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ANALYSIS OF THE TURKISH SHIPPING COMPANIES SAFETY MANAGEMENT SYSTEM (SMS) AUDIT RESULTS CONDUCTED BY THE IACS MEMBER CLASSIFICATION SOCIETIES IN TURKEY

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TÜRKİYEDEKİ DENİZCİLİK ŞİRKETLERİNE IACS ÜYESİ KLAS KURULUŞLARI TARAFINDAN YAPILAN ŞİRKET EMNİYET YÖNETİM SİSTEMİ DENETLEME SONUÇLARININ DEĞERLENDİRİLMESİ
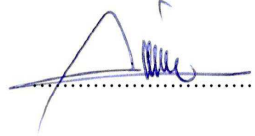
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To the sailors who lost their lives at sea and the Heros who saved the sailors

lives at Sea ....

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ABSTRACT

ANALYSIS OF THE TURKISH SHIPPING COMPANIES SAFETY MANAGEMENT SYSTEM (SMS) AUDIT RESULTS CONDUCTED BY THE IACS MEMBER CLASSIFICATION SOCIETIES IN TURKEY

The aim of this study is to investigate the safety management systems (SMS) of Turkish shipping companies in light of the company SMS audit results which are conducted by the respective classification societies. The final aim of the study is to define deficiencies in the safety management system in particular in the organization and management issues in the light of modern management approaches and systems and finally to produce proposals to improve the quality of the safety management to meet existing and future requirements.

The International Safety Management (ISM) Code covers the safe operation of ships and for pollution prevention adopted by the IMO. With the entry into force, on 1 July 1998 to the SOLAS which introduced a new chapter IX into the convention, the ISM code was made mandatory. 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. Shortly the ISM system is set of procedures which should be applied by shipping companies and their ships. The SMS audit is an inspection conducted class societies authorized by flag states to ensure company operation is in line with ISM procedures.

The study consisting evaluation of the collected information from class societies, ensuring the reliability of the findings, discussion on the findings to obtain results and subsequently production of the proposals to overcome the deficiencies related to defined problem areas.

This study is a baseline for the further studies which may provide more precise information to promote the management systems of Turkish Shipping companies.

ÖZET

TÜRKİYEDE Kİ DENİZCİLİK ŞİRKETLERİNE IACS ÜYESİ KLAS KURULUŞLARI TARAFINDAN YAPILAN ŞİRKET EMNİYET YÖNETİM SİSTEMİ DENETLEME SONUÇLARININ DEĞERLENDİRİLMESİ.

Tezin amacı, Türk denizcilik şirketlerinin Emniyet Yönetimi Sistemlerini (EYS) Türkiye'deki IACS üyesi klas kuruluşları tarafından yapılan şirket EYS denetleme sonuçları altında incelemektir. Çalışmanın nihai amacı, modern yönetim yaklaşımları ışığında organizasyon ve yönetim konularında özellikle emniyet yönetimi sisteminin eksikliklerini tanımlamak, nihayet mevcut ve gelecekteki ihtiyaçları karşılamak, emniyet yönetimi kalitesini artırmak için öneriler üretmektir.

Uluslararası emniyet yönetimi kodu (ISM Code), denizde kazaların sebep olduğu can kayıpları ve çevre kirliliğini önlemek amacıyla IMO tarafından 1998 yılında SOLAS IX. Bölümü olarak eklenerek uygulaması zorunlu hale getirilen bir koddur.

Kodun hedefi; denizde emniyeti sağlayarak yaralanma ve can kaybı ile başta çevreye, deniz ortamına ve mala gelecek zararların önlenmesini sağlamaktır.

Özetle, ISM Kodu denizcilik işletmelerinde ve gemilerde uygulanması zorunlu emniyet yönetimi prosedürlerinin bütünüdür.

EYS denetlemeleri, bayrak devletinin yetkilendirdiği klas kuruluşları tarafından yürütülen ve denizcilik şirketlerinin ISM prosedürlerine uygun olarak işletme yaptıklarından emin olmak için yapılan denetleme işlemidir.

Çalışmada klas kuruluşlarından alınan bilgilerin değerlendirilmesi, bulguların güvenilirliğinin sağlanması, bulgular üzerinde tartışarak sonuçlar elde edilmesi ve tanımlanan sorun alanlarına ilişkin eksikliklerin/hataların giderilmesine yönelik önerilerde bulunulması esas alınmıştır.

Bu çalışma, Türk denizcilik şirketlerinin yönetim sistemlerini geliştirmeye yarayacak daha kesin bilgi sağlamaya yönelik müstakbel çalışmalar için bir basamak oluşturmaktadır.

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LIST OF SYMBOLS /ABBREVIATIONS

ABS	American Bureau of Shipping
BV	Bureau Veritas
CCS	China Classification Society
CRS	Croatian Register of Shipping
CS	Classification Society
DNC	Downgraded Non Conformity
DNV	GL Det Norske Veritas Germanischer Lloyd
DOC	Document of Compliance
DPA	Designated Person Ashore
DWT	Deadweight Tonnage
EC	European Union Adapted Council
EYS	Emniyet Yönetimi Sistemi
GISIS	Global Integrated Shipping Information System
GRT	Gross Tonnage
HR	Houman Resources
IACS	International Assosiation of Classification Society
ICS	International Chamber of Shipping
IMEAK	Istanbul, Marmara, Eagean, Mediterrenean and Black Sea Chamber of Shipping
IMO	International Maritime Organisation
IRS	Indian Register of Shipping
ISL	Institute of Shipping Economics and Logistics
ISM	International Safety Management
ISPS	International Ship and Port Facility Security
KR	Korean Register of Shipping
LR	Lloyd's Register
MNC	Major Non Conformity

MSC/Circ.	IMO Maritime Safety Committee Circular
NC	Non Conformity
NK	Nippon Kaiji Kyokai (ClassNK)
PRS	Polish Register of Shipping
PSC	Port State Control
RINA	Registro Italiano Navale
RO	Recognized Organisation
RS	Russian Maritime Register of Shipping
QHSE	Quality, Health, Safety & Environmental
QS	Quality & Safety
SMC	Safety Management Certificate
SMS	Safety Managenet Sytstem
STCW	Standards of Training Certification and Watchkeeping
TL	Turkish Lloyd
TQM	Total Quality Management System

1. INTRODUCTION

Today commercial ships can be inspected by port states, flag states, insurers or cargo related parties due to various reasons. However, as specified in the ISM code, the shipping companies can be inspected regularly (i.e annually) only by administration or class societies who are organizations recognized by administration. This regular inspection is called as company SMS audits.

The aim of this study is to investigate and define the problem areas of the safety management systems (SMS) of Turkish shipping companies in light of the company SMS audit results which are conducted by the respective classification societies in Turkey. In order to achieve this aim we have to overviewe the ISM code and Class societies' role on the shipping sector.

With the entry into force, on 1 July 1998 of the 1994 ammenments to the SOLAS which introduced a new chapter IX into the convention, the ISM code was made mandatory. In order to apply ISM Code, every company should establish, develop, implement and maintain a safety management system. The company should ensure that the policy is implemented and maintained at all levels of the organization, both ship-based and shore-based (ISM Code 2.2.2.).

The ship should be operated by a company which is holding a Document of Compliance (DOC) (ISM Code 13.1), the DOC should be issued by the administration to any company complying with the requirement 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.

The validity of a DOC should be subject to annual verification by the Administration or by an organization recognized by the administration (ISM Code 13.4). The classification societies which conducts above mentioned verification with company SMS auidts, classification societies do not hold information only about companies but have full survey

records and information about their ships. The classification societies keep full survey records of all ships which they classify. These records will list all the surveys passed with the date during the current cycle, together with all surveys yet to be passed with the dates when they fall due. The records will also list all repairs done under class requirements and all current "recommendations" for future repairs. These records are of great importance to a potential buyer of any second-hand ship and are usually inspected at quite an early stage in negotiations (ICS, 2006).

So class societies are the most suitable authority to make a reliable and throughout assessment on safety implementation of the company. When valuation is conducted for ship sales one of the important element is the record of the class surveys. Therefore all audits/inspection records have great importance and consequently economic value in maritime industry. This is not to say that other maritime professionals such as bankers, insurance brokers and lawyers do not have an idea of a vessel's value but, logically, when values on based on an ever changing market, those directly involved are better placed to make a judgement (Givan, 2014).

Today Turkish merchant vessels' fleet reached to 30.4 million DWT. This value is actually ranking Turkey to the 13th among the countries of world's largest commercial fleet (IMEAK, 2017). These values also prove that Turkish shipping companies are significant actors in the world maritime sector. Accordingly, Turkish shipping companies' SMS audit results can bring us general overviewing of the global maritime sector's safety management systems. This study also can be baseline for the future studies which may compire between the worldwide shipping companies and Turkish shipping companies safety management system implementations.

1.1. General Overview of the Turkish Shipping Companies

At the beginning of the year 2014 Turkish commercial fleet tonnage under foreign flags has reached up to 21 million DWT, as of 1 January 2014, concerning the ships of 1000 Grt and above, the total tonnage of the Turkish shipowners,   both under Turkish flag and foreign flags reached   30.4 million DWT. As of the beginning of 2014, regarding the

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Turkish Ship owners' ships of 1000 GRT and above, 28.2 % percent of these ships are registered under Turkish flag and 71.8 %   are registered under foreign flags (IMEAK, 2014). Table 1.1. Shows the Turkish Merchant fleet

Table 1.1. Turkish Ships under the National Flag and Foreign Flags (1000Grt and over)

(1000 GRT and above)								
Years	National Flag			Foreign Flag			Total Fleet Controlled	
	No	1000 DWT	%	No	1000 DWT	%	No	1000 DWT
1998	427	8.349	95,82	35	364	4,18	462	8.713
2002	451	7.815	83,77	117	1.514	16,23	568	9.329
2006	432	6.844	65,47	353	3.609	34,53	785	10.453
2010	560	7.246	42,1	665	9.954	57,9	1.225	17.201
2014	**599**	**8.580**	**28,2**	**890**	**21.846**	**71,8**	**1.489**	**30.427**

Source: ISL January-February 2014

This value is actually, ranking Turkey to the 13th, among the countries which are known to be world's largest commercial fleet and significant actor in World maritime sector. Table 1.2. shows the first 30 countries which own the largest merchant fleet in the world.

Table 1.2. Total Fleet of the 30 countries by National and Foreign Flags (01 January 2014)

Country	National Flag				Foreign Flag				Controlled Fleet			
	No	1000 dwt	1000 TEU	Ave Age	No	1000 dwt	1000 TEU	Ave Age	No	1000 dwt	1000 TEU	Ave Age
Greece	616	73.737	198	13,4	3.173	208.463	1.267	11,1	3.989	282.200	1.465	11,5
Japan	691	17.626	13	12,6	3.414	217.745	1.388	7,1	4.105	235.370	1.401	8
China	2.241	70.358	559	12,4	2.329	114.086	776	12,4	4.570	184.444	1.336	12,4
Germany	333	15.882	1.151	12	3.478	111.095	4.760	9	3.811	126.976	5.911	9,3
Korea	693	15.851	95	8	902	67.575	567	10	1.595	83.425	662	13,4
Norway	513	15.467	72	17,8	1.048	41.938	243	13,8	1.561	57.405	315	14,3
Singapore	736	28.857	653	15,3	558	22.567	204	16,2	1.561	57.405	315	14,3
USA	194	4.318	74	8,6	836	43.319	157	13,8	1.294	51.424	857	11,9
Taiwan	88	3.807	87	23,1	756	43.725	858	10,6	1.030	47.637	232	15,6
Denmark	330	13.459	683	12,8	572	27.677	788	9,5	844	47.532	945	11,2
Italy	553	17.752	75	13,6	483	23.312	965	11,8	902	41.136	1.471	10,7
Hong Kong	424	25.633	412	7,1	265	8.005	59	16,4	689	33.637	471	10,7
Turkey	**599**	**8.580**	**91**	**18**	**890**	**21.486**	**101**	**17**	**1.489**	**30.427**	**192**	**17,4**
India	400	13.974	23	12,6	151	9.121	10	11,6	551	23.095	33	12,3
Total 30 Countries	13.355	385.820	5.178	15,3	21.428	1.110.672	13.443	11,2	34.783	1.496.492	18.621	12,8

Source: ISL January February 2014

Above scale shows that. 94 % of the World fleet of 1, 5 billion DWT, is being controlled by the listed countries as of 1 January 2014. (1000 GRT and over)

Ship management companies fall into following two main categories;

(i)   Ship-owning company that manages its own ships and offers the same services to the other ship owners.

(ii)   The other types are companies that have no ships of their own and solely provide ship management services to the ship owners

Whichever type it is, the function is the same and falls under five main headings (ICS, 2006, p.65). Ship Management core task shown in figure 1.1.

Figure 1.1. Core tasks of ship management (Source Fraunhofer CML & GL)

Other services such as training and consultancy may also be offered.

Turkish shipping companies are generally ship-owning companies and deals with technical management only. A few technical management companies have been established and the number of such companies is increasing.

The Turkish shipowners generally operate their ships under convenient flags or Turkish second registration. The economic data for ship owners therefore is not reflected in the economic figures of the country and their real economic value is not known. The Turkish shipping companies introduce generally a picture of family business type organizations. The management boards of these companies are generally consisted of family members. Because of work and non-work lives are so intermingled, relations between individuals can affect business practices and decisions in the family type small business. Many who start small firms hope to build a business that can be turned over to a son or a daughter. Yet the younger generation may have different career aspirations and plans and do not ever want to work in the family business (Demirel, 2015). When a business is passed on from one generation to another, there is a high probability that it will not be successful (Mathis and Jackson, 1988).

The beginning of the third millennium was a golden era for Turkish shipping. The high freight rates encouraged the shipowners to enhance and renew their fleet. Old ships have been decommissioned, scrapped or sold and subsequently new, modern and bigger ships have entered service. The same efforts have been spent to improve shipyards and ports. Most importantly private sector agreed to applied higher standards as required in the new world order. Many maritime education institutes have been opened to support this modern fleet. The economic crisis in the 2008 has created a negative impact on the shipping industry. The sector has been badly influenced from the crisis but achieved to survive. Recently, in 2015 maritime economic crises start again and still continue, shipping companies try to survive in this sector.

However, today international rules and related inspection and surveys such as, port state controls, flag state implementations, class surveys, P&I surveys create a positive impect to contribute development of the Turkish shipping. Especially in ISM Code there is

a direct implementation regarding responsibilities and authority, safety and environmental protection policy for shipping companies.

1.2. The ISM (International Safety Management) Code

The ISM Code was adopted by the IMO as Resolution A.741 (18), in November 1993. It came into force on 1 July 1998 through SOLAS Chapter IX, ''Management for the Safe Operation of Ships''. The ISM Code provides an international standard for the safe management and operation of ships and for pollution prevention (ISM Code, 2014).

The origins of the ISM Code go back, internationally, to the late 1980s when there was mounting concern about poor management standards in shipping(ISM Code, 2014). It is estimated that a high proportion of maritime accidents (80%–90%) are attributable to human error (Coek, 1998). Poor results caused by marine accidents are the main factors that led to the adoption of the ISM code, According to the OECD's 1991 report during the period from 1967 until 1989; it was the seventysix tanker accidents (Tütüncü, 2004). Investigations into accidents highlighted shortcomings on the part of ship management both at sea and ashore. In 1987 the IMO Assembly adopted Resolution A.595 (15) which called upon the Maritime Safety Committee to develop guidelines concerning shipboard and shore-based management to ensure the safe operation of roll-on/roll-off (Ro-Ro) passenger ferries. The tragic loss of the Herald of Free Enterprise in 1987 was a catalyst in this process. The ISM Code seeks to address the human element of ship operations (MCA, 2015). 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 (ISM Code, 1.2.1.).

After the loss of the Estonia in 1994 the Council of the European Union adopted Council Regulation (EC) No. 3051/95 of 8 December 1995 on the safety management of roll-on/roll-off passenger ferries. From 1 July 1996 this Regulation made compliance with the ISM Code mandatory for seagoing passenger Ro-Ro ferries operating a regular service to or from a port of an EU Member State. The Merchant Shipping (ISM Code) (Ro-Ro Passenger Ferries) Regulations 1997 (S.I. 1997 No. 3022) provide for the enforcement of

this Council Regulation. At the Conference of Contracting Governments to the 1974 Safety of Life at Sea (SOLAS) Convention, held in May 1994, a new chapter (Chapter IX) was added to the Convention which made compliance with the ISM Code mandatory, from either 1 July 1998, or 1 July 2002 depending on ship type. The ISM Code itself was adopted on 4 November 1993 under Resolution A.741 (18) (MCA, 2015).

The ISM Code requires that companies establish safety objectives as described in section 1.2 (Objectives) of the Ism Code and, in addition, that companies develop, implement and maintain a safety management system which includes functional requirements as listed in the Code's section 1.4 (Functional requirements for safety management system) (ISM Code. 1.1.3).

The objectives of the ISM Code are to ensure safety at sea, prevention of human injury or loss of life and the avoidance of damage to the environment, in particular to the marine environment and to property (ISM Code, 1.2.).

Safety management objectives of the company should inter alia (ISM Code, 1.2.1);
- Provide for safe practices in ship operation and safe working environment
- Assess all identified risks to its ships, personnel and the environment and establish appropriate safeguargds
- Continuously improve safety management skills of personnel ashore and aboard ships, including preparing for emergencies related both to safety and environment protection

In order to comply with the above requirements of the ISM Code every company should develop, implement and maintain a safety management system (SMS).

The application of the ISM Code should support and encourage the development of a safety culture in shipping. Success factor for the development of a culture that promotes safety and environmental protection are, inter alia, commitment, values, beliefs and clarity of the safety management system (ISM Code, 1.1.4.).

The ISM Code is expressed in broad terms and based on general principles and objectives. This provides companies with the scope to develop their own safety management system (SMS) whilst meeting the provisions of the ISM Code. The Code imposes no prescriptive measures and takes a holistic view of a company and the way in which it operates its ships.

1.2.1. ISM Related Deficiencies in Ships

Port State Control (PSC) has been found to be a very effective tool in reducing the number of substandard ships as well as improving maritime safety and pollution provention. There has been a significant increase in PSC activity worldwide in concert with a number of amendments to relevant international conventions. PSC inspection procedures have been improved to cover not only a ships' hardware or documents, but also the operational requirements of the relevant conventions or shipboard maintenance under the ISM Code (Class NK, August 2014).

Following study preapred based on the Best Practice Ship Management study 2013 which is conducted by Fraunhofer CML and GL experts a study involving about 100 world wide ships managening companies across the globe to find out what they are doing to improve their operations and what they consider as best practice in the industry. (GL, Fraunhofer CML, 2013)

With regard the PSC statistics, deficiencies shown in figure 3.3 and listed below;

- Fire safety measures %19
- ISM related deficiencies %15
- Life Saving appliances %13
- Propulsion & Auxilary machinery % 13
- Stability, structure & related equipment %9
- Safety of Navigation % 8
- Marpol Annex 1 %7
- Ship Certificates & Documents % 6

- Load Lines % 5

- Solas Related operational deficiencies % 5
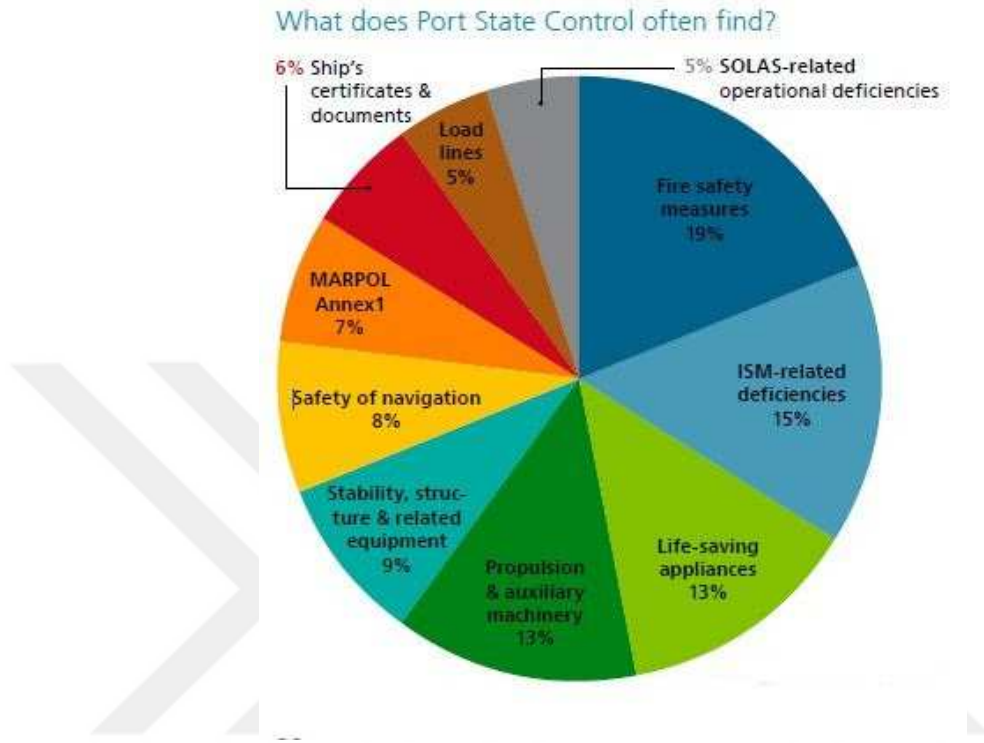
Figure 1.2.Port State Control findings (Source DNV, Jan 2012)

With regard to above, the lack of fire safety on board remains in first place and contributes to every 5th detention of vessel in port, ISM related deficienses in second place with 15 percentages of the deficienses observed by PSC authorities. It's clearly prove that ISM implementation have valuable defective area on ships. Ships are the mirror of the shipping companies; accordingly there is a huge connection with ship safety management system and company safety management systems. In order to evaluate ISM implementations on the shipping companies, the company SMS audit results should be evaluate , this thesis assist to compare also ship and shore SMS defecting areas vice versa.

1.2.2. The Safety Management System (SMS)

The ISM Code requires owners and operators of ships to put in place a Safety Management System (SMS). The safety management system should ensure that compliance with mandatory rules and regulations; and that applicable codes, guidelines and standards recommended by the organization, administrations, classification societies and maritime industry organizations are taken into account (ISM Code, 1.2.3).

Every Company should develop, implement and maintain a SMS which includes the following functional requirements (ISM Code, 1.4).

- a safety and environmental protection policy;
- instructions and procedures to ensure safe operation of ships and protection of the environment in compliance with relevant international and flag State legislation;
- defined levels of authority and lines of communication between and amongst, shore and ship board personnel;
- procedures for reporting accidents and non-conformities with provisions;
- procedures to prepare for and respond to emergency situations; and
- procedures for internal audits and management reviews

The duty on every individual involved in the operation of the ship both ashore and afloat, including those involved in the highest levels of management should be identified and documented so that all employees will be more serious in fulfilling their responsibilities with realizing the importance of the system and is intended to encourage them to feel themselves as part of a safety management system (Wohrn, 2005) besides, also one of the issues brought to the agenda of marine accidents, between company staff and ships' crews involved with office management is a lack of communication in nature to pose a security risk (Parker, 2005), therefore, to provide a connection with the office and ship the best way to easily access a person should be appointed to the top management is another issues of the raised in the ISM content (Gürses, 2005). Most important task in ensuring the ISM code compliance falls ship owners and managers. Each disaster actually

happened "to have the appropriate modern ships meet international safety requirements is not enough, all the efforts of the company and the company should focus on the management system" gives the message (Gürses, 2005). As a result of concretely demonstrated how effective the research reports is that the human factor in maritime accidents, Unlike the previous regulation, the responsibility for safe management of the duties and responsibilities clearly defined management of the ship is connected to more stringent rules. The company's onshore organization, such as the organization onboard certified in terms of quality and security management, must be qualified and well-trained seafarers (Diestel, 2002). (Güner, 2000) states that the education system and standards is vital to ensure the quality of seafarers.

ISM Code determines the general terms of safety implementations in ships and at shore, so that the companies may extend these implementations in their safety management system as per their previous experince and company/ship characteristic properties. In light of above, we can say that safety management system is constitution of ship and shore management on ensuring safe operation of overall management. The application of ISM Code is also assists the company to establish their overall Quality Management System.

1.2.3. Safety Management System (SMS) Audits

Annual safety management audits are to be carried out to maintain the validity of the Document of Compliance (DOC), and should include examining and verifying the correctness of the statutory and classification records presented for at least one ship of each type to which the Document of Compliance applies. The purpose of these audits is to verify the effective functioning of the safety management system, and that any modifications made to the safety management system comply with the requirements of the ISM Code (ISM Code, 4.4.1).

Company Safety management System audits consist of following five types;

1- Initial Audit: Shall be conducted to issue Documents of Compliance for a company for the first time.

2- Interim Audit: Shall be conducted to issue an interim Document of Compliance for a newly established company or a company newly implementing its safety management system (SMS) who has not operated its SMS for three months or more, or to issue an interim DOC for a company to add new ship type(s) which are not stated on the existing DOC.

3- Annual Audit: Shall be conducted every year between three months before and after each anniversary date.

4- Renewal Audit: Shall be conducted within three months before the expiry date of the existing Document of Compliance.

5- Additional Audit: Shall be conducted to verify effective actions are taken for major non-conformities as necessary, and whenever needed.

In this study we have obtain the annual audit results which are regularly carried out by classification societies for every shipping company annually. Annual Audit is to be carried out within three months before or after the anniversary date of the Document of Compliance(ISM Code, 4.4.2). The audits have showed that what is written in the procedures actually takes place in practice and that there is evidence of this (ICS, 2006).

Purposes of Company SMS audits are to verify compliance of with the requirements of the ISM Code and, through the verification, to support and encourage companies in achieving safety management objectives, which are;

- to provide for safe practices in ship operation and a safe working environment;
- to establish safeguards against all identified risks; and
- to continuously improve the safety-management skills of personnel ashore and aboard.

The company should submit a request for audit to the Administration or to the organization recognized by the Administration for issuing a Document of Compliance on

behalf of the Administration (ISM Code, 4.9.1). Class Societies are the recognized organizations who are mentioned above paragraph.

As a basis for planning audit, the auditor should review the safety management manual to determine the adequacy of the safety management system in meeting the requirements of the ISM Code(ISM Code, 4.10).

The scope of the audit is to cover all areas of the SMS, and principally is to verify if the SMS is being properly implemented or not. There are total 12 Implementations in the ISM Code Part A, which are based on the safety management system audits. Followings are the ISM Code Implementation definitions;

- Implementation 1 (Objectives and Application)
- Implementation 2 (Safety and environmental-protection policy)
- Implementation 3 (Company responsibilities and authority)
- Implementation 4 (Designated person(s))
- Implementation 5 (Master's responsibility and authority)
- Implementation 6 (Resources and personnel)
- Implementation 7 (Shipboard operations)
- Implementation 8 (Emergency preparedness)
- Implementation 9 (Reports and analysis of non-conformities, accidents and hazardous occurences)
- Implementation 10 (Maintenance of the ship and equipment)
- Implementation 11 (Documentation)
- Implementation 12 (Company verification, review and evaluation)

The auditor should review the relevant safety performance records of the company and take them into consideration when preparing the audit plan, for example, flag state records, prot state controls, and class and accident reports(ISM Code, 4.11.1). The audit should start with an opening meeting in order to introduce the audit team to the company's senior management, summarize the methods for conducting the audit, confirm that all agreed

facilities are available, confirm time and date for a closing meeting and clarify possible unclear details relevant to the audit(ISM Code, 4.12.1).

The standard duration for an annual audit shall be usually "2 man-days" (i.e. 2 auditors x 1 day or 1 auditor x 2 days). In the case of a Company where the number of relevant employees who carry out or have responsibility to the SMS of the Company ashore are twenty or less, the duration for the Annual Audit may be reduced to "1 man-day" (i.e. 1 auditor x 1 day), provided the Company is free from PSC detention and/or marine casualty after the previous Company Audit and there are no NCs to be verified (Class NK, 2015).

At the end of the audit, audit findings should be documented. After activities have been audited, the audit team should review the objective evidence collected. This should then be used to determine what is to be reported as major non-conformities, non-conformities or observations, and should be reported in terms of the general and specific provisions of the ISM Code (ISM Code, 4.12.4). The audit report should be prepared under the direction of the lead auditor, who is responsible for its accurancy and completeness (ISM Code, 4.13.1). The audit report should include the audit plan, identification of audit team members, dates and identification of the company, and observations on any non-conformities and on the effectiveness of the safety management system in meeting the specified objectives (ISM Code, 4.13.2).

Company safety management system audit results are the subject of this study, because of that, steps of the annual audits are detailed and main parts of the audit extract from ISM code in above paragraphs, shortly we can describe as annual audits are mirrors of the shipping companies. In addition the above detailed paragraphs we can divide the annual audits three phases which are determinate time basis as before the audit, while auditing and after the audits. Before the annual audits, can be defined as audit preparedness which is company internal preperations for documentations and all related departments in shipping companies. The second step is annual audit, detailed in the above chapter and finally third step is after audit subject to audit findings which will mentioned as audit finding will be defined on the next chapter.

1.2.4. SMS Audit Findings

Audit findings fall into three categories, which are detailed as follows;

1- Observation

An observation means a statement of fact made during a safety management audit and substantiated by objective evidence(ISM Code, 1.1.8). The Company is not liable to provide evidence of the corrective action taken for an observation.

2- Non-Conformity (NC)

Non-conformity means an observed situation where objective evidence indicates the non-fulfilment of a specified requirement of the ISM Code(ISM Code, 1.1.9). Non-conformity should be normally closed out within three months from the date of the audit.

When NCs are found, a certificate may be issued or be endorsed, provided the submission of a Corrective Action Plan within two weeks is agreed, which indicates a schedule not exceeding three months. In this case, the Certificate shall become invalid if the Corrective Action Plan is not submitted within two weeks. Otherwise, in cases of Audit for issuing an Interim DOC or Interim SMC, Certificates shall not be issued when a NC is found (Class NK, 2015)

3- Major Non-Conformity (MNC)

A major non-conformity means an identifiable deviation which poses a serious threat to the safety of personnel or the ship or a serious risk to the environment that requires immediate corrective action or the lack of effective and systematic implementation of a requirement of the ISM Code(ISM Code, 1.1.10).

When MNC is found, no Certificate may be issued nor be endorsed. However, if the MNC is corrected or downgraded to downgraded non conformity (DNC) during the audit, DOC shall be issued or be endorsed. In this case, however the certificate shall become invalid, unless an Additional Audit is undertaken within three months, at the Company or onboard, to verify effective actions have been taken (Class NK, 2015).

In order to summirize the audit results above definition should be use in final report. In this study we have considered the above definitions and surveyed the annual SMS audit results. Observations, Non-Conformities and Major Non-Conformities are the results of the audits and directly effects to issuance of Document of Complieance (DOC) which is vital certificate, a Document of Compliance (DOC) shall be issued to every company which complies with the requirements of the ISM Code.

Certification is thus essential to shipowners, who must ensure that their vessels maintain the appropriate safety and seaworthiness standards as set by the classification societies own rules, as well as by national laws and international conventions, in order for their vessels to remain in class, and consequently, remain insured. A vessel can simply not operate without being certified by a classification society, since classification is an absolute prerequisite for ship registration and insurance cover.

1.2.5. Certificate issued to Shipping Companies as per ISM Code

Certificates, which will be issued to a Company is Document of Compliance (DOC). DOC shall be issued to every company which complies with the requirements of the ISM Code. This document shall be issued by the administration, by an organization recognized by the administration, or at the request of the administration by another contracting government (ISM Code, Regulation 4). The ship should be operated by a company which has been issued with DOC or an Interim DOC (ISM Code, 13.1).

Period of DOC specified by the administration not exceed five years. The DOC 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 (ISM Code, 13.3). The validity of a DOC 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 month before or after the anniversary date (ISM Code, 13.4).

The DOC 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 (ISM Code, 13.5). All associated safety management certificates and/or interim safety management certificates should also be withdrawn if the DOC is withdrawn (ISM Code, 13.5.1)

DOC(s) shall be issued to a company by the flag state government or the head office of class societies under the authority of the flag state government DOCs shall be endorsed upon the successful completion of an annual audit. In the above paragraphs mentioned recognized organizations are classification societies in Turkey. The original of DOCs shall be kept at the Company and a copy of the DOC, relevant to the ship and endorsed for the annual audit, shall be placed on board of each ship covered by the SMS. When a company manages a plural flag fleet, a plural number of DOCs shall be issued. (Class NK ISM Handbook, 2015).

For the shipping companies, DOC is first of the vital certificate. Shipping companies business life depends of the validity of the DOC accordingly DOC/SMS audits are the vital audits for the shipping companies. The period of validity of a DOC valid five years from the last date of the initial audit subject to annual audit which is carried out by classification society. In order to well understand of the Class societies' role in the shipping sector we will overview the classification societies on the following phragraphs.

1.3. Classification Societies, their Historical Development, Role and Function

Classification Societies are often simply referred to as 'Class Societies' or just 'Class' (www.iacs.org.uk). Classification societies have been in existence for more than 200 years and have played a fundamental role in improving and securing safety in the maritime industry though their expert surveyors and their knowledge of vessels. These societies have developed rules and standards, through scientific research and by gathering empirical data over decades, which if followed will ensure that vessels are seaworthy and fit for their intended purpose (Miller, 1997).

In the second half of the 18th century, marine insurers, based at Lloyd's coffee house in London, developed a system for the independent technical assessment of the ships presented to them for insurance cover. In 1760 a Committee was formed for this purpose, the earliest existing result of their initiative being Lloyd's Register Book for the years 1764-1766 (IACS, 2005).The concept of classification slowly spread to other countries and insurance markets. Bureau Veritas (BV) was founded in Antwerp in 1828, moving to Paris in 1832. 'Lloyd's Register of British and Foreign Shipping' was reconstituted as a self-standing 'Classification Society' in 1834; Rules for construction and survey were published the same year.

RINA (previously Registro Italiano Navale) dates from 1861. American Bureau of Shipping (ABS) traces its origins back to 1862. Adoption of common Rules for ship construction by Norwegian insurance societies in the late 1850s led to the establishment of Det NorskeVeritas (DNV) in 1864. Germanischer Lloyd (GL) was formed in 1867 and Nippon Kaiji Kyokai (ClassNK) in 1899. The Russian Maritime Register of Shipping (RS) was an early offshoot of the River Register of 1913. More recent foundations have been Polish Register of Shipping (PRS) in 1936 Yugoslav Register of Shipping (now the Croatian Register of Shipping (CRS)), 1949 China Classification Society (CCS), 1956 Korean Register of Shipping (KR), 1960 and Indian Register of Shipping (IRS), 1975.

Every classification society has a dual role, that is on, the one hand to express its opinion mainly towards shipowners about the degree of their ships' compliance with the classification society's technical rules, while on the other, to execute a public service by ascertaining, on the basis of an authorisation by the flag state, the compliance of national ships with the national and international regulations in relation to the ships' safety and the issuance of relevant certificates (Antapassis, 2007). A classification society sets standards for the quality and integrity of vessels and performs surveys to determine whether vessels are in compliance with the classification society's rules and regulations, national laws and international conventions (Vaughan, 2006).

They are non – profit organizations that develop and publish rules and technical standards for the design, construction and evaluation of vessels. Flag states may authorize

classification societies to inspect ships on their registries and to issue the relevant statutory certificates on their behalf (EMSA, 2015). Both government administrations and private interests (such as shipowners and insurers) employ classification societies. As such they perform both public functions, under statutory authority as delegates of government, and private functions, as ship surveyors (Cane, 1994).

Neither charterers nor cargo interests will utilize vessels that are not in class and registered (Cane, 1994). Classification certificates are "widely relied upon by all sectors of the maritime industry as an indication that avessel is reasonably fit for its intended use" (Miller, 1997). Flag States can and very often do authorize classification societies to inspect and carry out statutory certification duties of the ships on their register (www.emsa.eu.int). Port States rely on classification societies to confirm that a vessel is in class before allowing a vessel to pass into their waters. Charterers, shipowners and P & I clubs rely on them to confirm that a vessel complies with international conventions andsafety standards (Starer, 2005).

Since classification societies also perform surveying and damage investigation, they are also involved with insurers, owners and charterers in carrying out these functions (Courtois, 2003). Cargo owners and potential purchasers may also rely on class certificates and surveys when deciding to use or buy a particular ship (Clark, 1991). Initially, the emergence of classification societies was due to the need to give the insurance market some reassurance as to the seaworthiness of vessels sought to be insured (Lord Donaldson of Lymington, 1998). Governments subsequently employed them for similar purposes to ensure compliance with international conventions such as MARPOL, SOLAS and Load Lines (Starer, 2005).

Governments which are parties to these conventions delegate statutory responsibilities to designated classification societies, which carry out these functions in their capacity as a Recognised Organisation (as defined by the International Maritime Organisation Assembly Resolutions A.73 (18) and A.789 (19)). As such they are an important component of the international maritime safety and pollution prevention regimes (IACS, 2005).

The initial weakness of classification societies as "guardians of ship safety" as identified by Lord Donaldson of Lymington was that they were paid by the shipowners and competed for business. Thus they needed to be less stringent than their competitors to stay in business. This led to the erosion of the standards which the societies applied for certification. There are currently approximately 50 classification societies which provide marine classification services – some of which are recognized within the industry to be of a better quality and standard than others. Lord Donaldson notes that this weakness has to a large extent been cured by the creation of the International Association of Classification Societies (IACS) which imposes and monitors the quality of its members work (L.M.C.L.Q, 1998)

SOLAS and the other International Conventions permit the flag administration to delegate the inspection and survey of ships to a Recognised Organization (RO). This is in recognition of the fact that many flag administrations do not have adequate technical experience, manpower or global coverage to undertake all the necessary statutory inspections and surveys using its own staff. The degree to which a flag state may choose to delegate authority to a RO (Class Society) is for each flag state to decide, with the authority granted being clearly identified in the relevant memoranda of understanding agreed between the Class Society and the Administration. In most cases the RO is empowered to require repairs or other corrective action to a ship and to withdraw or invalidate the relevant certificate if the necessary action is not taken (IACS, 2005).

The purpose of a Classification Society (CS) is to provide classification and statutory services (when authorised by flag Administrations or other governmental organisations) and assistance to the maritime industry and regulatory bodies as regards maritime safety and pollution prevention, based on the accumulation of maritime knowledge and technology so class societies are the most suitable authority to make a reliable and throughout assessment on safety implementation of the company. ISM Audits are main application of the class societies. Annual Audit is to be carried out within three month before or after the anniversary date of the Document of Compliance (DOC). Auditors of the class office having jurisdiction over the area of the company shall visit the company,

and shall conduct the audit. The scope of the audit is to cover all areas of the safety management system (SMS), and principally is to verify if the SMS is being properly implemented or not. SMS Audit findings are defined as Observation, Non-conformities and Major Non-Conformities. Mentioned definitions are results of the SMS survey. These foundings are also the main sources of our survey.

1.3.1. The International Association of Classification Societies (IACS)

IACS can trace its origins back to the International Load Line Convention of 1930 and its recommendations. The Convention recommended collaboration between Classification Societies to secure as much uniformity as possible in the application of the standards of strength upon which freeboard is based. Following the Convention, RINA hosted the first conference of major Societies in 1939 - also attended by ABS, BV, DNV, GL, LR and NK - which agreed on further cooperation between the Societies.

The International Association of Classification Societies, presently comprising 12 member societies which comply with the specified membership criteria. The Members are:

- ABS (American Bureau of Shipping)
- BV   (Bureau Veritas)
- CCS (China Classification Society)
- CRS   (Croatian Register of Shipping)
- DNVGL (Det Norske Veritas Germanischer Lloyd)
- IRS (Indian Register of Shipping)
- KR (Korean Register of Shipping)
- LR (Lloyd's Register)
- NK (Nippon Kaiji Kyokai) (ClassNK)
- PRS (Polish Register of Shipping)
- RINA (previously Registro Italiano Navale)
- RS (Russian Maritime Register of Shipping)

A second major Class Society conference, held in 1955, led to the creation of Working Parties on specific topics and, in 1968, to the formation of IACS by seven leading Societies. The value of their combined level of technical knowledge and experience was quickly recognised. In 1969, IACS was given consultative status with the International Maritime Organization (IMO). It remains the only non-governmental organization with Observer status which is able to develop and apply Rules.

Compliance with the IACS Quality System Certification Scheme (QSCS) is mandatory for IACS Membership. Full details of the scheme are available on the IACS website.IACS is governed by a Council, with each Member represented by a senior management figure. Under the Council is the General Policy Group (GPG), made up of a senior manager from each Member, which develops and implements actions giving effect to the policies, directions and long term plans of the Council. The Association maintains a Secretariat in London and Operations Centre in Southampton, UK (IACS, 2015).

The IACS Charter, Procedures, details of the work programme, technical resolutions and other publications are all available on the IACS website. The following definition applies in respect of the membership of IACS.

A Classification Society is an organisation which:

(i) publishes its own classification Rules (including technical requirements) in relation to the design, construction and survey of ships, and has the capacity to (a) apply, (b) maintain and (c) update those Rules and Regulations with its own resources on a regular basis;

(ii) verifies compliance with these Rules during construction and periodically during a classed ship's service life;

(iii) publishes a register of classed ships;

(iv) is not controlled by, and does not have interests in, ship-owners, shipbuilders or others engaged commercially in the manufacture, equipping, repair or operation of ships; and

(v) is authorised by a Flag Administration as defined in SOLAS Chapter XI-1, Regulation 1 and listed accordingly in the IMO database, Global Integrated Shipping Information System (GISIS).

Classification Societies' participation in IACS in its role as technical advisor to the IMO, gives them first-hand access to development of international regulatory instruments. It provides IACS member societies with a means to share such information with the industry, and to secure consistent implementation of the international mandatory conventions and codes as part of statutory services the societies perform under authorisation from the flag states.

1.3.2. Ship Classification Societies in Turkey

The ship classification organizations started to be active in the industry in 1940's when it is started to increase in ship tonnages. The main purpose of the ship survey organizations which are handling their operations through contracted surveyors, is to meet the requirements of the foreign flagged vessels classed under their organizations, in Turkey. The need of permanent organizations has begun to reveal in parallel with developments in maritime industry. For this purpose such organizations has begun to be organized in Turkey since the beginning of 1950's (User, 1962).

In the same period majority of Turkish vessels consisted of small ships less 30 meters in length. Those classification organizations located in Turkey has been reluctant to classify those small tonnages on the ground that costly and laborius undertaking, (Kalpsüz, 1965) therefore there was a gap in the area which is the actual needs of the existing Turkish fleet.

As a consequence of various efforts in order to fill the aforesaid gap, national ship classification organization Turkish Lloyd was founded in 1962. However, foundation of TL did not negatively affect international ship classification organizations' insterests on Turkish maritime industry. On the contrary the number of international classification organization which are active in Turkey have been increased in due course (Koyuncu, 2008).

Today, following 8 IACS member class organization carries out its activities in Turkey;

- ABS (American Bureau of Shipping)
- BV (Bureau Veritas)
- DNVGL (Det Norske Veritas Germanischer Lloyd)
- KR (Korean Register of Shipping)
- LR (Lloyd's Register)
- NK (Nippon Kaiji Kyokai) (ClassNK)
- RINA (previously Registro Italiano Navale)
- RS (Russian Maritime Register of Shipping)

RS and KR class have representatives as one surveyor in Turkey and they do not carry out SMS Company Audit in Turkey.

1.4. Resume

The safety at sea has utmost importance in the World shipping. The classification of the ships is one of the main elements within the maritime safety regime. Others with a responsibility for or interest in promoting maritime safety include shipowners, shipbuilders, Flag State Administrations, Port State Control authorities, underwriters, shipping financiers, charterers, and, of course, seafarers. The role of classification and Classification Societies has been recognized in the International Convention for the Safety of Life at Sea, (SOLAS) and in the 1988 Protocol to the International Convention on Load Lines.

The SMS audit results have great importance for shipping companiese.   SMS audits are described in ISM Code in detail and carried out by class societies. Thus "audit" and "auditor" (in other words " class surveyor") have strong relation with each other. The important role of class societies in conducting the SMS audits is very obvious.

The surveys and audits conducted by classification societies play a critial role to ensure safety at sea. They also play a significant role assist the flag states to ensure continous survey and supervision of the safety on board the ships.

The size of merchant vessels under Turkish ownership makes Turkey a significant actor in world maritime sector and ranked as 13th country among the world fleet. This situation leads us to make a carefull study on the Turkish shipping companies which controls a 30 Million DWT fleet.

The company SMS audits are also mirror of the ship audits and surveys. The companyy SMS Audit results which derived from this study will also help us to define the problem areas of overall Turkish shipping.

2. METHODOLOGY

2.1. Aim of the study

The aim of this study is to investigate and define the problem areas of the safety management systems (SMS) of Turkish shipping companies in light of the company SMS audit results which are conducted by the respective classification societies in Turkey.

2.2. The problem of the study and Method Applied

The main area of investigation is to evaluate the existing problem areas in the safety management system of the Turkish shipping companies in the light of SMS auidts conducted by authorized classification societies.

The following questions will be responded in the study;

- The common non-conformities and major non-conformities met in the SMS Audits.
- The important recommendations made by the classification societites.
- Evaluation of SMS Auidits to highlight main problem areas in the Turkish shipping companies.

The study is made in three steps;

- A literature study supported by a field study to realize the consept and principles of safety management system and the role of the classification societies in evaluation/assessment.
- A survey on the available SMS Audit reports conducted by classification societies in Turkey.
- Evaluation of survey findings to define the main problem areas supported by Pareto analysis. Then discucussion on the results to produce proposals.

2.3. Literature Review and Field Study

The literature study is conducted in the following order taking in the account the related documentation and reports.

- The existing thesis in the Higher Education Consile is reviewed. No thesis directly involved in this area is found. It is understood that this study will contribute the research on this specific area.
- The articles related to SMS classification societies' surveys/reports and ISM, ISPS Code and SOLAS are found to contribute this study.
- In order to realize the main bases of classification societies operation in Turkey face to face interviews with respective staff are conducted.
- Regulations, reccommendations, communiques and other official documentation safety management system applications are reviewed and the important details are noted.
- The fact that the results of SMS Audits are confidential and can not be delivered by classification societies. It is realized that a questionnaire would be suitable to collect this information keeping the respective organisations names confidential.

2.4. Survey (Questionnaires)

A survey has been prapered to collect information the questions stated in para 2.2. The survey contains the following issues which will provide answers to questions;

- Non-conformities and Major non-conformities are met.
- The basic recommendations made by classification socieities.
- Quantitive information on NCs, MNCs and recommendations.

The content of the survey is in Appendix 1.

The survey has been submitted to six IACS member classification societies in Turkey by e-mail, five out of six have responded. One of them has excused responding due to their company policy. The responses received from the participances are introduced in Appendix 2 to 6.

Obtained survey findings will be evaluated under the following headlines based on the twelve Implementation defined in ISM Code;

- Non-conformities,
- Major non-conformities
- Recommendations

The findings also will be tabulated based on frequency of reports and the frequency of reported class society.

Finally, obtained survey findings (non-conformities, major non-conformities and class recommendations) have been prepared for Pareto analysis to realize the important issues.

The findings will be discussed and evaluated to define results of the study. The results obtained will be realize possible consequences of discreapancies. At the end of this study, it is intended to introduce proposals which may provide significant issues to improve safety management system for Turkish shipping companies.

2.5. Pareto Analysis

This technique helps to identify the major portion of causes that need to be addressed to resolve the majority of problems. Once the predominant causes are identified, then tools can be used to identify the root causes of the problems. While it is common to refer to Pareto as "80/20" rule, under the assumption that, in all situations, 20% of causes determine 80% of problems, this ratio is merely a convenient rule of thumb and is not nor should it be considered immutable law of nature. The application of the Pareto analysis in

risk management allows management to focus on those risks that have the most impact on the Project (Litten, 2010)

In this study Pareto analysis is applied to define "important" survey findings on non-confiormities and class recommednations retrived from the companies' SMS audits. The results are grouped in accordance with twelve ISM implementation areas.

As per Pareto analysis rule "twenty percent of the causes determine eighty percent of problems" this study prove that main three ISM implementaions are caused the eighty percent of the problematic area in safety management system.

3. EVALUATION OF THE PROBLEM AREAS

In literally problem areas referred with non-conformities or major non-conformites which have been pointed out by the classification societies during the SMS audits, therefore a survey has been prapered to define problem areas of Turkish shipping companies' safety management systems (SMS) which contents of the SMS audit foundings as non-conformities and major non-conformities. Also in order to remendy above defined non-conformities and or major non-conformites class societies recommendations added in survey and this recommendations also indicate to problem areas in SMS accordingly.

The content of the survey is as in Annex 1. The responds from the classification cocieties are provided in the Annexes 2 to. 6. The information collected in the responds covers 155 Companies' SMS Audits accomplished by Five IACS member classification societies in 2015 in Turkey.

The quantitive information on the findings of questionaires are as follows;

- Total 25 cases non-conformities and major non-conformities were pointed out during the company SMS audits
- The avarage number of Non-conformities reported is 2 or 3 for each company.
- The average number of major non-conformities less then 1 for each companies, but these MNCs has been corrected or downgrdaed by companies during the audit period
- Only 2 of 155 companies DOC have been withdrawn as a results of the subject audits
- The recommendations were pointed out for reduce the number of non-conformities has been grouped as 10 major recomendations

The survey results will be analysed separately based on non-conformities including major non-confirmaties and class recommendations.

3.1. Analaysis of the Non-conformities and Major Non-conformities

As per survey results, following listed 25 case non-conformities (NC) and Major Non- Conformities (MNC) were pointed out during the company SMS audits in annually. These cases are indicating the problem areas of the SMS.

A relation is established with non-conformaties and Implementations in the ISM code to make a reasonable caomparison. In order to analysing the obtained survey datas, reported NC(s), MNC(s) and its relevant ISM Implementation definitions are listed in the Table 3.1 on this bases. Someparticular cases are indicating more then one or two ISM Implementation area.

In the Table 3.1 the left side of the list shows that non-conformities and major non-conformities derived from survey. Right side of the list shows that related implementation areas of the non-conformities or major non-conformities as defined ISM Code Part A- Implementation.

Table 3.1. List of Non Conformities (NC) and Major Non Conformities (MNC)

	Non-Conformities and Major Non-Conformities	ISM Code Implementation
1	Fleet vessel's detention related with ISM Code items	Imp.1
2	Sea accident	Imp.1
3	Risk assesment procedure in place was not always followed by the crew	Imp. 1, 6, 7
4	Lack of Requisitions management	Imp. 1, 7, 10
5	Re-occurence of previously imposed NCs	Imp.1,9
6	Noncompliance with new requirements	Imp.1,10
7	Noncompliance with specific requirments	Imp.1,10
8	Management review-action taken person, target date was not identified	Imp. 3, 4, 12
9	Lack/Missing Master's SMS Review	Imp.5
10	Lack of person awerness of the system	Imp.6
11	Lack of onboard training records	Imp.6,11
12	Lack of crew documents-records	Imp.6, 11
13	Lack of Shipboard operational procedures	Imp.7
14	Procedural incompliances	Imp.7, 9, 10
15	Preventive actions and learning point was missing for fleet ship's detention at xxxx port	Imp.9
16	Lack of Company feedbacks/Evaluations of the deficiencies, NCs and etc.	Imp.9,12
17	Lack of Maintenance	Imp.10
18	Missing certificates / flag endorsements	Imp.11
19	Lack of Documentation	Imp.11
20	Expired DOC or SMC	Imp.11
21	Audit request after due date	Imp.11,12
22	SMS Audits not conducted within the due range	Imp.11,12
23	Internal and external audit results, and investigation and analysis of non-conformities have not been included management review agenda as required by procedure	Imp.12
24	Efectiveness of system not evaluated with supporting feed back information	Imp.12
25	Company did not held inspections at appropriate intervals	Imp.12

In accordance with the above listed total case, the frequency of the NCs and MNCs and number of the class societies which reported this non-confirmities are shown in the Figure 3.1. Below figure shows that class societies and their referred implementations frequency shortly how many class societies referred to each implementations.
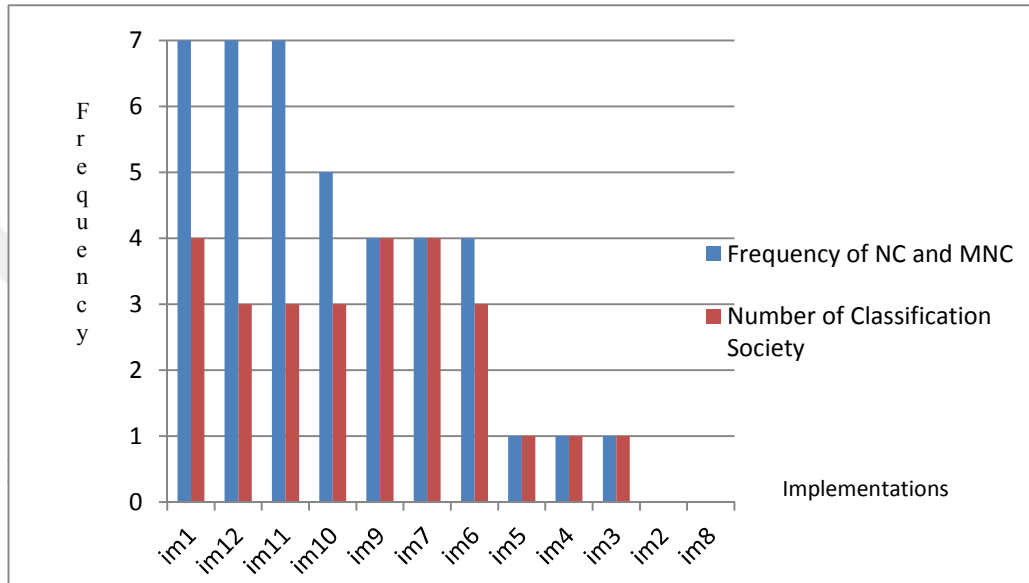
Figure 3.1. Frequency of NCs and MNCs and reported Class Societies

This survey result summarizes non-conformities identified by class surveyors carried out in various shipping companies in Turkey. Based on the survey findings, the survey results are assessed as sufficient to make a detailed analysis to obtain significant findings on the non conformities. Analysis of the above Table 3.1 and Figure 3.1 as follows;

- 4 Class Societies referred to Implementation 1 (Objectives and Application), Implementation 7 (Shipboard operations), Implementation 9 (Reports and analysis of non-conformities, accidents and hazardous occurences) on 15 non-confortiese case;

- 3 Class Societies referred to Implementation 6 (Resources and personnel), Implementation 10 (Maintenance of the ship and equipment), Implementation

11 (Documentation), Implementation 12 (Company verification, review and evaluation) on the 23 case

- 1 Class Society referred to Implementation 3 (Company responsibilities and authority), Implementation 4 (Designaed person), Implementation 5 (Master's responsibility and authority) on the 3 case;

The above findings show that the followings are the main problem areas which should be focused on. Details of the above implementations and related interpretation will be discussed in future chapter.

Implementation 1 (Objectives and Application),
Implementation 12 (Company verification, review and evaluation),
Implementation 11 (Documentation)
Implementation 10 (Maintenance of the ship and equipment)

3.2. Analysis of the Class Recommendations

Following survey results which extract from survey question to class societies "what is your recoomendation to reduce the number of non-conformities", listed in 10 case Class recommendations were pointed out.

 List of class recommendations and related ISM Code Implementation Definitions shown in the Table 3.2 Actually the root of the recommendations are the non-confirmaties and these are the supplementary explanations on the deficiencies. Therefore the recommendations should be considered as root cause of the non- conformaties. Same as the non-conformities list the left side of the recommendations list derived from survey and right side of the list shows that implementation areas of these recommendations.

Table 3.2. List of Class Recommandations

	Recommendations	ISM Code Implementation
1	Well established SMS manuals are required	Imp. 1
2	Increasing the awareness of company staff and all departments regarding ISM Code	Imp. 3, Imp 6
3	DPA's communication with other key staff and departments should be increased.	Imp. 4
4	Trainings should be continued regarding the ISM Code especially for the key staff who are responsible for ISM	Imp. 4, Imp 6
5	Provide Training for office staff and ship Crew	Imp 6
6	Efficient / Proper training, well maintenance, personel awareness need to be improved.	Imp 6, Imp 10
7	Training; implementation of company follow-ups; Efective internal audits by the company; Improvement / selection of high quality person should be provided.	Imp 6, Imp 12
8	Internal and external audit results should be focused and investigation and analysis of non-conformities are required.	Imp 9, Imp 12
9	Extra attention should be given to Management Reviews of the companies	Imp 12
10	More frequent vessel visits are needed.	Imp 12

In addition to above list the frequency of the class recommendations and the number of the class societies which reported these recommendations are shown in the Figure 3.2.
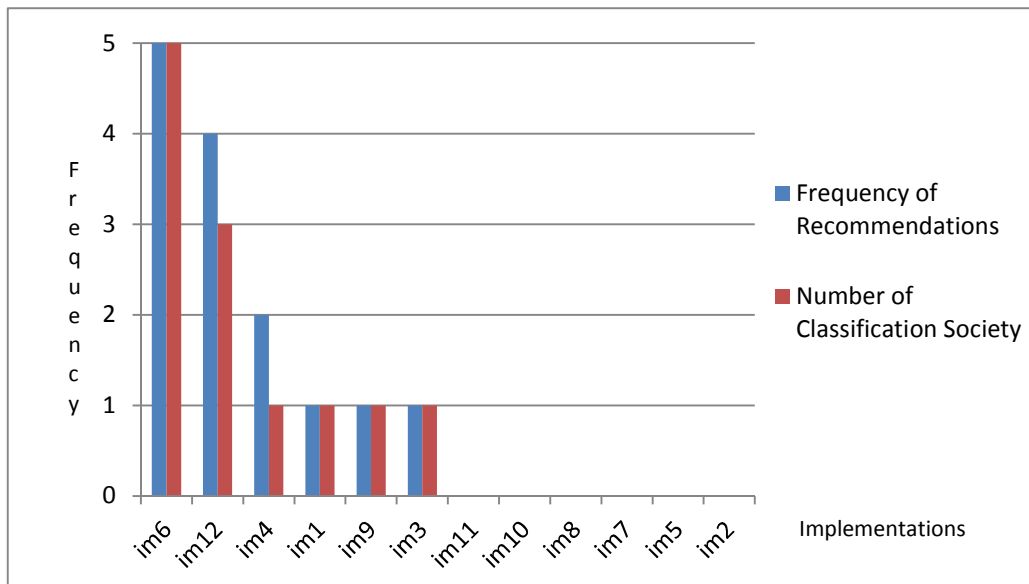

Figure 3.2. Frequency of Class Recommendations and reported Class Societies

Analysis of the above Table 3.2 and Figure 3.2 are introduced in the following paragraphs;

- 5 Class societies referred to Implementation 6 (Resources and Personnel) on 5 cases.
- 3 Class societies referred to Implementation 12 (Company veririfcation, review and evaluation) on 4 cases.
- 1 Class society referred to Implementation 4 (Designated persons) on 2 cases.
- 1 Class society referred to Implementatiom 1 (Objectives and Application), Implementation 3 (Company responsibilities and authority), and Implementation 9 (Reports and Analysis on non-conformities, accidents and hazardous occurences) on 1 case.

Above findings show that the classification societies have made recommandations mainly on the following areas;

Implementation 6 (Resources and personnel),
Implementation 12 (Company verification, review and evaluation)
Implementation 4 (Designated persons).

We may assume that the above mentioned main recommendations areas are also root causes of the non-confirmaties as described before. This issue will be also revisited in the Pareto analysis.

3.3. Overall Evaluation

Based on the comperative analysis, in first sight there is no exact relation in implementation areas between the non-conformities and recommandations except Implementation-12.

First three main prblem areas found are as follows;

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Implementation 1   (Objective and Application)

Implementation 12 (Company verification, review and evaluation)

Implementation 11 (Documentation)

Against the above non-conformities, first 3 main class recommendations areas found;

Implementation 6 (Resources and personnel)

Implementation 12 (Company verification, review and evaluation)

Implementation 4 (Designated persons)

But these results can be defining also class reccomended main 3 Implementions are the root causes of the main non-conformities. So the main reasons for the non-conformities are the results of Human Resources (HR) and Company total quality management system (TQM) which is responsibility of the designated persons.

Based on above paragraf if the problem areas on the HR and TQM can improved the NCs and MNCs would be solved consequently. So the companies should improve their HR and TQM system primarely to improve their SMS.

Details of the above findings and related interpretation will be discussed in future chapter.

4. DISCUSSION

In this section the results of the evaluation will be discussed seperatly and some cases will be associated if necessary. Pareto Analysis will be used to ensure the reliability of the findings.

4.1. Pareto Analysis of the Non-Conformities and Major Non-Conformities

Following Figure 4.1. The Pareto analysis based on the frequency of Non-conformities (NC) and Major Non-conformities (MNC)
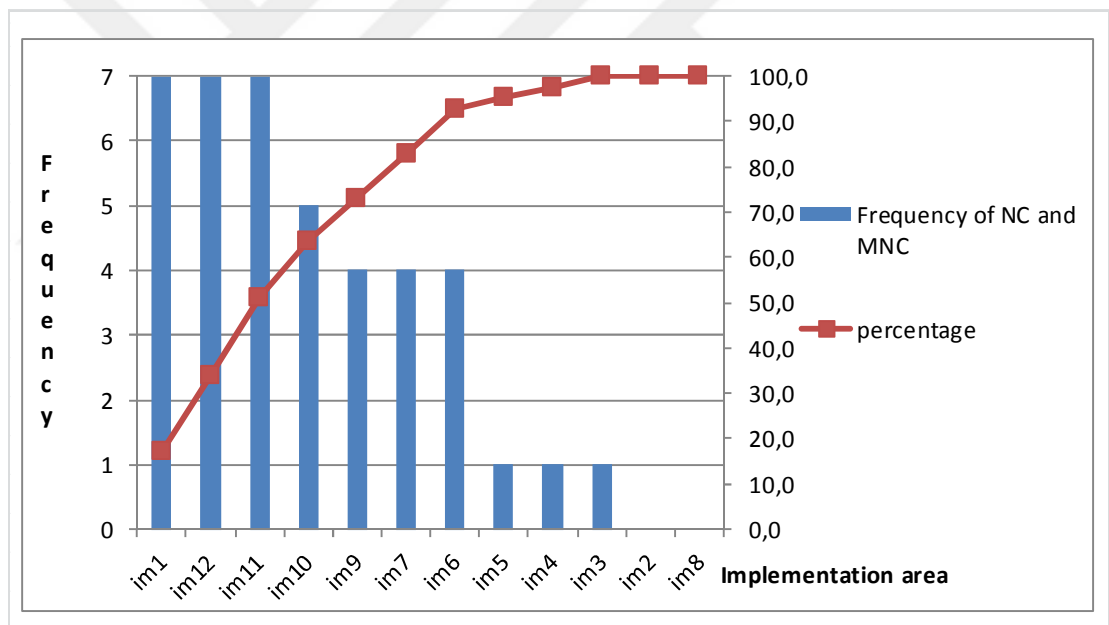
Figure 4.1. Pareto Analysis of the NCs and MNCs

As per above Pareto analysis 80 percent of the non-conformities and major non-conformities come from the 50 percent of the ISM implementations which are Implementation 1, 7, 9, 10, 11, 12, these result have not met the pareto rule as "80/20" but at the same time the result shows that, not only previously evaluated Implementations 1, 12, 11, 10 but also following implementations are important and creat negative impacts on SMS.

Implementation 9 (Reports and analysis of non-conformities, accidents and
Hazardous occurences),

Implemenmtation 7 (Shipboard operations),

In addition to Implementation 1, 12, 11, 10. Implementation 9, 7, should also be carefully investigating infact NCs and MNCs.

4.2. Pareto Analysis of the Class Recommendations

Following Figure 4.2. The Pareto analysis based on the frequency of Class recommendations against the NCs and MNCs.

Figure 4.2. Pareto Analysis of the Class Recommendations

The above Pareto analysis shows that 80 percent of the Class recommendations related in three of ISM Code Implementations which are Implemetation 4, Implementation 6 and Implementation 12. In other words: The result of the Pareto Analysis is inline with the findings in the Figure 4.2.

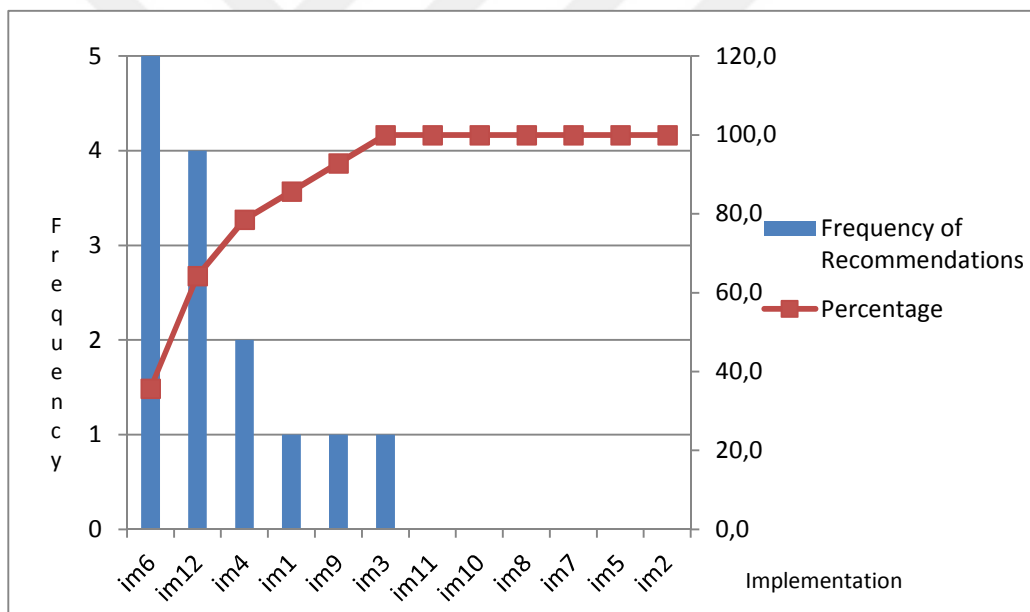Based on the above findings the following ISM Code Implementaions areas are found very important and may the root causes of the non-conformities.

Implementation 4 (Designated Person(s) DPA)

Implementation 6 (Resources and Personnel)

Implementation 12 (Company Verification, Review and Evaluation)

As per above finding, all related implementation will be reviewed seperatly on the future chapters.

4.3. Further Investigation on the Findings

The foundings in the previous sub paragraph will be discussed in this chapter.

As per related foundings analysis and discussions on the company SMS audit results, main problem areas of the Turkish shipping companies SMS pointed as follows;

- Implementation 1 (Objective and Application)
- Implementation 7 (Shipboard operations)
- Implementation 9 (Reports and analysis of non-conformities, accidents and hazardous occurences)
- Implementation 10 (Maintenance of the ship and equipment)
- Implementation 11 (Documentation)
- Implementation 12 (Company verification, review and evaluation)

Against the above problem areas class recommendations as follows;

- Implementation 4 (Designated person(s) DPA)
- Implementation 6 (Resources and personnel)
- Implementation 12 (Company verification, review and evaluation)

As per above results it's clearly show that Implementation 12 is similar area in Non-conformities and recommendations. These results also prove that in ISM code development of the safety management system key element.

Following 2 implementations are not mentioned or referred neither non-conformities nor class recommendations;

- Implementation 2 (Safety and environmental-protection policy)
- Implementation 8 (Emergency preparednes)

As per above results, total 10 ISM implementations which are mentioned in non-conformities and recommendations are effects the companies' SMS directly which will be explained in the following titles Related implementations are extract from ISM Code for interpretation.

4.3.1 Implementation 1 (Objective and Application)

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.

Safety management objectives of the Company should, inter alia:
- provide for safe practices in ship operation and a safe working environment
- assess all identified risks to its ships, personnel and the environment and establish appropriate safeguards and
- continuously improve safety-management skills of personnel ashore and aboard ships, including preparing for emergencies related both to safety and environmental protection

The safety management system should ensure:
- compliance with mandatory rules and regulations; and

- that applicable code, guidelines and standards recommended by the Organization, Administrations, Classification Societies and maritime industry organizations are taken into account. (ISM Code, Part A. 1.2)

The Company SMS should provide for methods of identification of risks and establishment of safeguards against the same. This shall be verified during the course of audits of the Company for issuance of the DOC and the Company should be able to provide evidence of following the risk assessment procedures. During the SMS audits on board, a few risk assessments need to be randomly sampled and verified for effectiveness. Inadequacies in the general standard of risk assessment should lead to closer examination of on board risk assessments and the related procedure.

Functional requirements for a Safety Management System

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

- a safety and environmental protection policy;
- instructions and procedures to ensure safe operation of ships and protection of the environment in compliance with relevant international and flag State legislation;
- defined levels of authority and lines of communication between and amongst, shore and ship board personnel;
- procedures for reporting accidents and non-conformities with provisions;
- procedures to prepare for and respond to emergency situations; and
- procedures for internal audits and management reviews(ISM Code, Part A. 1.4).

The objectives lay down clear guidelines for the development of a SMS that complies with the ISM Code. The Company's policy statement is fundamental some Companies have a single policy statement while others have a number of statements which together comprise the Company's safety and environmental protection policy.

4.3.2. Implementation 4 (Designated Person(s) DPA)

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.(ISM Code, Part A. 4)

The task of implementing and maintaining the SMS is a management responsibility; however, the DPA holds a key role in the monitoring process. DPAs should be suitably qualified (IMO, MSC-MEPC.7/Circ.6, 2007) and experienced in ship operations or management systems and be fully conversant with the Company's safety and environmental protection policies and SMS. It is essential that they have the independence and authority to report to the highest level of management. Their responsibilities may include the organisation of the Company's internal safety audits.

In order for any system of management to be adequately maintained it is essential that it is monitored at regular intervals. This will ensure that:

- implementation is verified;
- deficiencies are reported; and
- those responsible for corrective action are identified and that appropriate action is taken.

4.3.3. Implementation 6 (Resources and Personnel)

The Company should ensure that the master is:

- properly qualified for command;
- fully conversant with the Company's safety management system; and
- given the necessary support so that the master's duties can be safely performed.

The Company should ensure that each ship is manned with qualified, certificated and medically fit seafarers in accordance with national and international requirements. (ISM Code Part A. 6.1, 2).

The Company has a clear responsibility to employ properly qualified and medically fit seafarers and to be satisfied that they are familiar with the management system operated by the Company. The Company should be able to satisfy the auditors, by whatever means, that this requirement of the Code is being adequately addressed. This is also a requirement under MLC 2006. Copies of certificates may be held on file in the office or it may be necessary to have a random sample of certificates faxed in from a cross section of the fleet. Some companies maintain electronic databases as opposed to a paper filing system. In this case a random sample of certificates should be obtained to verify the accuracy of the database.

The manning of the ship should cater for all operations on board while the ship is at sea, anchor or alongside, loading / discharging or carrying out any other activity e.g. tank cleaning, gas freeing, etc.

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 (ISM Code Part A. 6.3).

STCW A-I/14 (Responsibilities of Companies) requires the Company to provide written instructions to the master setting forth the policies and procedures to be followed to ensure newly joined seafarers are familiar with their duties before they are assigned tasks on board. This shipboard familiarisation should include sufficient time to become acquainted with:

- emergency / evacuation procedures and arrangements to perform assigned duties properly;

- ship specific duties related to the role the seafarer will fulfil on-board; and ship specific knowledge of any safety and environmental protection procedures with which the seafarer should be acquainted.

A knowledgeable crew member should be designated to ensure that essential information is provided to newly joined seafarers in a language they understand. The STCW Code requires mandatory training in crowd management for some personnel serving on passenger ships. Records of familiarisation and instructions received by crew members should be available for examination by the auditor(s).

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. (ISM Code Part A. 6.4)

While there are no new legislative requirements introduced by the ISM Code, the SMS must embrace all existing international conventions, national rules and regulations, industry guidelines and codes of practice. It is acceptable for the SMS to encompass such documents as the Code of Safe Working Practices for Merchant Seamen, the Bridge Procedures Guide, and the Tanker Safety Guide etc.

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 (ISM Code Part A. 6.5).

The means of identifying the training needs of individuals, both ashore and on-board, is for the Company to address. This may be achieved by staff appraisal, the end of contract report for seagoing staff, results of internal audits, drills, analysis of accidents, etc. Training requirements could be met by refresher training courses and on the job training.

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 (ISM Code Part A. 6.6).

The SMS, in whatever form, must be available to all personnel, both ashore and afloat. It is the responsibility of the Company to ensure that the manuals are in a language(s) understood by the crew. Many Companies employ the services of manning agencies, often in several countries world-wide. The Company's procedures should detail the process by which crew members are selected, detailed to its ships and familiarised with their responsibilities prior to taking up a position on board.

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 (ISM Code Part A. 6.7).

The ability of crew members to communicate effectively is fundamental to the safety of the ship. This should be assessed at the recruitment stage and manning agencies should be vigilant in this exercise. The company should ensure that there are procedures in place to monitor the manning agencies which they use.

4.3.4. Implementation 7 (Shipboard Operations)

The Company should establish procedures, plans and instructions, including checklists as appropriate, for key shipboard operations concerning the safety of the personnel, ship and protection of the environment. The various tasks involved should be defined and assigned to qualified personnel(ISM Code Part A. 7).

The Company should establish the key shipboard operations and ensure that procedures and instructions are laid down for carrying out these operations. While shipboard operations will vary from ship type to ship type, it is suggested that plans and instructions for the following operations should be documented:

- general shipboard operations;
- port operations;
- preparation for sea;
- conduct of the voyage;
- preparation for arrival in port; and
- emergency response organisation.

4.3.5. Implementation 9 (Reports and Analysis of Non-conformities, Accidents and Hazardous Occurrences)

The SMS 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(ISM Code Part A. 9.1).

The Company should establish procedures for the implementation of corrective action, including measures intended to prevent recurrence(ISM Code Part A. 9.2).

The SMS should contain procedures that require reports to be prepared and forwarded to the Company on all accidents, hazardous occurrences and non-conformities. They should be monitored by the DPA and the appropriate corrective action determined with the ultimate aim of avoiding a recurrence of the incident or non-conformity.

Any deviation from the SMS procedures and instructions, that represents a non-conformity, should be recorded, raised on a non-conformity note and forwarded to the DPA. The system should be designed to allow for continual updating, amendment and improvement as a result of the reporting procedures.

The reports should be recorded, investigated, evaluated, analysed and acted upon as necessary.

There should be procedures for feedback to the reporting ship and for circulation around all appropriate areas. Motivation is a significant factor in the success of the management system and feedback is a powerful motivator. Feedback should be recorded. Evaluation and analysis may lead to:

- identification and implementation of corrective action;
- benefits to the whole Company;
- amendments to existing procedures; and
- development of new procedures.

4.3.6. Implementation 10 (Maintenance of the Ship and Equipment)

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 (ISM Code Part A. 10.1).

In meeting these requirements the Company should ensure that:

- inspections are held at appropriate intervals;
- any non-conformity is reported, with its possible cause, if known;
- appropriate corrective action is taken; and
- records of these activities are maintained. (ISM Code Part A. 10.2).

Procedures should be developed to ensure that maintenance, surveys, repairs and dry-docking are carried out in a planned and structured manner with safety as a priority. All personnel responsible for maintenance should be suitably qualified and familiar with national and international legislation as well as classification society requirements. The management team ashore shall provide technical support and advice to the seagoing staff.

Maintenance procedures could include:

- hull and superstructure;
- lifesaving, firefighting and anti-pollution equipment;
- navigational equipment;
- steering gear;
- anchors and mooring equipment;
- main engine and auxiliary machinery including pressurised systems;
- cargo loading and discharge equipment;
- tank venting and inerting systems;
- fire detecting systems;
- bilge and ballast pumping systems;
- waste disposal and sewage systems;
- communications equipment;
- emergency lighting; and
- gangways and means of access.

Maintenance procedures must also include work instructions to ensure that machinery or systems undergoing maintenance have been rendered safe prior to starting work i.e., that systems under pressure such as engine cooling water, oil fuel and steam systems have been securely isolated and de-pressurised.

The Company should arrange for inspections of its vessels to be carried out at regular intervals. These inspections should be executed in compliance with the appropriate procedures by competent and qualified personnel. Records of maintenance, inspections, certificates and reports may be maintained both on board ship and ashore if considered appropriate by the Company.

There should be procedures for reporting non-conformities and deficiencies that should include a time scale for completion of corrective action. It is the Company's responsibility to ensure that reports are investigated and feedback provided to the reporting officer. The Company should be seen to be providing support to enable the SMS to function effectively.

The Company should identify equipment and technical systems the sudden operational failure of which may result in hazardous situations. The SMS 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 (ISM Code Part A. 10.3).

These equipment are commonly referred to as 'critical equipment'. It is the Company's responsibility to identify critical systems and equipment. Once the critical systems have been identified, procedures should be developed to ensure reliability of these systems or the provision of alternative arrangements in the event of sudden failure. The procedures implemented should include the regular testing of stand-by systems in order to ensure that one failure does not result in the total loss of that critical function. Maintenance routines should include the regular and systematic testing of the all such critical and stand-by systems.

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(ISM Code Part A. 10.4).

Most companies have a preventive maintenance regime in place which can range from a card based system to sophisticated software based systems.

4.3.7. Implementation 11 (Documentation)

The Company should establish and maintain procedures to control all documents and data which are relevant to the SMS (ISM Code Part A. 11.1).

The Company should ensure that:
- valid documents are available at all relevant locations;
- changes to documents are reviewed and approved by authorized personnel; and
- obsolete documents are promptly removed. (ISM Code Part A. 11.2).

Procedures should be in place for the control of all documentation, which should be approved prior to issue and assessed for its user friendliness. This is an essential element of any SMS. Personnel at all levels within the Company should be familiar with the procedures and with the latest version of the documentation. Obsolete documentation should be removed from all locations, otherwise, there is the risk that superseded procedures may remain in use.

Companies should be encouraged to limit their documentation to that which is necessary to meet their safety and environmental protection requirements. The documentation developed by the Company should be that which is most effective for its operation. Excessive documentation may be counter productive to the effective functioning of a SMS and will certainly be more cumbersome for the personnel implementing the system. This however should not be of concern if the personnel are able to demonstrate their familiarity with the system and are able to locate documents without much delay.

The documents used to describe and implement the SMS 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 (ISM Code Part A. 11.3).

The Company's SMS should encompass all the elements of the ISM Code. The use of a matrix to identify relevant sections is a simple and effective method. The Company may consider appointing a person ashore with responsibility for control, amendment, approval and distribution of SMS documentation, which should be monitored by the DPA. On board ship, the control of documentation will normally lie with the master.

4.3.8. Implementation 12 (Company Verification, Review and Evaluation)

The Company should carry out internal safety audits on board and ashore at intervals not exceeding twelve months to verify whether safety and pollution-prevention activities comply with the safety management system. In exceptional circumstances, this interval may be exceeded by not more than three months (ISM Code Part A. 12.1).

Internal audits should be conducted in order to verify that the SMS is functioning effectively. All sections of the SMS should be audited on a regular basis. The Company must complete internal audit procedures prior to requesting an external audit.

The Company should periodically evaluate the effectiveness of the safety management system in accordance with procedures established by the Company. (ISM Code Part A. 12.2).

The Company should evaluate those entities undertaking ISM-related tasks e.g. recruitment agency, maintenance contractor, etc. If ISM related tasks are delegated to another entity, there should be evidence to demonstrate that their activities are periodically verified.

The audits and possible corrective actions should be carried out in accordance with documented procedures (ISM Code Part A.12.3).

A periodic review of the SMS should be carried out by the Company management. This review will form part of the safety management strategy of the Company and will be conducted in accordance with documented procedures. Minutes of the management review meetings should be recorded and corrective actions allocated to appropriate members of the management team with a view to improvement. The management review should be an opportunity for a critical review by the Company and ship, of the performance of the SMS over the past year, or other period. Audit reports, inspection reports, non-conformity reports, accident reports, risk assessments, permits to work, near miss reports, defect lists, complaints, etc., should be reviewed with the objective of identifying trends, root causes, areas of concern, etc., with a view to continually improve the operation of the SMS both ashore and on board (MSIS2 2/Rev 03/15).

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 (ISM Code Part A. 12.4).

Procedures and instructions for carrying out internal audits should be incorporated into the SMS and the audits should be conducted according to these procedures. Checklists are useful as an aid to the auditor and may be used as appropriate.

The results of the audits and reviews should be brought to the attention of all personnel having responsibility in the area involved (ISM Code Part A. 12.5).

Internal auditors should be independent of the operation being audited. However, this may not always be possible in small companies with limited management resources. Wherever practicable, the auditor should not normally be involved in the working of the area being audited. Personnel carrying out internal audits should have received appropriate training.

The management personnel responsible for the area involved should take timely corrective action on deficiencies found (ISM Code Part A.12.6).

It is important that the results of the audits are brought to the attention of the personnel responsible for the area for example; a finding in the engine room should be brought to the attention of the Chief Engineer. Copies of vessel audits should be retained on board.

The management personnel responsible for the area involved should take timely corrective action on deficiencies found (ISM Code Part A.12.7).

In order to improve the SMS it is important that the results of the Company's internal audits and reviews are promulgated to all persons having responsibility for the SMS in the company. The findings, conclusions and recommendations should be recorded. The persons with responsibility for the respective areas should be immediately informed and requested to take corrective actions in due time. The results directly related to ship operations should be submitted to the ship masters to take respective actions.

5. CONCLUSIONS

In this study it's observed that regarding the company SMS audit, the content of the class recommended ISM implementations as to remedy to non-conformities does not exactly match up with non-conformities issued by the class societies. This observation reveals that, infact the class recommendations are remedy to root causes of non-conformities and class societies as long as situation allows, prefer to stress on the non compliances by recommendations, rather than suspending operations of companies or issuing major non conformities.

The main aim of IMO is to improve the safety management systems of the World fleet gradualy to ensure safety at sea. As implementation of this policy the classification societies and maritime administrations are tolerable when they conducting their inspections, audits and controls. At the same time they focus on recommandations to improve quality management systems of the ships and shipping companies. Actually if shipping companies take necessary actions for class recommendations they will also improve their SMS automotically. This should not be taken in to account wrongly and companies should take necessary actions to overcome reported non-conformities. Because the tolerance of the governing organisations of the world maritime system is not to be expected so tolerable in the near future concerning the challenging competation in the shipping business.

As a result of this study the problem areas covered in the recommendations which severly effects the companies' safety management performance are focused on three basic ISM implementions are as follows;

- Implementation 4 (Designated Person(s))
- Implementation 6 (Resources and Personnel)
- Implementation 12 (Company Verification, Review and Evaluation)

In reality these three issues are the main sources of the non-conformities met in the SMS auidits and if the companies take necessary actions on these deficiency areas reported as non-conformitiese will be decreased subsequently.

To this end the following issues are strongly recommended for shipowners and ship management companies;

Very well organized companies and well established SMS documents are the key factors that affects the ISM implementations and to achive safety goals. The documentation which shape and control the SMS system are the important guide for company staff as well as crewmembers. Therefore tasks should be described in the SMS documentation in particular manuals very clearly. Otherwise it will create gray areas and gaps in the system which will end up with facing a new case, non-conformity, deficiencies or detention during PSCs or accident / incidents. Therefore international and national rules and regulations should be followed and as soon as new regulation comes into force, it should be integrated into the company management system and implementation should be monitored via reporting system, during vessel visits and internal audits.

LNG/LPG/chemical tankers implement the ISM system much better than dry Cargo ships in respect of quality wise since qualification of crew in such tankers are better than the crew in dry cargo ships and other type of ships. Because these kind of special ships are being inspected more frequently and in details by external surveyors acting on behalf of giant oil campanies such as Shell, BP etc. Therefore the creation of a comprehensive inspections system for dry cargo ships will improve the crew qualification on board. The quantity and quality of human resources deployed on board and in the office should be improved. The adequate training, internal inspections and future carrier planning will also improve personel quality.

The companies are generally hasitating to provide adequate resources to operate safety management system however there is no goal can be achieved without appropriate manpower, labor and resources. It is quite unlikely to establish and maintain SMS unless sufficient resources are dedicated for smooth operation of the company and ships.

The Total Quality Management System is in compliance with ISM Code for safe operations of vessels. Companies which has Total Quality Management System has to be in compliance with quality rules and requirements and able to meet customers'demands within quality scope. The Classification societies are the best experts for quality assurance of the companies comparing with the other controlling authorites. Therefore the companies should take in the classification societies' recommendations in to the account seriously.

Shipping companies do quality control through their management represantatives who are DPA and marine surveyors (inspectors). The survey shows that the companies mostly refrain to deploy sufficient number of surveyor/inspector in house and company surveyors are deployed to investigate the accident or attend to vessel after the accident or detention rather then conducting regular inspection to ensure quality of ship's operations. The companies should prepare a scheduled inspection plan and random inspections and ensure the implementation of this plan correctly. This implementation also requires deployment of sufficient number and qualified inhouse surveyors/inspectors.

The DPA plays a critical role to follow up the ship operations on a time basis they are the key person in the company who follows the real situation onboard a ships. The DPA should be very qualified and depending on the size of the company, should be supported by assisting personel to achieve his/her role complietly.

The shipping is a challenging bussiness area and competition is becoming rather important in the maritime sector. In order to survive in this competitive environment the shipping companies should stress on the company SMS audits and reduce the non-conformities.

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APPENDIX 1

Questions for SURVEY:

Company Name:

1. How many years have your company been operating in Turkey?	
2. How many years have your company been conducting company audit of SMS in Turkey?	
3. How many company audit of SMS conducted by your company and what is the annual avarage?	
4. Is there any company of which DOC has been withdrawn / withholds after SMS Audit? What is the ratio?	
5. What are the avarage numbers of non-comformaties?	
6. What are the avarage numbers of major non-confirmaties?	
7. What are the major non-confirmaties? Can you provide us frequency of each major non-confirmaties as Very frequently, Frequently, Rarely, Very Rarely*	
8. What are the general non-confirmaties? Can you provide us frequency of each non-confirmaties as Very frequently, Frequently, Rarely, Very Rarely*	
9. What is your recommendation to reduce the number of non-confirmaties?	
10. What is your recommendation to reduce the number of major non-confirmaties?	
11. What is your recommendation on specific issues related ISM Audits in general?	

* This may be classified as Over 70 % Very frequently , 69-50% Frequently, 49-25% Rarely, under 25% Very rarely.

NB The company names, point of contacts and any specific names related to companies will be kept confidential and never be declared. All this data will be used only for this scientific resarch study and never will be delivered or shared with third parties. We assume all the responsibility for any breach of this confidentiality.

APPENDIX 2

Questions for SURVEY

Company Name: Class Society 1

1. How many years have your company been operating in Turkey?	More than 30 years
2. How many years have your company been conducting company audit of SMS in Turkey?	Since 1997
3. How many company audit of SMS conducted by your company and what is the annual avarage?	Annual Average 40
4. Is there any company of which DOC has been withdrawn / withholds after SMS Audit? What is the ratio?	No
5. What are the avarage numbers of non-comformaties?	2-3
6. What are the avarage numbers of major non-confirmaties?	1
7. What are the major non-confirmaties? Can you provide us frequency of each major non-confirmaties as Very frequently, Frequently, Rarely, Very Rarely*	
• Expired DOC or SMC	
8. What are the general non-confirmaties? Can you provide us frequency of each non-confirmaties as Very frequently, Frequently, Rarely, Very Rarely*	

• Missing Documentation	Frequently
• Missing Master's SMS Review	Frequently
• Lack of shipboard operational procedures	Rarely
• Lack of on board training records	Rarely
• Lack of crew documents - records	Rarely

9. What is your recommendation to reduce the number of non-confirmaties?
• Training of office staff and Ships Crew, well established SMS manuals, more frequent vessel visits
10. What is your recommendation to reduce the number of major non-confirmaties?
• Same as above
11. What is your recommendation on specific issues related ISM Audits in general?
Very well organized companies and well established SMS manuals are the key factors that affect ISM implementations and achive safety goals. Manuals are the guidance documents of crew and tasks which are not described in the manuals make grey area, gaps in the system which at the end finishes with a case such as non-conformity, PSC deficiency and/or detention, accident or incident. Therefore ınternational and national rules and regulations should be followed and as soon as new regulation comes into force, it should be integrated into the company management system and implementation should be monitored via documents sent, during vessel visits and with internal audits

APPENDIX 3

Questions for SURVEY

Company Name: Class Society 2

1. How many years have your company been operating in Turkey?	More than 15 years
2. How many years have your company been conducting company audit of SMS in Turkey?	Since ISM Code inforced
3. How many company audit of SMS conducted by your company and what is the annual avarage?	More than 50 companies
4. Is there any company of which DOC has been withdrawn / withholds after SMS Audit? What is the ratio?	2
5. What are the avarage numbers of non-comformaties?	2-3
6. What are the avarage numbers of major non-confirmaties?	0,1
7. What are the major non-confirmaties? Can you provide us frequency of each major non-confirmaties as Very frequently, Frequently, Rarely, Very Rarely*	
• Detention of the fleet vessel ISM	Rarely
• Re-occurrence of previously imposed NCs	Frequently
• Audit request after due date	Frequently
8. What are the general non-confirmaties? Can you provide us frequency of each non-confirmaties as Very frequently, Frequently, Rarely, Very Rarely*	
• Lack of maintenance	Frequently
• Lack of Personel awareness of the SMS system	Frequently
• Noncompliance with specific requirements	Rarely
• Lack of company feed backs / evaluations of the deficiencies, NCs, etc	Frequently
9. What is your recommendation to reduce the number of non-confirmaties?	
• Training, implementation of company follows ups, effective internal audits by the company, improvement/selection of high quality person.	
10. What is your recommendation to reduce the number of major non-confirmaties?	
Same as above	
11. What is your recommendation on specific issues related ISM Audits in general?	
Dry Cargo ships ism system implementations generally lower quality from Oil/chemical tankers. I think reason of this matter, person qualifications lower than tankers and external inspection/audit frequency which is tankers are subject to frequency of external inspections more than dry Cargo ships.	

APPENDIX 4

Questions for SURVEY

Company Name: Class Society 3

1. How many years have your company been operating in Turkey?	More than 15 years
2. How many years have your company been conducting company audit of SMS in Turkey?	Since ISM Code inforced
3. How many company audit of SMS conducted by your company and what is the annual avarage?	Approx.20
4. Is there any company of which DOC has been withdrawn / withholds after SMS Audit? What is the ratio?	None
5. What are the avarage numbers of non-comformaties?	1-2
6. What are the avarage numbers of major non-confirmaties?	1
7. What are the major non-confirmaties? Can you provide us frequency of each major non-confirmaties as Very frequently, Frequently, Rarely, Very Rarely*	
• Re-occurrence of previously imposed NCs	Very rare
• SMS.Audits not conducted within the due range	Very rare
• Sea Accidents	Very rare
8. What are the general non-confirmaties? Can you provide us frequency of each non-confirmaties as Very frequently, Frequently, Rarely, Very Rarely*	
• Lack of maintenance	Frequently
• Lack of Requisitons management	Frequently
• Noncompliance with new requirements	Frequently
• Procedural incompliances	Frequently
• Missing Certificates/Flag endorsments	Frequently
9. What is your recommendation to reduce the number of non-confirmaties?	
• Efficient /Proper training, well maintenance, personnel awareness.	
10. What is your recommendation to reduce the number of major non-confirmaties?	
Same as above	
11. What is your recommendation on specific issues related ISM Audits in general?	
None	

APPENDIX 5

Questions for SURVEY:

Company Name: Class Society 4

1. How many years have your company been operating in Turkey?	More than 50 years
2. How many years have your company been conducting company audit of SMS in Turkey?	Since the Code has been implemented
3. How many company audit of SMS conducted by your company and what is the annual avarage?	10-15 per year
4. Is there any company of which DOC has been withdrawn / withholds after SMS Audit? What is the ratio?	No
5. What are the avarage numbers of non-comformaties?	< 1
6. What are the avarage numbers of major non-confirmaties?	< 1
7. What are the major non-confirmaties? Can you provide us frequency of each major non-confirmaties as Very frequently, Frequently, Rarely, Very Rarely*	
8. What are the general non-confirmaties? Can you provide us frequency of each non-confirmaties as Very frequently, Frequently, Rarely, Very Rarely*	
1. Internal and external audit results, and investigation and analysis of non-conformities have not been included management review agenda as required by procedure, Efectiveness of system should be evaluated with supporting feed back information..	25%
2. Management Review - Action taken person, target date was not identified	25%
3. Conpmay did not held inspesitons at appropriate intervals & Risk Assessment procedure in place however was not always follwoed by the crew	25%
4. Preventive actions and learining point was missing for Fleet ship's detention at xxxx port	25%
9. What is your recommendation to reduce the number of non-confirmaties?	
• To focus on Internal and external audit results, and investigation and analysis of non-conformities • To Show extra attention to Management Reviews of the companies	
10. What is your recommendation to reduce the number of major non-confirmaties?	
11. What is your recommendation on specific issues related ISM Audits in general?	
• Increasing the awareness company staff and all departments regarding ISM Code • Trainings should be continued regarding the code especially for key staff who are responsible for ISM • DPA's communication with other key staff and departments should be increased	

APPENDIX 6

Questions for SURVEY

Company Name: Class Society 5

1. How many years have your company been operating in Turkey?	More then 15 years
2. How many years have your company been conducting company audit of SMS in Turkey?	Since ISM Code inforced
3. How many company audit of SMS conducted by your company and what is the annual avarage?	Approx.30
4. Is there any company of which DOC has been withdrawn / withholds after SMS Audit? What is the ratio?	None
5. What are the avarage numbers of non-comformaties?	1-2
6. What are the avarage numbers of major non-confirmaties?	1
7. What are the major non-confirmaties? Can you provide us frequency of each major non-confirmaties as Very frequently, Frequently, Rarely, Very Rarely*	
• Re-occurrence of previously imposed NCs	Very rare
8. What are the general non-confirmaties? Can you provide us frequency of each non-confirmaties as Very frequently, Frequently, Rarely, Very Rarely*	
• Lack of maintenance	Frequently
• Requisitons management	Frequently
• Compliance with new requirements	Frequently
• Procedural incompliances	Frequently
9. What is your recommendation to reduce the number of non-confirmaties?	
• Proper training, well maintenance, personnel awareness.	
10. What is your recommendation to reduce the number of major non-confirmaties?	
• Same as above	
11. What is your recommendation on specific issues related ISM Audits in general?	
• None	

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Since 2008 working as Marshall Islands Flag State inspector in Turkey.

Have 1st DAN Aikido licence from WUSHU Federation of Turkey and AIKI KAI Head Quarter in Japan.