention.

The ISM Code defines the basic principles and objectives to be used by ship operators in addressing the management of safety and protection of the environment, it requires an operator to document the policies for safety and environmental control and to define how the policy objective will be achieved. In imposing a higher degree of accountability on the shipping industry through what in effect are “market disciplines,” the ISM Code will alter existing corporate procedures, as well as private commercial relationships (Guy E. C. Maitland, 1988).

When the ISM Code implemented effectively, the company is compliance with the National and International laws and regulation. The company’s will be adopting the ISM Code as a means of setting common goals for safety performance, monitoring and minimizing the potential for unexpected liability across all their activities and be competitive in national and international trade.

Explicitly, the ISM Code has the potential to help the shipping company’s do a more effective job of avoiding accident and protecting the environment while helping the economy.

Implicitly, it’s a new standard and effective implementation of the ISM Code for Maritime Industry in Malaysia will be achieved not only for the benefit in the business sectors, policy implementers, regulators as well as for better environment and healthy economy of the country.

1.2 Result From Gap Analysis

Table 3 : The Gap Conformance Between SMS and ISM Code elements

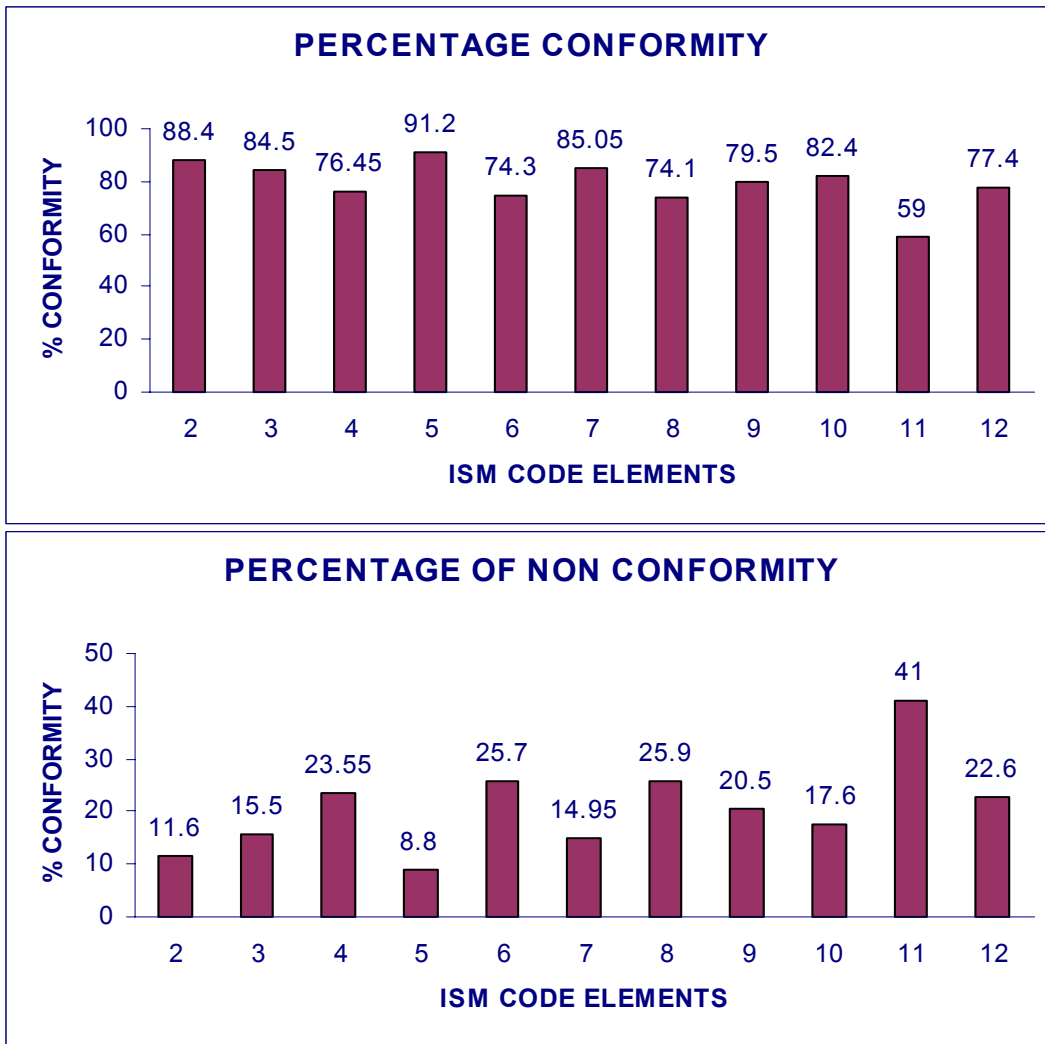


Table 3a : ISM Code Key Elements

ISM Code No.	ISM CODE KEY ELEMENTS
2	Safety And Environmental Protection Policy
3	Company Responsibilities and Authority
4	Designated Person
5	Master's Responsibility and Authority
6	Resources and Personnel
7	Development of Plans for Shipboard Operation
8	Emergency Preparedness
9	Reports and analysis of Nonconformities, accidents and Hazardous Occurrences
10	Maintenance of ship and equipment
11	Documentations

The gap between the existing company's SMS with the requirement of the ISM Code elements (Table 3) occur for all key elements in the company's SMS (table 3a). Average conformity of company's SMS with the standard key elements in the ISM Code is 79.3 %. Average not conformance between company's SMS with the key elements in the ISM Code is 20.7 %. From the result it is shown that evaluated company's have been implemented effectively their SMS according to the requirement of the ISM Code key elements.

From the results using gap analysis it is shown that the major gap between the existing of company's SMS with the requirement of the ISM Code elements only occur during documentation process, 41 % indicated not conforms with the standard of documentation in the ISM Code and only 59 % are conforming. It was observation from the survey the major gap is due to:

- a. The company's has a document control procedure but the records, documents and distributions are not maintained properly according to the company SMS.
- b. Procedure for updating of the company's SMS not implemented.
- c. Appointment of the members for safety committee and safety officer not implemented.

The company's failed to do so due to:

- a. The safety and environmental protection awareness among employee is low due to limited training provided by the Company's SMS and training program is not implemented.
- b. Implementation of ISM Code is mandatory requirement and by July 2002 all registered ships above 500 GT or plying on international water shall have a ISM Code certificate. Because of the time factor, some company adopted SMS from other company which not comply with their type of vessel.

An effective Safety Management System is base on plan, do, check, act cycle to promote continuous improvement. The ISM Code provide such framework to plan, review, action and the Safety and environmental Protection performance of the Company's could be improve while awareness and commitment among employees increase to promote long term benefit of Safety, environmental and economic.

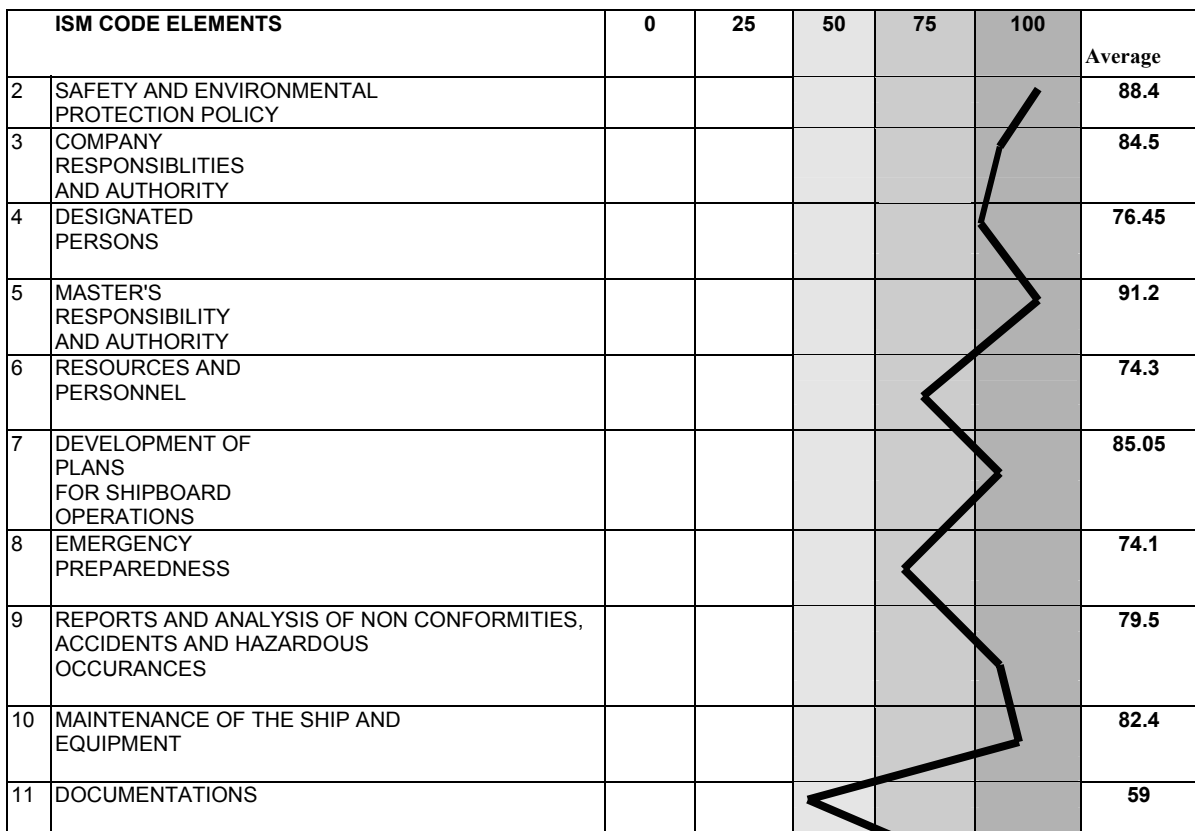
4.1 The evaluation of The Effectiveness Performance on Company's Safety Management System (SMS).

Result from analysis using data from Safety Management Audit Questionnaire identified which particular elements in the ISM Code has been implemented effectively by the companies Safety Management System (SMS) (Figure 4) .

Objective is to define the required performance on Company's SMS, in order to conform to the ISM Code elements. This process consists of evaluating the current practices of the Company's in relation to the requirement of the ISM Code. The results of the audit should be used as a reference to measures progress and indicate any weakness in the current system.

The audit of the SMS is carried out according to the following model (figure 4 above). Through the analysis more than 50 % shown that all the procedures are written and adequately cover the requirements of the ISM code, more than 75 % shown that the personnel is aware of the existence of the procedures and the procedures are being enforced and implemented effectively according to the ISM Code.

Figure.4 The audit of The Safety Management System



12	COMPANY VERIFICATION, REVIEW AND EVALUATION						77.4
----	---	--	--	--	--	--	------

Notation :

- 0 Percent : No evidence of written Procedures
- 25 Percent : *Existence of written procedures covering part of requirements of the ISM Code key elements.*
- 50 percent : *All the procedures are written and adequately cover requirement of the ISM Code key elements.*
- 75 Percent : *The personnel is aware of the existence of the procedures. The procedures have been subject of training.*
- 100 Percent : *The procedures are being enforced and implemented effectively according to the requirement of ISM Code.*

Finding from the analysis (figure 4) shown that overall (more than 50 %) of the Company’s SMS has been implemented effectively according to the ISM Code elements.

4.2 The evaluation of the frequency from the Safety Audit Questionnaire Data.

Result from analysis (appendix 8) using data from Safety Management Audit Questionnaire identified which particular elements in the ISM Code had been implemented effectively by the companies Safety Management System (more than 80% Address).

Objective is to identify the required performance on Company's SMS, in order to conform to the ISM Code elements. This process consists of evaluating the current practices of the Company's in relation to the requirement of the ISM Code.

4.3.1 Safety Management Audit Questionnaire Analysis.

All of the companies had a statement in their SMS emphasizing the Master overriding authority in the matters of Safety and Pollution Prevention (ISM Code element 5.3).

Majority (above 80%) of the companies SMS had been address and comply with the ISM Code elements 2.2,2.3, 3.1, 5.1, 6.1, 6.7, 12.6 and 12.7 because due to:

- i) The companies established the term of ' highest level of authority' in the company SMS (ISM Code element 2.2),
- ii) the policy signed by top management and distributed to the Shore based and Shipboard according to the document control procedures (ISM Code element 2.3),
- iii) the owner had declare the entity who is responsible to ensure safe operation of the ships to the administration (ISM Code element 3.1),
- iv) the Master responsibility and authority had clearly defined in the Company SMS (ISM Code element 5.1),
- v) the companies had ensure that the Master is fully conversant with company SMS and given the necessary support to achieve the company objective (ISM Code element 6.1),
- vi) the company has been established and implemented procedures to ensure ships personnel received relevant information of the SMS in

working language or language understood by them (ISM Code element 6.7) and

- vii) the procedure for suggestions had been established and cover recognition's of contributions by originator of suggestions (ISM Code 12.6) and lastly company had completed at least one internal safety audit (ISM Code 12.7).

Majority of the companies has been issued minor non conformity under ISM Code elements 11.4 and 12.2 because of the minor non-fulfillment of the procedure for document control and distributions of the documents and procedure for internal audit and management review not established in the company SMS.

From the analysis of the Safety audit questionnaire (appendix 1,2 and 3) only one company not comply with the ISM Code elements 3.2, 5.1, 6.4, 6.5, 11.2 and 12.1 and has been issued Major non conformity for each elements because the lack of effective and systematic implementation of the ISM code elements as a result may poses a serious threat to personnel and ships safety or serious risk to the environment and requires immediate corrective action.

Chapter 5

Conclusions

ISM Code embodies a new approach to the safety and environmental Protection and pollution Prevention. In contrast to prevailing command and control model, it challenges each organization to take stock of its safety, environmental and pollution prevention aspects, establish its own objectives and target, commit itself to effective and reliable process and continual improvement and bring all employees and top management group into a system of shared and fully commitment which enlightened awareness and personnel responsibility for achieve Safety, Environmental Protection for pollution prevention objectives of the organization.

Average conformity between company's SMS with the standard key elements in the ISM Code is 79.3 %. Average not conformance between company's SMS with the key elements in the ISM Code is 20.7 %. From the finding shown that the company's has been implemented effectively their SMS according to the requirement of the ISM Code key elements.

Through the analysis using data from Safety Management Audit Questionnaire more than 50 % shown that all the procedures are written and adequately cover the requirements of the ISM code, more than 75 % shown that the personnel is aware of

the existence of the procedures and the procedures are being enforced and implemented effectively according to the ISM Code.

From the finding using gap analysis shown that the major gap between the existing of company's SMS with the requirement of the ISM Code elements only occur during documentation process, 41 % indicated not conformance with the standard of documentation in the ISM Code and only 59 % are conformance.

ISM Code is the system that provide link between shore base and ship board operation with continuous improvement by execute the auditing program. Documentation is essential for Safety Management System to work. Information's related to the ISM Code implementation has to be recorded and available to the people at shore base and ship board who need it. Company's SMS said to be effective because there is an established procedure for prevention action. With the prevention action, the root cause of problems are investigated and system wide actions are taken by management to ensure the rot cause of a problem never occurs again.

An effective Safety Management System is base on plan, do, check, act cycle to promote continuous improvement. The ISM Code provide such framework to plan, review, action and the Safety and environmental Protection performance of the Company's could be improve while awareness and commitment among employees increase to promote long term benefit of Safety, environmental and economic.

Based on the findings of this study it can be inferred that the company's has been implemented effectively their SMS according to the requirement of the ISM Code key elements. The findings also indicate that an effective Safety Management System highly depend on the well documented and structure system to address the cause of the Safety, Environmental protection and pollution prevention problem and to correct it.

REFERENCES

1. *AIIN. (1998) Asian ISO 14000 Information Network. AIIN Newsletter. 2 (2) : June.*
2. *Allen, L.W. (1993) Accounting for Pollution Prevention. EPA Journal. July-September 1993: p 23-25.*
3. *B S 7750 (1992). British Standard's Institution's 7750: Environmental Management System.*
4. *Begley, R. (1997) Value of 14000 Management systems put to the test. Environmental Science and Technology. 31 (8): 364(a) – 366 (A).*
5. *Block, M.R. (1997) Implementing ISO 14001. ASQC Quality Press, Milwaukee.*
6. *Bridgen, P. J. (1997) ISO 14000: The Worldwide Response from Industry and Governments. In: P. A. Marcus and J. T. Willig (Eds.) Moving Ahead with ISO 14000 Improving Environmental Management and Advancing Sustainable Development. John Wiley & Sons Inc, New York.*
7. *Cascio, J. (Ed.) (1996) The ISO 14000 Hand Book. CEEM Information Services and ASQC Quality Press.*
8. *Cascio, J., G. Woodside and P. Mitchell. (1996) ISO 14000 Guide The New International Environmental Management Standards. Mc-Graw Hill, New York.*

9. CHAUVEL, A-M - *Managing Safety and Quality in Shipping : The Key to Success : A Guide to ISM, ISO 9002, TQM*. London : The Nautical Institute, 1997 (ISBN : 1-870077-407)
10. CHAUVEL, A-M / BUREAU VERITAS - *Links Between the ISM Code and ISO 9002 Standard. In: IBC Legal Studies and Services Ltd Achieving Safety at Sea : Practical Strategies for Implementing the ISM Code - Conference (14-15 October 1996 : London)*. London : IBC Legal Studies and Services Ltd, 1996
11. Documents of Compliance Issued under the Provisions of the International Safety Management (ISM) Code. 1999 (IMO Doc. MSC/Circ.927 & MEPC/Circ.359)
12. Guidance to Companies Operating Multi-Flagged Fleets And Supplementary Guidelines to Administrations. 1996 (IMO Doc. MSC/Circ.762)
13. Guidelines on Implementation of the International Safety Management (ISM Code) by Administrations. (Assembly Resolution A 788(19)).
14. Guy E. C. Maitland *Maritime Activity Reports, Inc. 118 E. 25th Street New York, NY*.
15. Implementation of the International Safety Management (ISM) Code : Resolution A.848(20). London : IMO, 1997 (IMO Doc. A 20/Res.848)
16. Implementation of the International Safety Management (ISM) Code by 1 July 2002 : Resolution A.880(21) adopted on 25 November 1999. London : IMO, 2000 (IMO Doc. A 21/Res.880)
17. Implementation of the International Safety Management (ISM) Code by 1 July 2002. (IMO Doc. MSC/Circ.881) <http://www.imo.org/imo/circs/msc/70/list.htm> . Accessed on 17 December 2000.

18. Implementation of the International Safety Management (ISM) Code. 1996 (IMO Doc. MSC/Circ.771) available in E, F and S