WORLD MARITIME UNIVERSITY
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THE ISM CODE IMPLEMENTATION AND ITS EFFECTS ON MARITIME CLAIMS

By

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DECLARATION

I certify that all the material in this dissertation that is not my own work has been identified, and that no material is included for which a degree has previously been conferred on me.

The contents of this dissertation reflect my own personal views, and are not necessarily endorsed by the University.

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ABSTRACT

Title of Dissertation: **The ISM Code implementation and its effects on maritime claims**

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The dissertation is a study of the effects of ISM Code implementation in reducing maritime claims, with particular reference to the Shipping Corporation of India (SCI) Mumbai, the current scenario of problems in the implementation of the Code, and ways in which a situation can be improved for better compliance with the Code in order to reduce maritime claims.

An analysis of maritime risk in general and the claims of SCI in particular have been carried out. It is evident from the study that the human error is seen to be the cause of majority of accidents at sea, however, such human mistakes have been caused by underlying factors such as design, maintenance, training, manning levels, hours of work and commercial pressures. Solution to this is the commitment from the top management to develop safety procedures. The ISM Code and STCW 95 Convention do address the human element of maritime safety making management more responsible. Though the reduction in claims is a result of combined effects of more than one reason, no doubt the ISM Code has acted as a major instrument in this trend. However, obtaining the ISM certificate does not reduce the occurrence of accidents and consequent claims, it is the true compliance with the Code and the commitment from the management will create a safety culture, which will have positive effects on claims. Further, the key players, who have roles to play, should accept and fulfil their responsibilities to overcome implementation problems and ensure a quality of enforcement to achieve true objective of the Code. The closing chapter offers several recommendations for the way forward for better implementation of the Code and thereby reducing the maritime claims.

KEY WORDS: Effects on claims, Implementation problems, ISM Code implementation, Key players, Maritime risk analyses, Non-compliance of the Code.

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List of Abbreviations

CHIRP	Confidential Hazardous Incident Reporting Programme
DOC	Document of Compliance
FFO	Fixed and Floating Objects
FOC	Flag of Convenience
FSA	Formal Safety Assessment
GRT	Gross Registered Tonnage
H&M	Hull and Machinery
IACS	International Association of Classification Societies
ICS	International Chamber of Shipping
Intertanko	International Association of Independent Tanker Owners
ISF	International Ship owners Federation
ISM	International Safety Management Code
ISPS	International Ship and Port facility Security Code
NOR	Notice of Readiness
NMD	Norwegian Maritime Directorate
MARPOL	Marine Pollution Prevention Convention
MOU	Memorandum of Understanding
P&I	Protection and Indemnity
PSC	Port State Control
PSCO	Port State Control Officer
SCI	Shipping Corporation of India
SMC	Safety Management Certificate
SMCP	Standard Marine Communication Phrases
SMS	Safety Management System
SOLAS	Safety of Life at sea Convention
STCW	International Convention on Standards, Training, Certification and Watch keeping for seafarers
USCG	United States Coast Guard

Chapter 1

Introduction

1.1 Historical Background

World seaborne trade has increased to 5.83 billion tonnes and the total maritime activities represented 22,682 billion ton-miles in 2001. The world merchant fleet expanded to 825.6 million dead weight tonnes (UNCTAD, 2002). It may not be exaggerated to consider shipping as the most international and one of the most adventurous industries in the world resulting in a number of accidents.

Nevertheless, persistent unyielding attempts have always been made to keep progress in the shipping industry towards highest efficiency in terms of cost, time, reliability and most important safety. Incidentally, research and highly advanced technology introduced into merchant shipping resulted in specialised and complex vessels in line with changing trade scenarios. With the passage of time, vessels have increased tremendously in number, size, speed, sophistication and cost. They tend to be operated by smaller numbers of crew with greater effect on the efficient performance in two aspects; the overall safety and protection of the environment.

The shipping industry has had its share of major disasters. The consequences of such disasters on the shipping companies involved are huge in terms of revenue lost, repair costs, increasing insurable risks and increasing premiums and loss to the trade, thus resulting in enormous economic loss. And further loss of life or personal injuries and major oil pollution can count more heavily against the shipping company involved as well as the whole maritime community. It would, of course, be wrong to assume that the shipping industry did not have good safety control systems in place before the ISM Code became a statutory requirement. Many shipping companies

successfully operated with their own code of safety practices with impeccable safety records.

However, the process of developing safety systems has evolved primarily in response to marine disasters like the 'Titanic', where loss of life was unacceptable which saw a convention of Safety of Life at Sea (SOLAS) giving importance to life saving, radio communication and fire protection equipment. The incident of 'Torrey Canyon' foundering gave rise to a range of pollution control measures like MARPOL-as well as a host of Conventions in the field of liability and compensation. The ro-ro ferry disasters of the 'Herald of Free Enterprise', Scandinavian Star and the 'Estonia' have led to new design rules and management practices.

These efforts undoubtedly resulted in improved ship designs, construction and better equipment but unfortunately did not fully succeed in achieving the desired level of safety and protection of life, property and the marine environment. The change in pattern of ship management, demand for higher skills, depletion in the strength of shipboard staff and deterioration in their professional standards had the evident damaging effects on the quality of operations resulting in increased casualties. Investigations into causes of some of the accidents that occurred in the eighties and nineties pinpointed serious lapses in the procedures of shipboard operations attributing their causes to the human error. After the incident of 'Herald of Free Enterprises' on the 6th March 1987, the resolution A.596(15) adopted at the IMO Assembly session in November 1987 pointed out that "the great majority of maritime accidents are due to human error and fallibility and the safety of ships will be greatly enhanced by the establishment of improved operating practices" (IMO news No3). In 1989, IMO adopted *Guidelines on management for the safe operation of ships and for pollution prevention* - the forerunner of what became the International Safety Management (ISM) Code in November 1993, first adopted as IMO Resolution A.741 (18) and later made mandatory through inclusion in the International Convention for

the Safety of Life at Sea, 1974 (SOLAS) as chapter IX for all vessels of at least 500 gross tonnage in two phases.

1.2 Problem identification

In conformity with the objectives of IMO, the ISM Code requires establishment of a sound safety management system, envisages shipping companies to set their safety management objectives, to provide for safe practices and working conditions on board and to establish safeguards against all identified risks, provide adequate resources including qualified personnel and continuously improve safety management skills of personnel ashore and aboard ships including preparing for emergencies related both to safety and environmental protection. Of course the ISM Code implementation is mandatory requiring all shipping companies to implement as applicable. The purpose of the ISM Code is to provide "an international standard for the safe management and operation of ships and for pollution prevention" (IMO, 2002). *While achieving the purpose*, *it will have a positive impact or effect on commercial aspects of shipping management in general and substantial reductions in claims in particular if it is implemented as intended.* Since effective implementation of the Code is potentially bringing in reductions in incidences of maritime risks, thereby reducing the operational costs of shipping companies, it needs to be assessed whether such presumed positive effects in terms of cost and benefits have been achieved; in other words, whether marine casualties have been reduced consequent to ISM Code implementation. This raises certain related issues to be examined and concluded on the basis of findings arrived at in this research .

1.3 Significance of the problem

The manager of any business enterprise has to assess the level of risk associated with each of the component parts of the company. In a shipping company these include: finance; commercial arrangements; personnel; ships; trades; operations and liabilities. If the risks are too high in any of these elements, the viability of the organisation itself may be put in jeopardy. It is an unpalatable, but true, fact that in

many companies safety is seen as a penalty which is deducted from profits without a corresponding return.

However, there are many shipping companies who believe that if they cannot manage safety, they will be unlikely to manage a profitable shipping company. A true safety culture provides a means of maximizing the benefits and cost savings that can be derived from implementing the ISM Code. Thus, the safety culture is of interest to all senior decision makers in shipping companies, not necessarily only to those involved in the day to day technical operation of ships. Today, economics and safety are so closely related that operating a ship without necessary standards of safety poses great commercial risks. This signify that the Safety Management System (SMS) of the ISM Code would bring a lot of economic benefits to the shipping community, if there is a safety culture being developed with full commitment from the top management of the company. How can a safety culture save money? The following benefits have been derived by shipping companies from the conscious attempt to practice a safety culture:

- _ Reduction in lost employee hours
- _ Reduction in delays
- _ Reduction in insurance premiums
- _ Establishing customer faith
- _ Reduction in cargo damage
- _ Reduction in hospital costs
- _Reduction in sick leave
- _ Reduction in pollution costs

‘‘The **indirect costs** of maritime accidents are estimated to be around **3 times** the direct costs associated with injuries, deaths, property damage and oil spills’’(ISF, 2003).

Since effective implementation of the ISM Code is potentially bringing in reductions in incidences of marine risks, the positive effects of the ISM Code need to be studied in terms of cost and benefits to the insurance as well shipping industry and accordingly the associated cost saving benefits should be realised by all players in the maritime industry.

If the SMS is not implemented effectively and it is not working as intended, then what other legal and insurance implications will it have on shipping companies along with increased marine claims?

- Will this put ship owners in a situation wherein they are unable to defend the claims being faced?
- Will ship owners lose their right to limit liability?
- Will insurance cover be prejudiced? Could the ships and company be blacklisted so that ships cannot trade?

In extreme cases, the ship owners may even find themselves exposed to criminal liability like in the case of the Prestige. It is also significant that if a shipping company wants to be attractive to its clients, it must be able to provide an efficient and reliable service with minimum loss or damage to the cargo with an equal responsibility of protecting the marine environment from pollution.

When insurance underwriters enter a new shipping company, they take a closer look and investigate certain factors, but the attitudes towards safety in the company is the single most important factor in their rating model and quoting correct premium value. It is from this point of view that the study of ISM Code implementation and its positive effects on maritime claims is important.

1.4 Purpose of the study

While examining briefly some of the issues on the aforementioned 'significance of the problem', the main study is devoted to the effects of ISM implementation on maritime claims covering the subject matter for the following objectives:

1. To ascertain, assess and prioritise major maritime risks on the basis of technical errors and human errors.
2. To analyse major claims.
3. To examine overall effects of ISM Code implementation in reducing incidences of maritime risks and claims.

4. To examine the situation of ISM Code enforcement resulting into vessels' detention and implications.
5. To test what impact commercial considerations have on effectiveness of ISM Code implementation.
6. To make recommendations for achieving reduction in cargo claim incidences.

1.5 Scope and methodology

The shared experience of maritime risks could enhance the effectiveness of company specific loss prevention and safety programmes. In this way, the individual owners' loss prevention priorities can be tested against experience across a much larger and more diverse ship population. It is therefore, chapter two will provide an account of the general maritime risk scenario. Some of the hull and machinery risks and P&I risks as well and possible factors contributing to such risks are discussed using secondary data.

Chapter three will give a detailed analysis of claims of phase I vessels of the Shipping Corporation of India Ltd., (SCI). The analysis of these claims will be referred to, while studying the impact of the ISM Code on claims in the following chapter.

In chapter four, the ISM Code implementation by SCI Ltd., is studied. Further, the changes, related issues, common problems in ISM implementation are examined. The impact on claims reduction and implications due to non-compliance of ISM Code are also discussed. The viewpoints of industry are also presented.

Chapter five will look at the role played by various authorities in ISM Code implementation.

Chapter six will provide a summary of findings and make suggestions towards resolving the problems discussed.

1.6 Limitations

A study like this requires a larger sample of claims records being broadly representative of the industry in-terms of tonnage, ship type, trading area and flag as well as risk profile. These sample data should also include complete background data in order to draw a valid inference. Such broad based databases are available with P&I Clubs. However, the author was unable to collect required data from P&I clubs as claims records of members are not to be shared with non-members. Hence, much of the research was carried out by the use of other studies, journals and internet sources as per referencing.

Chapter 2

The study of general maritime risk in insurance market

2.1 Introduction

The objective of ISM Code implementation requires among other things an identification of accidents, risks and hazardous occurrences. Thereafter, it requires the development of safety management principles to prevent occurrence of the identified risks. If this objective is viewed from an insurance point of view, it is the same as the objective of loss prevention programmes of most of the insurance companies so as to minimise the claims. It is a widely accepted fact that the risk is inherent in the maritime industry and can never be wholly eliminated. However, the application of sound risk management principles together with ISM Code implementation could do much to reduce the incidences of claims.

The objective of this chapter is to present a general scenario of maritime risk on losses of ships/lives and other maritime incidences summarising the main causal trends in cargo, property, pollution, collision and personal injury claims. With this knowledge of the general risk profile, the individual shipping company can assess and develop their own risk profile for the company's fleet. By way of shared experience of maritime risks, the individual owners' loss prevention priorities can be tested against the experience across a much larger and more diverse fleet. It is in this context that the statistical evidence of various studies has been analysed.

2.2 Total losses[1] of ships and fatality experience

As per the world casualty report 2001, during the year 2001, 155 of all ship type categories, not less than 100 gross ton, were reported as total losses. The figure

[1] "refer to propelled sea-going merchant ships of not less than 100 GT which, as a result of being a marine casualty, have ceased to exist, either by virtue of the fact that the ships are irrecoverable or subsequently been broken up." (Lloyd's Register, [World casualty], 2001,)

includes Actual Total losses and Constructive Total losses[2]. As a result of the total losses of 155 ships, 306 persons are reported killed or missing. Although not a small number, it can be observed in Figure 1 the number of ships and the lives lost have been reducing from 1998 onwards.

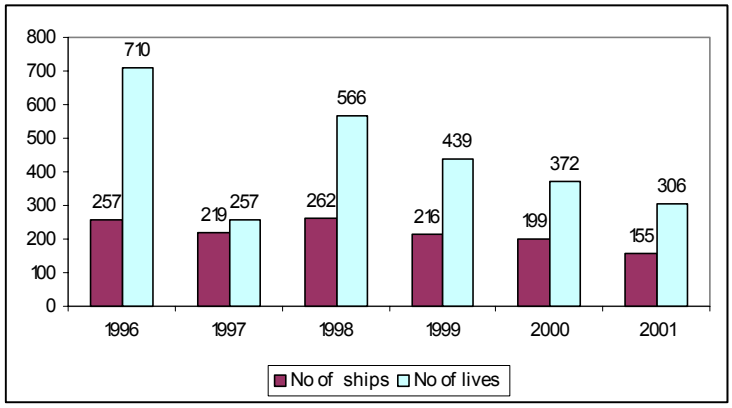
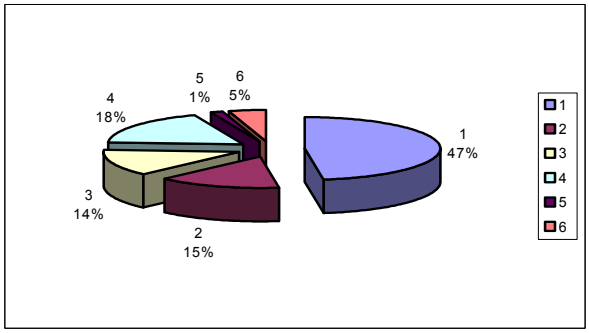


Figure1- Losses of ships/lives lost

Source: World casualty statistics 2001

Analysis of accidents by types of incidences (cause) for the year 2001 shows that 74 out of 155 total losses were due to foundering. This is the highest proportion of all causes and the same can be seen in Figure 2.



Key to the above Fig.2.

1	2	3	4	5	6
Foundered	Fire	Collision	Wrecked/stranded	Contact	Others

Figure 2- Losses of ships by incidences.

Source: World casualty statistics 2001

[2] Actual total losses meaning losses due to foundering, whereas, the constructive total losses are dependent upon the cost of repair and the value of the ship. (Lloyd's Register,[World casualty],2001,)

Now the question arises, which ship type accounts for the major loss category and what is the nature of incident contributing to major loss.

2.2.1 General Cargo ships

From the World Casualty statistics for the period 1995-2000, it is evident that general cargo ships account for 42% of total losses whereas dry bulk and tankers account for 9% and 5% respectively. If the annual rate of total loss is divided by the total number of general cargo ships, this clearly shows that the annual chance of loss for an individual general cargo ship is nearly twice that of a bulk carrier and three times that of an oil tanker.

In the above period, a similar trend of fatality experience is observed. In total losses of all ship types world wide, 37% of the fatalities have been reported on general cargo ships. This is the highest proportion for any ship type. It is important to ascertain the major incidents that caused the higher number of losses in general cargo ships. The analysis reveals that the causes of total losses for general cargo ships during 1990-93 are due to foundering, collision and grounding. Mr. John Spouge of DNV reviewed the statistical evidence and states that risks on general cargo ships are higher than on other ship types.

2.2.2 Bulk carriers

Intercargo's statistics on bulk carrier losses 2001 reveal that 116 bulkers over 10,000 dwt and 618 crew members have been identified as lost during the 10 year period 1992-2001. Though the actual number of ships and lives lost has tended to fluctuate each year, the average number of ships lost has come down from 15, during the 10 year period 1990-1999, to 12 during the period 1992-2001. Similarly, lives lost has fallen from an average of 80 persons to 60 persons during the same periods.

By analysing the losses by causes during the period 1992-2001, it has been found, that losses are dominated by grounding, structural failures, collision and flooding like

in the case of general cargo ships. This has been confirmed by various studies. As part of its Formal Safety Assessment (FSA) study, Japan investigated 360 bulk carrier casualties and found that 70% of all casualties related to progressive flooding after there had been a failure of ship's shell plating, deck fittings or hatch covers. The IACS, looking at casualties of bulk carriers over a period of 20 years attributed 73% of all losses to some form of structural failure. However, there has been an improvement in loss records due to improved structural design from time to time. Mr William O'Neil, Secretary General of IMO said that:

> The conclusions reached by INTERCARGO in their latest Bulk Carrier casualty report are very encouraging indeed. During the ten-year period from 1993 to 2002, the average number of bulk carriers, lives and deadweight tonnage lost has fallen. The beneficial impact of the standards adopted by the IMO, either in the form of amendments to SOLAS or the application of FSA in the IMO decision-making process, and those approved by IACS, should be recognized as contributing to the improvements in this sector of shipping (O'Neill, 2003).

2.2.3 Tankers

A handful of high profile and widely reported accidents have tarred the image of the tanker industry. Tankers are often considered as polluters of oceans and destroyers of coastlines. The tanker industry has lost 92 tankers during the period 1996– 2001 with an average loss of 16 tankers per annum. The total loss of tankers for the year 2001 however is 9, which for the total tanker fleet size of 10,735 is a better loss record as compared to other ship types. Out of 9 total losses in 2001, 5 of them were reported to be lost due to fire/explosion and one tanker has been lost due to grounding pointing to the incidence involving human error (Lloyd's Register of shipping, world casualty statistics, 2001). Intertanko says "There has been a particularly strong decline in hull and machinery related accidents" (Intertanko, 2002, p.15).

2.2.4 Factors attributing to the incidences

Then what are the possible explanations for total losses arising out of foundering, collision, fire/explosion, contact, grounding and other causes? Is the high loss rate for a particular ship type attributable to ship age, ship size, ship design, trade pattern or area of operation like domestic or international trade? It is true that these factors do contribute to the accidents although it has not been established that there is a close relationship between the rate of total losses and each one of these factors. For instance, older ships tend to have higher loss rates than newer ones. At the same time, however, a well maintained old ship under a quality conscious management might not have accidents. The tanker pollution accident in 2002 involved a year 2000 built double hulled chemical tanker mt. Eastern Fortitude that grounded on a rock and spilled bunkers on to nearby beaches (Intertanko, 2002, pp.16-17). Even if compared between different ship types of the same age, the loss rate of general cargo ships is still higher than for tankers and bulkcarriers. Hence this is not simply a problem of ageing ships.

Another area, where ships are operated in domestic trades, the SOLAS regulations do not apply, hence most flags apply different requirements. Could the different safety regime explain the varying loss rates? Unfortunately, available statistics do not demonstrate whether or not this is the case. However, ships operating in domestic short voyages on short sea crossings will have generally a high risk of accidents which underlines the need for a higher degree of seamanship in the operation.

To sum up, the main reason why the risks on general cargo ships are higher than on other ships appears to be the generally poor quality of safety management in their operations. In addition, it is possible the relatively poor survivability of general cargo ships following flooding and the fatigue-induced errors due to labour intensive cargo operations could contribute to the accidents. Short voyages and small crews are also contributing factors. (Spouge, 2003). Similarly, the same reason of poor

safety management in other ship types could be the cause for their losses. Thus, human error plays an important role in accidents which may lead to total losses.

However, the trend of reduction in H&M claims is continuing, with some owners taking deductibles of over a million dollars, making their insurance virtually catastrophe only. Moreover, surveys are arranged to quantify damages within the huge deductible. This exercise can be immensely valuable for owners wishing to keep track of their damage incidents and assess the causes of damages which would formerly have been on their claims record (www.wreckage.org). This reflects the ship owners' safety culture.

2.3 P&I risk categories experience

Reference is made mainly to the major claims analysis of the UK P&I Club covering claims of a 10 year period from 1987 to 1997. The Club's membership accounts for 20% of the world's deep water fleet involving entered tonnage over 5000 ships. The composition of their portfolio broadly represents the overall world fleet in terms of type of ships and tonnage, areas and type of ownerships, flag, class and risk profiles.

The Club has emphasised concentration on major claims, 2% of all claims, as having arisen out of different incidences, because this small proportion of all claims has contributed 72% to total claims values of this period. It is thus evident that the avoidance of major claims has a much more immediate and significant impact upon a member's record than concentrating on all claims for loss prevention. This has been reflected in the major claims trend, which has been declining as shown in Table 1 due to the loss prevention measures taken by the UK Club:

Table 1- Major claims of UK Club

YEAR	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**
No of Claims	**433**	**423**	**397**	**365**	**313**	**156**

Source: UK P&I Club, 2003

2.3.1 Risk categories and ship type

The Club is analysing the specific features of each of the main trade types in greater detail to see what lies behind the number and average value trend of claims for each ship type. The percentage of major claims generated by each ship type is measured against the club entry of that ship type by number. On this basis bulk carriers, general cargo ships and tankers make up the bulk of the Club's entry as well as the bulk of all major claims. Then what is the comparative position of these ship types?

2.3.1.1 Bulk carriers

Bulk carriers, making up 19% of the club's entered tonnage were involved in 779 major claims over the ten year period. This represents 21% of the total number of major claims. Analysis indicates, in terms of risk category, that most bulk carrier claims are cargo related at 45%, followed by personal injury at 16%, third party damage and collision at 12% each and pollution at 3%. However, collision, pollution and property claims are more expensive on average though they are lesser by numbers.

In terms of the causes of these risks, 25% are attributed to ship failure as compared with 23% of all ships together. It is thus clear that, maintaining structural integrity is of importance if losses are to be reduced. Most of the claims are due to poor hatch cover maintenance. Nevertheless, human error predominates at 55% with shore personnel error being 16.3% and mistakes by those on board being 39.5%. Bulk carriers cause 25% of the clubs property claims. It has been found that the principal cause of these is human error by persons other than ship's crew. Pilot error was a factor in 33 out of the 85 property claims. In terms of size, bulk carriers of between 10,000-30,000 GT account for over 68% of the total bulk carriers' major claims, generating 72% by value, yet ships of this size constitute only 60% of the bulk carriers entered in the club. Furthermore, over half of all bulk carriers' property damage claims involve ships of between 13,000-17,000GT. The inference that can be drawn from these facts is that it may be the trading pattern of this category with

perhaps shorter voyages and more berthing, loading and discharging operations per year that results in a high risk rather than age or size alone. This continues to underline the need for extreme care in the routine operation and management of such ships.

Bulk carriers seem to attract more cargo shortage claims in some countries. For instance, receivers in certain Italian ports are discharging all but 10-15 tonnes of cargo and then stopping, claiming there is a shortage based on shore weighbridge figures plus the amount of cargo remaining on board. Receivers ask for either a guarantee or an immediate cash payment and refuse to discharge the remaining cargo onboard until one or the other is provided. Since cargo is still on board, the ship cannot obtain customs port clearance to sail. In order to avoid detention to the vessel, the owner may consider it better to settle the small amount of the alleged cargo shortage claim (Beating bogus.., 2003, April. p.3).

It is concluded that in cargo claims, age, structural consequences of age and size are important factors, but by no means the only contributors. Human error plays an important role too. Hatch cover failures and bad stowage are important reasons. Some are due to bad trade practices in certain ports.

2.3.1.2 Dry cargo ships

Dry cargo ships, which make up 27% of the club's entered tonnage are involved in 21% of major claims by number. The frequency of claims is declining in line with the overall trend but at a slightly lower rate. In terms of risk category, most incidents are cargo related at 60% followed by personal injury claims at 11%, collision claims at 8%, damage to third party property at 7%. A point worth noting is that the number of cargo claims caused by errors on the part of shore personnel is higher than for other type of ships. These arise either from poor quality stevedoring or poor standards of care while cargo is in shore terminals or in the custody of land carriers while moving goods under a through bill of lading. Some of the claims result from

deliberate fraud or theft. The failure of hatch covers account for more than half the claims in the structural failure category.

2.3.1.3 Tankers

During the relevant period, there have been 582 major claims which show a trend of steady decline. Tanker claims are continuing to decline in line with the overall major claims trend. Cargo claims account for the greatest number of major claims, closely followed by personal injuries. Pollution though is not a frequent major claim but is the most expensive of all risk types, accounting for 40% of the total value. Detecting a trend in the value of claims from tankers is extremely difficult bearing in mind that it takes only one total loss or large pollution incident to produce a very large claim.
The high number of property damage claims may reflect upon the lack of manoeuvrability characteristics of this type of ships pointing towards a cause of accidents due to human error. Claims caused by deck officers, crew, pilot error and structural failure dominate in the major claims of tankers.

2.3.1.4 Passenger ships

Passenger ships produced 266 major claims during the period. The frequency trend has been above the overall major claims. In terms of average value, the trend has been erratic but above the general trend overall. By far the majority of claims are personal injury related with over 50% being passenger/third party personal injury claims. However, 27% of the claims by number relate to crew claims. It is found that in terms of risk profile, passenger ships have had minimum collision claims, third party damages and pollution claims. Further, shore person error is relatively low in this category, as one would expect given the nature of the trade. Passenger claims can be expensive, reflecting the consequential losses to injured passengers who tend to be drawn from the high earning classes.

2.4 Analysis of major Claims

On the basis of the proportion of their claims, the following are the larger claims categories reported to the UK Club.

2.4.1 Cargo claims

It can be observed from the ship wise risk profile that the cargo claims are dominating in bulk carriers, dry cargo ships and tankers. The cargoes associated with the greatest frequency of major cargo claims are dry bulk, reefer, general cargo, steel and petroleum products resulting from bad stowage, negligent handling, leaking hatch covers and physical damage.

Cargo claims – Main causes

1) Physical damage: this includes damage caused by crushing, denting and breakage. This type of damage is most often suffered by general, reefer, steel and machinery cargoes as a result of bad stowage.

2) Seawater damage: cargo claims, as a result of condensation and sea water ingress through defective hatch covers, are more common in bulk carriers and dry cargo ships. The cargoes most frequently affected are grains, sugar, cement, steel and fertilizer.

3) Contamination: the most frequent types of cargo affected by contamination are oil products, bulk chemicals and dry bulk commodities. It is more often caused by inadequate tank cleaning, bad handling, bad stowage and valve/pipe failures.

4) Shortage claims: the most frequently affected cargoes are crude oil, bagged bulk, dry bulk and oil products. The possible causes are bad handling, fraud, bad stowage, ocean loss in transit and poor tallying or mistake in shore weighing bridges.

What is the role of the human and technical factors in this? The role of these two main factors can be explained in terms of human error by officers, crew, pilot, shore personnel and technical errors by equipment failure, mechanical failure and structural failure. The UK Club's study indicates that almost 24% of major cargo claims are due to deck officer error, followed by shore error at 18% and 30% of claims are due

to technical error. The shore personnel error is certainly not in shipping companies' control where ship staff have little or no control over loading and unloading of cargoes. This may call for a necessary system where in shore personnel are being held liable for the damages, which would result in lesser shore side damages.

2.4.2 Personal injury claims

The personal injury claims involving crew and non-crew injury are the second most frequent causes of major claims. The personal injury claims, which fall into the category of crew error, are cases where a crewman injures himself or a fellow worker. This type of injury has been decreasing due to proper training programs and safer on board operations. The non-crew injury to passengers, pilots, stevedores and other third parties could be more expensive depending on the place or country. For instance, there are greater risks of high value personal injury claims in countries like Australia, the US and some of the European ports reflecting the consequential losses to injured passengers who tend to be drawn from the high earning classes.

Personal injury- Main causes

The most common types of personal injury claims are slips and falls, being struck by a falling object, burns and passenger casualty. Almost all accidents to personnel occur during routine work and very few take place in exceptional circumstances. Non-observance of basic and established safety procedures are the most common reasons for accidents. Personal injury claims exemplify the problem of human error although the mechanical or structural failures are also contributing factors but to a small extent. The factors that are responsible for human error can be listed as follows:

- Failure to wear protective personal equipment;
- Lifting heavy objects wrongly or without help;
- Failing to rig accommodation ladder and gangway correctly;
- Failing to place guards to screen moving parts;
- Failing to use safety harness when working aloft or over side;

- Operating equipment from an obstructed viewpoint without direction;
- Standing within the bight of a mooring line;
- Failing to rig guardrails around unprotected openings and platforms;
- Entering a dark or dim compartment without means of illumination;
- Failing to clean up and remedy leakages of fluid;
- Over confidence and lack of concentration;
- Non-familiarity with the ships.

2.4.3 Collision and contact damage claims

These claims may be declining by numbers but even a small incident may turn out to be a major catastrophe if the incident leads to pollution. The Swedish Club attributes the increased total H& M claims for the year 2001 to the collision and contact claims. The Club experienced as many as nine such claims during January 2001 to September 2002. The total cost of these nine claims was USD 37 million averaging a cost of about USD 4 million per claim.

Collision / contact damage- Main causes

The Swedish Club's study on causes of major collision claims reveals that poor visibility or navigating equipment being out of order or providing incorrect data without the bridge team's knowledge seem to be rare cases. On the contrary, one small and insignificant initial mistake ultimately leads to these severe accidents and heavy claims. The primary causes of accidents are often related to the attitudes of the individuals on board. They make their own judgements concerning what is or is not important and fail to follow company procedures or fail to ask or listen to others who may posses better information about the specific situation. The Swedish Club summarises the causes behind these accidents as follows:

- Pre-occupation with minor administrative or technical tasks;
- Failure to use or detect deviations from standard operating procedures;
- Lack of situational awareness;
- Failure to communicate intent or plan;

- Failure to challenge incorrect decisions;
- Failure to set priorities;
- Failure to utilise available data.

In the opinion of the Swedish Club, a large number of accidents are attributable to attitudes and behaviour of individuals rather than a lack of navigating skills (Hernquist, 2002 a, pp.4-5). These incidents are not only claims but also often lead to other claims like cargo and pollution claims. Human error accounts for over 75% of such claims.

2.4.4 Grounding claims

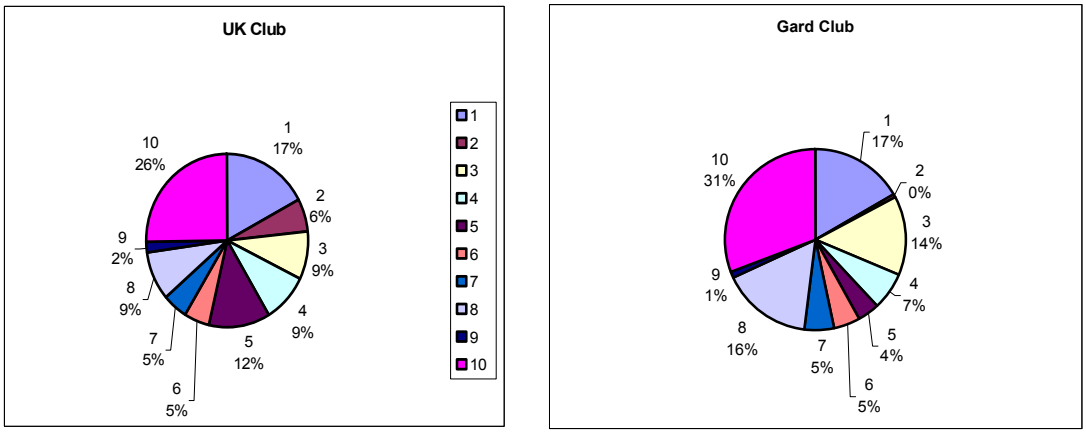
The second most expensive H&M claim categories of the Swedish Club in 2001 was grounding claims. The total cost of all H&M claims towards grounding claims during 1995 to 2002 amounted to 23% of all claims. The incidences of grounding do take place during thick fog and poor visibility. Surprisingly, the study by the Norwegian Maritime Directorate reveals that more than half of the incidents take place not in thick fog or other conditions of severely restricted visibility, but in good visibility weather. Moreover, the survey also reveals that around one quarter of the casualties were as a result of the watch keeper falling asleep. More than two-thirds of the cases occurred after dark when the watch keeper was the sole occupant of the bridge. This is in contravention of the STCW Convention requirement, which calls for a second pair of eyes to be available. What is concluded here is that, a non-observance of provisions for hours of work and rest are major contributing factors to incidents of grounding. The industry has many decades of understanding of the symptoms and consequences of fatigue, but it seems very little is done to ensure that the requirements for work and rest are followed. Adequate manning is fundamental to the resolution to this issue (Perchance to.., 2003, April 25,p.7).

2.4.5 Major risk categories and overall contribution of human element

The incidents are taking place either due to human error or technical error. It is evident from the above analysis that a majority of the incidents are due to human

error. To substantiate further the findings of the two major P&I Clubs are referred to for examining the extent of role the human error[3] and technical error[4] play in the cause of accidents.

The GARD Club, which is one of the largest P&I Clubs with a fleet size of 66 million gross tonnage, concludes that the main cause of claims is the human factor involving officer, crew, pilot and shore error in the proportion of 61% of all claims while 35% is on account of technical error. The diagrams below set out the principal causes of major claims in terms of frequency as identified by the UK P&I Club and Gard Club.



Key to Fig. 3. above.

1	Crew error	**6**	Pilot error
2	Under investigation	**7**	Mechanical error
3	Structural failure	**8**	Equipment error
4	Shore error	**9**	Engineer officer's error
5	Others	**10**	Deck officer's error

Figure 3- Principle causes of major claims in UK Club & Gard Club

Source: UK Club and Gard Club, 2003.

[3] Human error encompasses any human act or omission identifiable as a direct and/or contributory operating cause of the event.

[4] The technical failures consist of structural failure, mechanical failure and equipment failure

The UK P&I Club, has analysed the major claims over USD 100,000 it handled between 1987 and 2002. Of the 5250 large claims processed, which cost the club USD 2,250 million, approximately one-half involved human error. Deck officers accounted for 39%, crew 30%, engineering officers 4%, pilots 10% and people ashore 17% of the human error claims. It was also found that the number of human error claims declined from 240 in 1990 to 100 in 1999. Although declining marginally, claims due to human error continue to be the major challenge accounting for 58% of the major claims as evident from in the Figure 3 above.

Having observed that human error is the main cause for all maritime claims, it is also necessary to have an understanding of the root causes of human error like "why people make mistakes" for the task of improving safety in shipping. Unfortunately, such information is not available with the Clubs. Of course, it is vital for ship operators to have statistical data on issues such as fatigue, lack of training, inadequate management, motivational or emotional causes of human error for developing a safety culture on board ships.

2.4.5.1 Factors contributing to human error

The factors such as fatigue, discomfort, boredom, anger and stress make people more prone to mistakes than might otherwise be the case.

1) Language problems cause potential danger of misunderstanding between officers and crew. It is more serious especially in mixed nationality ships and in situations where there is little or no margin for error such as in berthing or bunkering. Many a times pilots and masters have difficulty in understanding one another.

2) Fatigue is a continuing cause due to smaller crews and shorter turn round times in port. Often intense activities may lead to arithmetical mistakes in calculating stability and other operational tasks.

3) Pride is another factor which causes mistakes. There is a tendency for human beings to carry out tasks single handedly even when they would require assistance from other persons.

4) Commercial pressures from office can cause masters to take calculated risks.

5) Non-observation of basic and established safety and commercial procedures on board and ashore.

Added to this, so many additional pressures are being placed on shipmasters. The inspections, surveys, vetting, attentions of port state control, port authorities, class, insurers, cargo interests are all taking up the time and attention of masters. The forthcoming ISPS Code will soon offer further fields for visitors, thus more and more burdens on that diminishing band of people aboard a ship. As a result, issues of fatigue, as a matter of priority need to be addressed.

Chapter 3

The Shipping Corporation of India Ltd., (SCI) Mumbai: Maritime claims

3.1 Introduction

Considering the general scenario of maritime risk now prevailing and expected future developments as discussed previously in Chapter 2, ship owners need to invest substantial time and money to reduce maritime risks and thereby reduce insurance costs. In order to quantify the risk of an operation, the consequences of its incidents in terms of claims and their frequency need to be considered. The main objective of this chapter is to analyse claims of ISM Code phase I vessels of the SCI Ltd.

Brief description of SCI Ltd.

The SCI is India's premier shipping company with a significant presence on the global maritime map and has been operating for nearly four decades. The SCI owns and operates about 40% of Indian tonnage comprising break-bulk services, international container services, passengers services and liquid/dry bulk transportation services etc. Presently, the total fleet of SCI is 112 vessels, including management of 20 vessels and four vessels on period time charter.

Table 2- SCI Fleet.

Sr.No.	Vessels Type.	No of vessels	GRT
1.	Liner vessels	2	31,051
2.	Cellular container vessels	3	65,889
3.	Passenger cum cargo/Research vessels. (includes 12 passenger vessels)	22	88,226
4.	Offshore vessels	10	13,100
5.	Bulk carriers	23	587,075
6.	Crude and product carriers	43	1,850,927
7.	LPG carriers	2	35,556
8.	Phosphoric chemical carriers	3	63,105
9.	Time chartered vessels	4	125,257
	Total	112	2,860,186

Source: Shipping Corporation of India Ltd., Mumbai. Insurance Department. 2003.

The SCI is a socially committed national carrier, placing great emphasis on the safety of vessels it operates and the environment. Thus it has evolved into a high quality and safety conscious organisation. The company has come a long way with its presence in almost every type of sea transportation and on every major sea route in the world earning a place among the world's top 15 shipping enterprises.

3.2 Claims analysis of SCI vessels[1]

For the purpose of localising maritime claims, the ISM certified vessels like bulk carriers, tankers and passenger vessels are considered. The total hull and machinery claims together with protection and indemnity claims for the period 1998-2001 and 1998-2002 respectively are studied. The claims details for H&M cover are obtained from the insurance department of SCI. The H&M cover of SCI vessels is placed with Indian insurance companies, which are subsidiary companies of the General Insurance Corporation of India (GIC of India). The claims details for the liability cover (P&I) are retrieved from the claims reports of five P&I clubs with whom the SCI fleet is entered. They are:

- Steamship Mutual Underwriting Association (Bermuda) Ltd.
- Gard P&I Club, Oslo.
- Britannia Club, London.
- Standard Club, London.
- North of England P&I Association Ltd., Newcastle.

3.2.1 Hull and Machinery (H&M) claims

There have been 19 incidents during 1998-2001 in respect of H&M claims on SCI vessels. These 19 claims during this four year period are valued at USD 3,408,189. However, seven of the incidents occurred in the year 1999 alone, accounting for USD 2,360,000 of the total claims value. Although the claims show a fluctuating trend but they have been reducing in terms of value from 1999 onwards.

[1] SCI vessels here are defined as vessels that had to be certified in the first phase of implementation of the ISM Code.

Table 3- H&M claims of SCI, 1998-2001

Sr No.	Year	No of claims	Value ($)
1	1998	4	720,556
2	1999	7	2,360,000
3	2000	3	178,222
4	2001	5	149,411
		19	**3,408,189**

Source: SCI Insurance Deptt., 2003.

Analysis of claims by incidences shows that nine claims are technical related and constitutes 75% of the total claims in terms of value. These claims include damages to boiler, port main engine, auxiliary engine, crankshaft, main engine gear train and loss of anchor with cable[2]. In one of the incidents, it is surprising to note that a newly installed gear on a tanker was damaged with a corresponding claim of USD 244,444. Although the number of incidents is small they can turn out to be a disaster. From the nature of damages it appears that poor maintenance, negligence and non- availability of spares could have been the reasons behind such breakdowns. The claims as per the nature of incidences are summarised in Table 4.

Table 4- H&M claims of SCI by incidences, 1998-2001.

Incidences	Total value ($)	No of claims
Technical related.	2,592,189	9
Contact / FFO	204,889	5
Grounding	66,667	1
Fire / Explosion	66,666	2
Heavy weather damage	233,333	1
Miscellaneous	244,444	1
	3,408,188	**19**

Source: SCI Insurance Deptt., 2003.

Damages to hull and machineries due to contact, grounding and fire/explosion represent 47% of the total number of claims. The main cause contributing to such claims is human error, however, the combined effect of fatigue and the activities

[2] Similarly, a UK club entered ship had lost an anchor with cable in an area close to an oil production installation. The anchor ruptured a submerged pipeline causing considerable damage , leading to a claim of USD 9 million, but subsequently negotiated down to some extent.(UK Club-Loss Prevention News: issue 11, 1999)

involved while entering the port seem to be the reasons behind such human error. A few accidents of SCI vessels are enumerated below with brief descriptions:

1) Crude carrier, while berthing with pilot on board, came in contact with berth fenders with high momentum, resulting in dents on the shipside plate.
2) Bulk carrier, while under pilotage came in contact with mooring buoy and her stern came in contact with another vessel.
3) Product tanker came in contact with terminal, while berthing during strong boisterous weather rupturing her cargo tanks. *The decision by the port authorities to berth vessel during such a bad weather is questionable placing vessel and cargo in danger as spilled naphtha could have led to fire.* This could have possibly led to the ship exploding.
4) Passenger vessel, while manoeuvring to enter port with pilot on board, the strength of tide was misjudged and the vessel's stem made heavy contact with the jetty sustaining heavy damage. As a result, the vessel was laid up for about 30 days.

What can possibly be concluded from the above cases is that a lack of situational awareness and attitudes of individuals leading to uncaring behaviour are the responsible factors for such accidents.

Factors responsible for accidents due to human error

Possible factors which lead to human error causing accidents like collision, contacts and grounding could be listed as follows:

- Poor watch keeping;
- Over reliance on radar;
- Pilot's over confidence;
- Non-adherence to regulations for the prevention of collisions at sea;
- Non-availability of revised charts and latest copies of regulations;
- Absence of co-ordination between pilot, master and tugs;
- Failure of pilot and master to confer in advance and agree to a clear division of responsibilities;

- Misunderstanding resulting from language barriers;
- Inexperienced deck officers.

3.2.2 Protection and indemnity claims

Reference is made to all the claims of SCI vessels as reported during the period 1998 to 2002 in Table 5. The total P&I claims are 227, and these comprise only 5% of the claims that exceed the deductible limit of USD 50,000. It means 95% of all claims are negotiated and settled directly by SCI on its own with higher deductible limit.

It is evident, from Table 5 that only 12 claims in a five year period exceed the value of the deductibles. In view of the better risk assessment the company probably decided to maintain a higher deductible of USD 50,000 per incident[3]. This enables the company to retain a higher portion of risk with itself and in the process, gaining in terms of low premium. Over a period of time, the SCI has developed an in-house expertise to handle and negotiate the company claims on the best possible terms. Thus the major portion of claims are handled by the in-house Insurance and Claims Departments in consultation with the technical and commercial operation departments.

On an average, the total number of 227 claims during the five year period work out to 45 claims per year. It can be seen from Table 5 that, although major claims have tended to fluctuate, the total number of claims has been reduced after 1999. The personal injury/death claims are at a higher proportion accounting for 29% of all the claims. These include three major claims exceeding USD 50,000 in claim value. Contrary to the general trend on maritime risk scenario, the cargo claims in respect of SCI are 20% of the total claims. The proportion of cargo claims is probably less due to the exclusion of dry cargo break-bulk ships (being ISM phase 2 ships) which are known to produce more cargo claims as compared to other ship types.

[3] In case of multiple claims, for instance, cargo claim and oil pollution claim arising due to tanker collision, then only one deductible is applicable contrary to the individual claim.

Table 5-P & I claims by number for SCI phase 1 vessels, 1998-2002

Year	Vessel	Personal injuries and		Cargo claims		Property damage		Pollution		Collision / FFO		Groundings		Others		Total claims	Major claims
**		< 50	>50	< 50	>50	< 50	>50	< 50	>50	< 50	>50	<50	>50	<50	>50		
1998	Bulk carriers	4		3		2		1		2		1		1		14	
	Passenger ships	1														1	
	Tankers	5				1		8		3		3		2		22	
	Total	**10**		**3**		**3**		**9**		**5**		**4**		**3**		**37**	
1999	Bulk carriers	16	2	6				2		6				5		37	2
	Passenger ships	4								1						5	
	Tankers	8						3		8		2		1	1	23	1
	Total	**28**	**2**	**6**				**5**		**15**		**2**		**6**	**1**	**65**	**3**
2000	Bulk carriers	9		8	1					7				3		28	1
	Passenger ships			1		1										2	
	Tankers	5		2				4		8	2			1		22	2
	Total	**14**		**11**	**1**	**1**		**4**		**15**	**2**			**4**		**52**	**3**
2001	Bulk carriers	6		9		3				2				1	1	22	1
	Passenger ships			1						1						2	
	Tankers	2		4	1	1		9		6						23	1
	Total	**8**		**14**	**1**	**4**		**9**		**9**				**1**	**1**	**47**	**2**
2002	Bulk carriers	2		6	2	1		1		2				1		15	2
	Passenger ships		1							1						2	1
	Tankers			1				5		1	1			1		9	1
	Total	**2**	**1**	**7**	**2**	**1**		**6**		**4**	**1**			**2**		**26**	**4**
	Grand total	**62**	**3**	**41**	**4**	**9**		**33**		**48**	**3**	**6**		**16**	**2**	**227**	**12**

Source: SCI, Insurance Deptt., 2003

Note : 1. Claims exceeding $ 50,000 value are considered as major claims and the major claims are included in the total claims.

2. FFO : Fixed and floating objects.

3. Figures in the row denoted by ** are in US $'000

3.2.2.1 Risk categories and ship type

The percentage of claims generated by each ship type compared with its share in the total tonnage is used as a basis in Figure 4. Thus, the trend of the claims in a particular ship type is evaluated against the number of ships in that particular ship type.

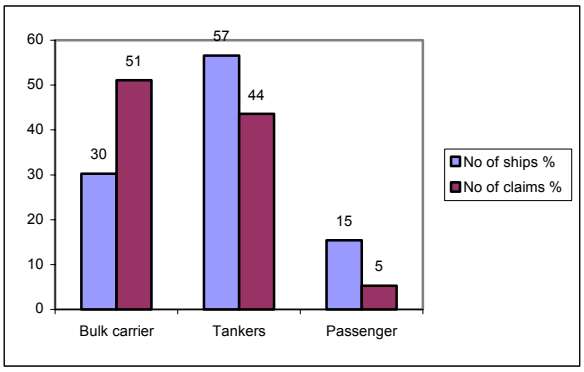


Figure 4- Percentage of claims vis-à-vis tonnage of SCI ships

Source: SCI Ltd., 2003

On this basis, bulk carriers and tankers make up the bulk of the claims of SCI. Then the question is; What is the relative claims position of each ship type?

Bulk carriers

Bulk carriers, making up 30% of the total tonnage, were involved in 116 claims during a five year period. These claims represent 51% of the total number of claims. In terms of risk category, the analysis shows that most claims are personal injury/deaths accounting for 34%, followed by cargo claims 30% and collision / FFO 16% of the total claims. There are 12 major claims exceeding the deductibles, out of which bulk carriers have produced 6 claims representing 50% of the total major claims. These included two major personal injuries which subsequently led to deaths and the total claim amount towards these incidents was USD 340, 219.

T**ankers**

Tankers, making up 57 % of the total tonnage, were involved in 99 claims during the five year period representing 44% of the total number of claims. In terms of the risk

category, the analysis reveals that the claims due to pollution and collision/FFO are at 29% each of the total tanker claims. A majority of the pollution claims are due to minor oil spills falling below the deductible of USD 50,000. Some of these are alleged claims even though they were due to a fault on the shore side. As regards collision/FFO claims, out of a total number of 29 claims, only one claim was due to a tanker colliding with a bulk carrier. The rest were all due to contact with FFOs like jetties, SBMs, dolphins, tugs and buoys. In one of the incidents, the tanker drifted away due to bad weather while discharging cargo, causing major damage to a flexible Chicksen arms. This could have been averted with immediate disconnection of the discharging arm and shifting to sea, if the weather had been monitored and advised by the port authorities in time. These experiences clearly point towards the necessity of contingency planning to avert such accidents.

Passenger ships

There are 12 passenger vessels in the SCI fleet which have produced a total number of 12 claims during the five year period, representing 5 % of the total claims of the SCI fleet. Of the 12 claims, five were due to personal/passenger injury.

3.2.3 Analysis of major claims of the SCI fleet

On the basis of the claims analysis of all the ship types, the following have been considered as major claims of SCI:

3.2.3.1 Personal injury claims

SCI vessels have produced relatively more personnel related claims amounting to 65 claims in number and 29% of the total number of the claims. Although they are all below the deductible limit of USD 50,000, by considering maximum average claim amount of USD50,000, all these claims can be valued theoretically at USD 3,250,000 (65 claims * USD50,000). These claims include injuries, illness, missing and deaths of crew. Non-crew persons like stevedores, visitors and passengers are included in this number.

Analysis of causes of claims surprisingly indicates that more than 45% of the claims are due to deaths. In the absence of information with regards to the cause of the deaths, the author was unable to conclude whether seamen joining SCI are employed with pre-existing medical conditions. However, it is possible that a seaman who is unfit can get employed due to inadequate local screening. This leads to ever increasing costs of crew illness and deaths. It is equally important to man a vessel by fit and healthy crew, as the loss of just one man on board can have a disruptive and expensive impact on the vessel's operation.

The UK Club has come out with a crew fitness project scheme for its members to screen out the unfit crew. The statistics reveal that in 1996 alone, the personal injury claims of Filipino seamen, who comprise more than 20% of the world's seafarers, accounted for over USD 7 million. Out of 15,000 examinations carried out to date, the number of unfit crew screened out by the scheme was 1,200. In a worst case scenario, based on an average permanent disability compensation of USD 80,000 per individual, the potential cost savings are extremely significant to the company (UK Club, 2000 Sept, pp.3-4). It is advisable for shipping companies to participate in such projects.

Further analysis shows that slips, falls, being struck by falling objects and burns are the most common causes of personal injuries. Non-observation of basic precautions and established safety procedures are the most common reasons for such incidents.

3.2.3.2 Collision/contact damage

SCI vessels have produced a total of 51 claims in the five year period which were caused by contact/collision and they represent 22% of the total claims. Of these claims, three are major claims valued at USD 1,044,525 and the balance 48 claims are below the deductibles. In the absence of information on claims value, based on a maximum limit of the deductible of USD 50,000 per claim, these 48 claims can be valued at USD 2,400,000. Thus, all claims together are valued at USD 3,444,525.

Damages to property and hull are most of the time caused while entering a port, channel, double banking and during manoeuvring in heavy weather with pilots on board. Although all claims due to contact damage (except 3 claims) are minor, one should not forget that the causes for major claims are the same as for small claims.

3.2.3.3 Cargo claims

Cargo claims cost the whole P&I industry USD one million per day and numerically account for about 40% of all the P&I claims. No wonder P&I clubs work so tirelessly with their members on loss-prevention measures to reduce cargo claims (Lumbers, 2003).

For the SCI fleet 45 of the 227 total claims, i.e. claims constituting 20 % of the total number of the claims are cargo related claims. Bulk carriers alone have generated 35 cargo claims that comprise 78 % of the total number of cargo claims. About 50% of the cargo claims generated by bulk carriers were due to wet damage and water ingress, steel and grain cargoes being the worst affected ones. Other cargo claims were due to short landing, contamination and physical damage. Analysis reveals that ship's failure most commonly triggers cargo claims. Of these claims, a large proportion was attributable to hatch cover failures, largely in 10-18 year old ships of handy size between 10,000 to 40,000 DWT. This underlines the lack of extra care required in routine operations. It is also possible that non-availability of spares and want of timely maintenance are contributing factors in these claims. This provides a clear illustration of the fact that hatch covers must be maintained continuously from an early age of the vessel.

The operation of SCI's tankers fleet of 48, with an average fleet age of 18 years is one of the success stories with only seven cargo claims in the five year period. Shortage claims in case of crude carriers and contamination (Off-spec) claims of product tankers are the most common cargo claims in the tanker trade. Most off-specification incidents of cargo occur due to vapour migration, especially when the

grade is changed from motor spirit (Petrol) to Gas oil. The integrity of valve systems is very important in tankers to avoid contamination of cargo.

Factors responsible for cargo claims

The possible contributory factors towards cargo claims can be grouped as follows:

- Failure to ensure appropriate stowage of cargo;
- Improper lashing and dunnage, securing and trimming of cargo;
- Improper handling on board and ashore;
- Improper ventilation of cargo;
- Failure to ensure water-tightness of hatch cover;
- Inexperienced crew;
- Failure to ensure appropriate and adequate cleaning of cargo tanks, lines, and pumps and strip dry;
- Failure to take shore line sample, running sample at manifold and composite sample of cargo tanks while loading;

In case of clean petroleum products shipments, contamination takes place on board due to wrong tank cleaning methods when there is a change in grade to be loaded. As a trade practice, it is always the ship owners' responsibility to do proper and adequate tank cleaning prior to loading cargo so as to deliver the cargo in the same condition as it was loaded. However in the Indian market, it is the charterers (Indian Oil refineries) who have developed exhaustive tank cleaning instructions based on the type of grade being loaded. These instructions are to be strictly followed by the tankers. This cleaning key is used even when cargoes on account of oil majors like Shell, BP and Exxon-Mobil are loaded. This signifies the charterers concern in the safe carriage of the cargo. Such charterers' expertise is very helpful as cargo owners know the properties of the grade better than ship owners. This is particularly helpful when a master without adequate product tanker experience is in command.

It has been observed that many times fictitious cargo claims, like the alleged wet damage, short landing claims and contamination (off-spec) of cargo are received in

some ports. This will result in detention of the vessel until the issues of alleged claims are resolved between the charterers and owners. In order to prevent such detentions arising out of bad trade practices, it has been made a practice in SCI that P&I continuous survey for quality and quantity of shipment is arranged while loading/discharging. This has helped SCI a lot in minimising such alleged and other cargo claims. At times there are cargo claims arising due to pre-shipment deficiencies when the condition of such deficiencies are not mentioned in the relevant Bill of Lading (B/L). However, mentioning a condition of cargo in the B/L is difficult in practice due to commercial reasons. At the most, owners can take a letter of indemnity for issuance of a clean B/L, depending on the credibility of the charterers, as this would prejudice the insurance coverage.

3.2.3.4 Oil pollution claims

SCI ships altogether have produced 33 pollution claims of the total number of claims. All of them are very minor in terms of value being less than the deductibles and on an average ranging between USD10,000 and USD20,000 per claim. Not surprisingly, tankers have produced most of the claims (29 in number) representing 88% of the total pollution claims. Analysis of the claims shows that mostly these claims in respect of SCI tankers occurred:

1. During de-ballasting, while disconnecting cargo arm and bunkering.
2. Some are caused due to leakage from P/V valve, flange leakage, parting of shore flexibles due to sudden bad weather and cargo hose bursting.
3. Some are alleged oil spills.

The pollution claims record of SCI vessels is not only making up a small percentage of overall claims but they are also less expensive. However, the general industry experience is that they are the single most expensive type of claim.

Factors responsible for these claims

The possible factors which are responsible for the oil pollution claims are as follows:

- Marine casualties such as strandings, founderings and collisions;

- Any ship taking on or transferring bunkers or disposing of, or transferring, fuel oil residues and bilge water;
- Tanker operations such as cargo loading/discharging, tank cleaning and ballasting operations;
- Discharging of hold bilges or ballast water on vessels other than tankers;
- Washing of decks covered with cargo remnants or hydraulic oil which has leaked from deck machinery.

Chapter 4

The effects of the International Safety Management (ISM) Code on maritime claims

4.1 Introduction

Five years have now passed since the implementation of the ISM Code for phase one vessels, i.e. 1st July 1998. Now it is time to look beyond certification and focussing more on implementation of the Code and its objectives. If failing to do this there might very well be a "paradise lost" in papers and bureaucracy foregoing the associated benefits (Forsmo, 2002).

A recent study carried out by the Swedish Club, confirms that ship owners who implement the ISM Code can expect to achieve a reduction in hull claims of up to 30 percent. A similar improvement in the incidence of P&I claims can also be expected (Hernquist, 2001). However, seeing an increasing trend of deficiencies and detentions of vessels all around the world on the one hand and on the other hand that many reputed shipping companies have undeniably developed a safety culture, it appears that the opinions on the success, or otherwise, are mixed as to the question of, is the ISM Code working?

With this background, the primary objective of this chapter is to ascertain, what effects the implementation and operation of the ISM Code has produced on the Shipping Corporation of India Ltd., Mumbai. An evaluation of the working of ISM Code in the company in relation to the functional requirements of Code is endeavoured. This chapter also tries to see the impact of the Code's implementation on claims reduction and the implications on insurance coverage due to non-

compliance. The possible problems being faced in implementation in general are discussed.

4.2 International Safety Management Code (ISM) in brief

It is assumed that the reader is fully conversant with the ISM Code in accordance with the resolution A.788 (9) of the International Maritime Organisation (IMO) and SOLAS, Chapter IX ISM Code and only the essence of the Code is briefly discussed.

It is surprising, just how brief the ISM Code is, containing just 13 articles on a few pages. The reason is that the ISM Code says something about what to do, but very little on how to do it. The Code is non-prescriptive, and it is the first shift to a self-governing regime. The rationale behind this is that it is the operator who has to identify the risk to the type of fleet and trade in which his ships are operated and to develop suitable safeguards against the identified risks.

The objectives are to ensure

- safety at sea;
- prevention of human injury or loss of life;
- avoidance of damage to the environment, in particular to the marine environment and to property.

ISM Code Implementation

Chapter IX of SOLAS 74 makes it mandatory for shipping companies, operating a defined class of ships to comply with the requirements of the Code. The ISM Code is a formal recognition of the shore management's responsibility for safe operation of ships and pollution prevention. For compliance, the shipping companies are required to establish a Safety Management System (SMS) for their shore and shipboard operations. The SMS refers to a structured and documented system specifying the company's safety policy and objectives, strategies for achieving these objectives, levels of authorities and responsibilities, channels of communications, procedures for

normal and emergency operations, procedures for internal and external control with mechanisms for review and its improvement. The system is approved by the flag state administration. A Document of Compliance to the company and the Safety Management Certificate for the ship is issued. The provisions of port state control are applicable to the ship (Prasad, 2003). The SMS should be developed with the following specified functional requirements:

- Safety and environmental protection policy;
- Company responsibilities and authority;
- Master's responsibility and authority;
- Resources and personnel;
- Development of plans for shipboard operation;
- Emergency preparedness;
- Reports and analysis of non-conformities, accidents and hazardous occurrences;
- Maintenance of the ship and equipment;
- Documentation;
- Company verification, review and evaluation.

4.3 SCI and ISM Code implementation

4.3.1 International Safety Management (ISM) Cell

SCI introduced the Safety Management System by setting up a dedicated ISM Cell, directly under the Chairman and Managing director of SCI Ltd. The ISM Cell developed, structured and documented the procedures in compliance with the Code. SCI thus laid the foundation of the Safety Management System (SMS) by reaffirming that the cornerstone of good Safety Management is commitment from the top, and it is the competence, attitude and motivation of individuals at all levels that determine the success of a good Safety Management System.

SCI has complied with all the functional requirements of the ISM Code, which includes a Safety and Environment Protection Policy.

4.3.2 Safety and environment protection policy

It is the aim of the Safety Management System of the Shipping Corporation of India to: **Preserve Safety at Sea and Protect the Environment**

In order to fulfil the aim of this safety and environment protection policy, the SCI is committed to the following objectives:

- Prevention of injury and loss of life
- Avoidance of damage to the environment
- Avoidance of damage to property

In order to achieve these objectives, the SCI shall:

- Endeavour to continuously improve safety management skills of personnel ashore and aboard ships
- Establish procedures for shipboard emergencies
- Establish safe working practices in ship operation
- Provide a healthy and safe working environment
- Establish safeguards against all identified shipboard safety and pollution hazards
- Comply with mandatory rules and regulations (SCI, 2000).

4.3.3 Implementation of the ISM Code for Phase 1 vessels

SCI completed the task of compliance through verification, control and certification of the Company and the vessels in the 1st phase well within the deadline of 1st July 1998 as required by the ISM Code. The document of Compliance was obtained on 18th Nov 1997 and the SMCs were obtained for SCI's following ships:

Bulk carriers	26 Nos	Passenger Ships	12 Nos
Oil Tanker	44 Nos	Passenger High Speed Craft	2 Nos
Chemical Tanker	3 Nos	Gas Tanker(LPG)	2 Nos

4.3.4 Safety culture

An improvement in the safety consciousness and safety management skills of personnel ashore and on board the vessels will eventually develop into a safety

culture. It has continuously been tried to create awareness and emphasis to maximise the benefits of cost savings derived from implementation of the ISM Code in terms of:

- Reduced number of accidents, detentions and delays;
- Greater confidence on the part of the clients;
- Safe carriage of cargo and reduction in cargo claims;
- Reduction in pollution claims;
- Favourable insurance premium;
- Improved company morale;
- Building trust among the personnel;
- Demonstrating a high degree of leadership and management commitment;
- Focusing on building resources and motivating personnel through training;
- Change of attitude and work culture;
- Introducing quality into the management system by assuring improved safety standards.

The whole intention of internal audits, an obligation under the ISM Code, is to verify that the SMS is functioning adequately and as intended. The deficiencies or non-conformities found would give an opportunity for the ship owners to correct them, which would otherwise have led to accidents. Then the question is: In what functional areas of the ISM Code are the most variances found? What are the most frequent non-conformities[1] reported?

4.3.5 Analysis of non-compliance.

The details of non-conformities in respect of SCI vessels are summarised in Table 6. The number of non-conformities from year to year has been varying. Although the number of NCs had dropped down to 194 in 1999, they have increased slightly in the following years. However, the number of NCs per ship has decreased with a slight fluctuation in the year 2001.

[1] Non-conformity means an observed situation where objective evidence indicates the non-fulfilment of a specified requirement. (Anderson, 1998. p 188)

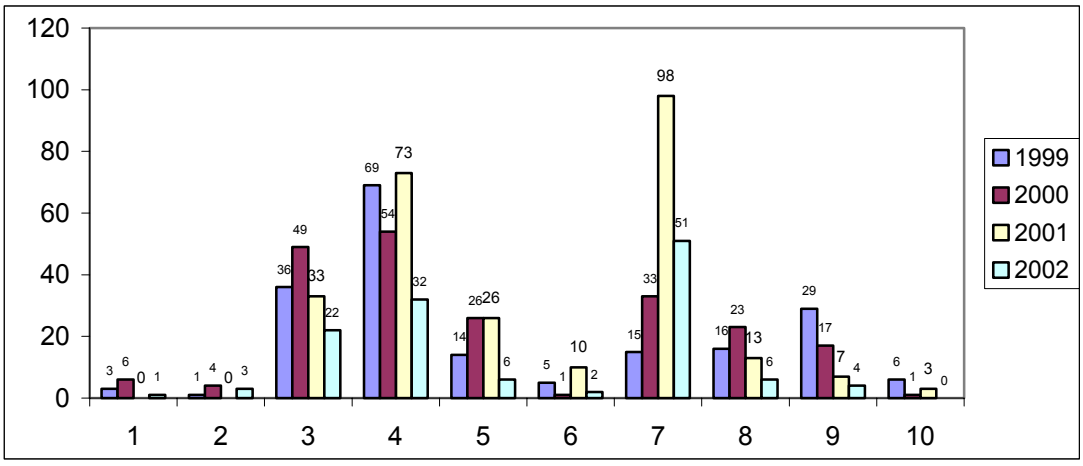
Table 6- Results of annual internal SMS audit of SCI ships, 1998-2002

	NO OF VESSELS AUDITED			TOTAL NO OF	NO OF NON-CONFORMATIES (NCs)			TOTAL	NO OF NCs
YEARS	BULKERS	TANKERS	PASSENGER	AUDITED VSL	BULKERS	TANKERS	PASSENGER	NCs	PER SHIP
1998	20	43	10	73	70	140	39	249	3.41
1999	19	45	13	77	48	123	23	194	2.52
2000	25	50	15	90	75	121	29	214	2.37
2001	32	48	17	97	85	141	33	263	2.71
2002	12	28	12	52	30	69	28	127	2.44

Source: ISM Cell of SCI Ltd,. 2002.

It is probably unrealistic to expect that any particular company is so perfect in every aspect of its SMS that its performance does not require any monitoring. At least a small number of deficiencies can be expected with the system and the people who are operating the system. What is required is the documentation of these minor failures in the system and corrective actions which evidence a safety culture and a diligent attitude on the part of company. This would lead to the conclusion that the company is really complying with the requirements of the ISM Code.

In order to direct efforts in terms of risk management, it is paramount to ascertain the concentration of NCs in functional areas. The non-conformities as per functional requirements are summarised in Figure 5.



1-Company's responsibility	2-Master's responsibility	3-Resources and personnel	4-Emergency preparedness	5-Development of plans for SOs
6-Reports and analysis of NCs	7-Maintenenace of ship & equipment	8-Documentation	9-Company verification review	10-General

Figure 5- Results of annual internal SMS audit of SCI ships
Source: Data from ISM cell, SCI Ltd., 2002

It can be observed from Figure 5 that the areas of the ISM Code that top the list of non-conformities in order of magnitude are:

1) Resources and personnel (ISM § 6);
2) Development of plans for shipboard operations (ISM § 7);
3) Maintenance of the ship and equipment (ISM § 10);
4) Emergency preparedness (ISM § 8)

The trend of non-conformities in SCI, in order of magnitude, appears to be mostly in line with the industry. According to John W Dickie of Bureau Veritas, the paragraphs of the ISM Code that top the list of non-conformities in order of magnitude are also the same as above (Olofsson & Peterson, 1999, p.39).

The number of non-conformities and their concentration depends on the experience of the auditors. Many minor deficiencies, though not serious enough to be reported, may possibly be raised as NCs by auditors. Because of the broad terms in which the ISM Code is written, a deficiency found could be interpreted from any context. It is therefore of great importance that the audits are carried out in a positive manner. However, regardless of the seriousness of the deficiency, the corrective actions need to be taken in accordance with the company's SMS. This is one of the ways of learning from mistakes. An effectively implemented SMS would demonstrate how the non-conformities are identified by audits, analysed, reviewed and corrective measures implemented in an organised, systematic manner on a continuous basis. The aim of the investigation is to eliminate the root cause of NCs by initiating preventive actions.

4.3.6 Analysis of reported accidents[2] and hazardous occurrences[3].

Under the SMS procedures the deficiencies, accidents and hazardous occurrences are reported to the company. In case an accident or maritime claim arises as a result of

[2] Accident means incident involving injury or damage to life, the environment, the ship or its cargo.
[3] Hazardous occurrences are situations which could have led to an accident if they had developed further (i.e. near miss situation). (Anderson, P. 1998. p.188).

some failure of the SMS establishing a causal relationship between the NC and resultant accident or claim, then it is an indication of non-working of the SMS. In all probability, it is necessary to examine not only the procedures set out in the manual but also whether these procedures were followed in practice. If procedures are found to be good but are not followed by the personnel on board, then corrective action is required. This may involve additional training or motivation of personnel, allocation of resources or even changing the formal procedure if the procedure is found faulty. If the corrective procedure is properly implemented and practiced, the identified problem will be solved. This would, of course, be subject to future verification to confirm that the corrective action has been working.

In order to see whether the reported incidents are having any causal link with the identified non-compliance, the incidents are compiled for the period 1998 to 2002.

Table 7- Accidents and hazardous occurrences of SCI ships,1998-2002

Year	Total	Personal		Machine br/	Property/	Grounding	Pollution	Collision	Fire	Deck Machine/	Misc.
	Accidents	Injury	Deaths	Down/failure	Hull damage					cargo gear b/down	
1998	210	71	2	36	15	4	7	1	2	0	40
1999	132	39	6	35	27	3	2	0	4	0	16
2000	208	71	3	25	19	0	8	1	17	0	64
2001	282	94	7	49	25	7	16	0	14	21	49
2002	138	37	4	24	16	2	14	1	15	10	15
TTL	**970**	**312**	**22**	**169**	**102**	**16**	**47**	**3**	**52**	**31**	**184**

SOURCE: ISM CELL of SCI Ltd., 2002.

These incidents include deficiencies identified on six ISM compliant bulk carriers detained by Port State Control (PSC) in 2002 (see Annex A).

The analysis indicates that the number of incidents that comprises more of a hazardous occurrence is almost stable. Further, it can be seen from Table 7 that the incidents in respect of personal injury, machinery break down, property/ hull damage and miscellaneous represent a large proportion of the total number of incidents. An investigation of reported incidents and PSC deficiencies underlines that the accidents and deficiencies found are due to the following factors:

1) Poor maintenance and upkeep;

2) Dominance of deficiencies in life saving appliances and fire fighting appliances;
3) Deferment of repairs for commercial reasons;
4) Indifferent attitude of ships' staff towards procedures;
5) Apparently ships' staff are not fully conversant with the ISM onboard procedures;

If these contributing factors are viewed in terms of the ISM Code functional requirements, they will be as outlined below, signifying that the pattern of incidents is quite similar to the pattern of non-conformities. However, there is no clear evidence establishing a causal link between the non-compliances found and reported incidents.

1) Resources and personnel (ISM § 6);
2) Development of plans for shipboard operation (ISM § 7);
3) Maintenance of the ship and equipment (ISM § 10);

These are the areas that are worth looking into for corrective and preventive actions. The SMS should be designed to allow for continuous updating, amendments and improvements resulting from the analysis of accidents, hazardous occurrences and non-conformities. For this purpose, the company should encourage ship staff to report each and every incident without fear of any consequences. In any investigation, the objective should be not to blame anybody but to understand why the system is not working. The necessary feed back to the ship staff is an important motivator, and assists in encouraging further effective reporting.

The increase in the number of reported hazardous occurrences each year, as seen from Table 7 is not a reflection of a decline of standards. In fact, it has brought a positive impact by reporting hidden risks under the ISM system, which otherwise could have led to serious accidents if they were not known in advance. In one of the annual external DOC audit meetings of SCI, the Chairman and Managing director of SCI emphasised that the increased reporting is, in fact, an indicator of increased awareness of the SMS. It was pointed out that no blame stigma is attached for reporting, as this is done solely for the purpose of ensuring that the full fleet learns

from the experiences of a ship. This is in the same spirit as recent IMO circular wanted ships to move away from the world of blame culture and freely report near misses.

It is also important that the company can learn from accidents, but it can be an expensive way of learning. A company can learn as much from analysing hazardous situations and that learning is almost free of charge(Olofsson & Peterson,1999. p.43).

It is noticed from the deficiencies that there have been cases where the same incidents have occurred more than once. Why is there a repetition of hazardous occurrences? It is either due to wrong identification of the root cause or that corrective action is not responsive. In the opinion of Eric Murdoch, head of Safety and Loss Prevention at "The Standard P&I Club", one of the biggest gaps in the Code is the lack of any explicit requirement to follow the practical process of risk assessment.

Risk assessment is the careful and systematic examination of what in the particular working environment may cause harm. It involves a thorough and formal audit of all the things that can go wrong on board ships and an inventory of actions that will either reduce the chances of an accident happening or set out actions to minimise their impact, should they occur (Murdoch, 2002a, Sept). It is the implication of a practical process of risk assessment, which will have a most significant effect on the reduction of accidents and consequent claims.

4.3.7 Analysis of variances in compliance

Continual improvement is achieved by recording and analysing reported accidents and hazardous occurrences and then implementing corrective action with proper feedback to the operators. The variances in compliance can be seen in terms of functional requirements as follows.

Resources and personnel

The successful implementation of the ISM Code is very much involved with people, particularly the master, officers and crew on board ships. Considerable responsibility is placed upon the company to ensure that the correct people, in sufficient numbers, are posted. Most important is to ensure that the personnel that the company employs are not only properly certified but also competent in accordance with the requirements of STCW 1995. Further the ISM Code requires the company to provide a considerable amount of training and familiarisation to its seafarers. Clearly the emphasis on these factors in the ISM Code is in response to the findings of various studies into accidents and claims, wherein it has been confirmed that the human error is the major factor in almost all accidents and consequent claims.

However, in the present scenario, how can there be a uniform standard of competence, when seafarers are coming with varying backgrounds and from countries with relatively cheaper labour costs, typically from south east Asia? Although there has been a considerable improvement in competence, education, training and experience of seafarers, still the situation appears to be far from satisfactory. It also depends on the standards of maritime training institutes and regulatory systems of the respective maritime administrations.

Another problematic area of the ISM is with regard to recruitment. The company has to ensure that the ships are manned with seafarers who are qualified, certified, and medically fit based on the requirements laid down by the flag administrations. There are many reported cases of forgery in certificates of competency. While the authority of issuing such certificates is vested in the national administration, the responsibility for their competence is placed on the shipping company who is recruiting them. For instance, results of the research completed by the Seafarers International Research Centre (SIRC) of Cardiff University revealed 12,535 cases of forgery in certificates of competency and the equivalent number in endorsements, of which 12,000 cases occurred in one country alone (Stamping out…, 2002. p.37). In

order to overcome this problem, the shipping company may need to be a partner with training institutes, so that the company's requirements can be a part of the training programs. By working closely with these maritime academies to train the identified crew, the ship owners not only get competent crew but also loyal crew. The continuity of employment induces a sense of company loyalty which is the greatest single tool to minimise accidents and claims.

At times, due to shortage of seafarers, barring a few reputed companies, most companies have difficulties in retaining services of crews on a long-term basis. The SCI is facing shortage of officers both in the deck and engine side. An important factor for this is the excess time taken by officers in clearing their competency exams, which under the Indian system may require 13-15 months. For engineers, it was indicated that the pass percentage in each exam is very low, i.e. about 6 to 7 % of the total candidates. As a result, maximum officers are appearing for their exams in UK or Australia, where the pass percentage is much higher and after getting the foreign certification would join foreign companies. Indian shipping companies are in dialogue with the national administration to work out a solution within the applicable law to resolve this problem.

With regards to ratings there is a general trend in India that the average age is rising and the age factor and physical fitness have a direct bearing on productivity and the functioning of the ISM Code. The SCI, with 40% of India's tonnage is affected considerably by this ageing staff, which according to the claims record, results in many illnesses and deaths. However, SCI is discussing with the administration and seafarers union to work out a voluntary retirement scheme (VRS) to shed off the aging crew.

Training and familiarisation

Training and familiarisation are essential, since the effectiveness of a system relies on the skills of the personnel ready to deal with any eventuality and act with

efficiency. It is a responsibility upon the company to establish what knowledge and skills the seafarer possess, and from that position provide the necessary facilities, opportunities and training to enable them to perform their jobs on board safely and efficiently.

Right from the very beginning the SCI has laid great emphasis on training and re-training its personnel. In order to meet training requirements of its fleet, the SCI Maritime Training Institute (MTI) was set up in 1987, which is also a branch of World Maritime University, Malmö, Sweden. The SCI has conducted 249 STCW courses (see Annex B) during the period January- July 2002 which demonstrates its commitment to train and develop personnel resources.

However, with the shortage of officers and ageing crew, the continuity of employment is a major problem for SCI. In the absence of such continuity each new member of crew has to undergo training and familiarisation of SCI's SMS. The crew possibly spent the previous six months learning about another company's SMS and the six months before that yet another system. This would be totally non-productive and wasteful of valuable resources. This will have damaging effects on other functional requirements of the ISM Code.

Further, as a matter of policy the SCI has been identifying major factors contributing to human error and focussing on various specific training needs of shipboard staff as well as shore staff. In this respect, some of the measures are as follows:

- Up-grading of certificate of fleet officers as per STCW 95;
- Up-grading of certificates of superintendents ashore;
- ISM/STCW familiarisation training for contract officers. It has also been proposed to design a computer based, interactive ISM familiarisation training package, which could be run on board;
- Bridge team resource management;
- Use of P&I Clubs' CD training packages on collision/contact avoidance;

- Dedicated manning on ships to promote the loyalty of employees to the company. The SCI has identified a few ships initially for a pilot study by assigning two sets of dedicated officers for manning each of those vessels.
- A rewarding scheme to the most SMS compliant vessel, department and person as a motivating policy.
- Tankers vetting and terminal inspections. SCI endeavours to maintain international standards and puts up its tankers for more and more vetting inspections by oil majors like Shell, BP, Exxon-Mobil, Chevron-Texaco and terminals. This not only acts as a unique selling proposition (USP) under the company's marketing efforts but also leads to higher safety standards.

Development of plans for key shipboard operations

Under the ISM Code a company must establish procedures for the preparation of plans and instructions for key shipboard operations. The various tasks involved should be defined and assigned to qualified personnel. The International Chamber of Shipping (ICS)/International Ship Owners Federation (ISF) recommended a list of operations which could be used for reference while the company is preparing ship specific procedures for their fleet. The list proposed by the ICS/ISF provides an excellent example of the subject matter for inclusion in the operations documentation. The list of procedures for the company is generally modified to take into account the circumstances of the particular ship or its operation. If the development of these plans is done with the active involvement of the master and crew on board, then it really is an indication of a proactive approach by the management.

Further this is not a static process and requires continuous improvement based on ship characteristics, changing circumstances, reassessment of risks and changing requirements under conventions from time to time. In the light of recent accidents and considering the need for updating the SMS manuals, the SCI carried out a revision of the SMS Manuals of phase I vessels in 2002.

The ISM Cell of SCI continuously monitors the performance of implemented instructions through voyage reports, and takes up discrepancies if any with the operations departments on matters of concern which include, but are not limited to:

1. Discipline, physical health and age;
2. Quality of officers and officer shortage on board;
3. Prolonged period of service on board;
4. Inadequate shore support with respect to supply of stores/spare parts in terms of delays and quality;
5. Compliance with STCW 95 rest period requirements.

Maintenance of the ships and equipment

Prior to the implementation of the ISM Code the ship owners could probably be divided into two camps with regards to the maintenance of ships and shipboard equipment. Firstly, there were those who adopted an approach towards breakdown maintenance. The others followed the planned maintenance system approach. Such systems were not popular with many ship owners, mainly because of the resources of money and people needed to adequately run such a system.

It is quite probable that the introduction of the planned maintenance scheme might have been the single biggest expense of ISM Code implementation for the ship owners, especially in poor freight market conditions. SCI has been following a planned maintenance system prior to the ISM Code implementation. However, in spite of this, the SCI vessels have experienced relatively high numbers of non-compliances and incidents on account of machinery and equipment failures; apparently the planned maintenance system on board the ships is not working.

The maintenance of ships and equipment is very complex and the quality of maintenance depends on various factors. It depends on the quality of the original manufactured equipment, quality of spares used, quality of workshop attending repairs, routine maintenance attended by crew and so on. However, among other

things, the crew members and quality of workshops probably are the major contributing factors to maintenance problems of SCI vessels. In terms of ISM, the problem lies in either the procedures that do not meet the requirements, or the crew who do not have time to carry out the procedures sufficiently, may be due to lack of resources and personnel. Maintenance is an area which attracts more NCs in most of the companies as owners often concentrate on only critical items, while others are overlooked due to commercial reasons. In addition, John W. Dickie of Bureau Veritas says, the reason that maintenance is topping the list of non-conformities is because this is the favourite paragraph for PSC to look into (Olofsson & Peterson. 1999, p.40). Commercial reasons force shipping companies to postpone maintenance and routine repairs and, as a result, maintenance becomes highly selective. Minor defects are neglected for many reasons, but often due to a selective maintenance approach. The Standard Club has found that minor defects can cause major claims especially concerning hatch covers, ballast piping and corrosion in salt water ballast tanks, for example:

1) In the case of hatch covers, there is a mistaken belief that leaking covers do not matter as long as the cargo cannot be damaged by water. The Club's findings have shown that the leakages give rise to accelerated shell and plating corrosion. If the corrosion is not repaired, then eventually structural breakdown and failure occur.

2) Extensive pollution can be caused by the failure of a ballast pipe inside an oil tank, when oil contaminated ballast is pumped directly into sea.

The Standard P&I Club shares experiences that there is no doubt that shipping is a truly international industry. Likewise, it is not surprising that procedures for operation and maintenance are usually similar, but differences do exist, especially in the approach towards maintenance. Some owners walk a tightrope, others do not (Murdoch, 2002 b, April). The cost involved for carrying out repairs to a minor defect is comparatively negligible. However, if the minor defect causes a major accident then the cost and consequences arising can be un-bearable to the ship owner. Of particular relevance to the legal and insurance implications is the whole

question of maintenance as it affects the seaworthiness of a vessel. As a result, owners would run the risk of many potential legal problems for not having an adequate maintenance system in place.

4.3.8 Effects on claims records of SCI

The debate within the shipping industry as to whether the ISM is working, and if it is what is the contribution of the ISM Code in reducing accidents, shows opinion is divided. However, there has been a considerable improvement in the maritime safety records evidenced by various studies and casualty records. It has been concluded from the analysis of maritime risk in general and with specific reference to the claims of SCI in previous chapters that human error is the key factor. The SCI has been endeavouring to address the issues of human error to bring about a continuous improvement in safety. This is an area with lots of scope for improvement and is the reason that the ISM Code is addressing the issue of the human factor.

The SCI has laid the foundation of the safety management system by recognising that the cornerstone of a successful system is commitment from top management. The SCI has complied with all the functional requirements of the ISM Code. With extensive procedures, checks, balances and ample scope for auditing under the ISM Code it has made ship management and crew to focus more than ever on ship safety. Acknowledging human error as the key factor, SCI recognises the importance of the need for continuous improvement based upon set procedures and systematic recording of experience gained through incidents and reported near misses. This is supplemented with appropriate training and assessment of the performance of ships' staff and shore staff. The ISM Code implementation, together with increased safety awareness in the company, has developed an improved pattern of claims records. Though the trend is not showing a decline, however of a total number of 227 claims, only 12 claims are exceeding USD 50,000 per claim.

In view of good claims records the SCI could negotiate better premium rates each

year. In spite of the escalation effect of 15-20% every year, the total premium paid to P&I Clubs has been reducing progressively as reflected in Table 8. The improvement achieved in the five year is about 25 percent in terms of the total premium paid to the P&I Clubs.

Table 8- Total Premium paid to SCI P&I Clubs, 1998-2002

YEAR	TOTAL GRT	TOTAL PREMIUM($)	PREMIUM PER GRT($)
1997-98	3,081,163	6,137,728	1.992
1998-99	3,027,913	5,312,240	1.754
1999-00	3,095,945	4,963,892	1.603
2000-01	3,050,713	4,770,084	1.563
2001-02	2,782,854	4,624,332	1.661

Source: Insurance Deptt of SCI, 2003.

Although there has been a fluctuation in the tonnage of SCI, the premium per GRT has been reducing until the period 2000-2001. However, despite the reduction in tonnage in 2002, which is of the order of 8.8% over the previous year, the premium per GRT for the same year has increased slightly. This increase in premium is apparently due to supplementary call in the year 2002.

The reduction in premium per GRT each year could be a reflection of sound risk management of SCI. There is, of course, more than one reason for this improved trend of claims in SCI, but there can be no doubt that the ISM Code has acted as a powerful catalyst in reducing accidents and consequent claims. There is certainly still a need to make improvements in many areas as discussed as there is no room for complacency. These are also common problems in every company in the industry but it can be concluded that the SCI is on the right path in improving the safety procedures and motivating its entire staff to think ‘safety’.

4.4 The viewpoint of the industry

Although everybody seems to agree with the good principles of the ISM Code the opinions on its achievements are divided. Apparently there are many people, who are sceptical as to whether the ISM Code has achieved any useful purpose and many are of the opinion that it is nothing more than a bureaucratic nightmare.

Of course, good companies have shown that the Code could be a good instrument, given the right conditions. In the opinion of Natasha Brown:[4]

> It may be too early to assess the full impact of ISM Code implementation, but the signs are that the implementation by the first round of ships has already been effective, especially in making shipping company management more aware of their responsibilities (Brown, 2001, p.72).

However, the most significant measure of the results of the ISM Code is the statistics of accidents/claims and major deficiencies noted by Port State Control (PSC). A large scale survey of opinions involving the masters (36%), ratings (13%), junior officers (20%) and senior officers (31%) was conducted by Captain Phil Anderson. The purpose of the survey is to have a comparison of views, at global level, on the question: Have incidents been reduced since implementation of the ISM Code? The largest number of responses are in the category of 'Yes significantly' as can be seen from Figure 6.

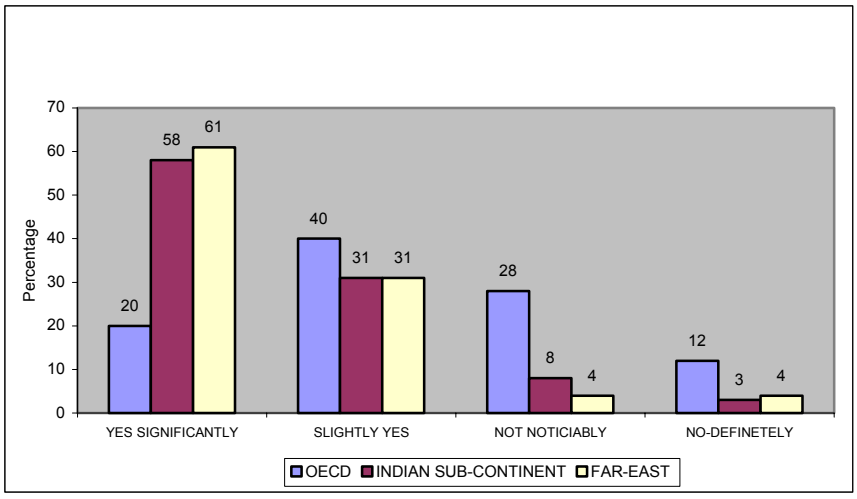


Figure 6- Comparison of views on ISM Code

Source. WWW. ISM CODE. Retrieved on 20th July 2003

The maritime risk analysis, in the previous chapter, also confirms that the total number of ships and lives lost have been reducing from 1998 onwards.

[4] Ms. Natasha Brown is Information officer at IMO.

Commercially, there are indications that the ISM certification proves its worth. A claims analysis carried out by the Swedish Club confirms that the ship owners implementing the ISM Code can expect to achieve a reduction in hull claims of up to 30% together with similar improvements in the incidents of P&I claims. This is good news for the P&I Clubs and ship owners.

However, on the other side of the scenario, is the perception of the failure of ISM Code in achieving its objectives. As per the Paris MOU, although MARPOL related operational deficiencies have dropped substantially, SOLAS related operational deficiencies have steadily increased from 1132 in 2000 to 1353 in 2002. Similarly out of 69,079 total deficiencies, 3210 ISM Code related deficiencies were recorded in the year 2002 showing an increase of nearly 260% when compared to 2000 PSC inspection results (Secretariat. Paris MOU, 2003 b). Although an increase is nearly 260% it represents only 4.6% of total deficiencies perhaps conveying a positive picture. However, deficiencies listed in 2002 separately under 'Safety' category account for 48% of the total number of deficiencies, could also be considered deficiencies related to the ISM Code. Of course, the increase in number of deficiencies is a sign of non-compliance, but also reflect the results of the Concentrated Inspection Campaign in 2002 suggesting that inspectors are getting more experienced in detecting ISM related deficiencies. To some extent, that may point to the core of the problem-PSCOs may feel more comfortable in assessing the 'hardware' than operational issues, or even worse, management issues and to use a familiar label such as 'Safety in general', thus giving an unnecessarily positive picture of ISM Code compliance (Donner, 2001). The global marine insurance market now reports a loss ratio increase up to 130-150% for the last few years (Sagen, 2003 July). In the opinion of Arne Sagen, the Code has led to a three-way effect throughout the industry:

- The top 20 percent of the companies demonstrate operational benefits and reduction of claims and incidents;

- The average 60 percent of the companies managed to attain their certificates and thereby finished the process;
- The bottom 20 percent of the companies (where most of the substandard operations are found) do not care about compliance with statutory regulations.

From the above, it seems that a majority of the companies are just complying with the mandatory process without any commitment to achieving the objectives of the Code. It is certainly clear that the ISM Code has not produced similar and even effects throughout the industry for a variety of reasons. This kind of attitude will obviously not bring any improvement in the safety culture. The factors discouraging the ship owners need to be identified and addressed. No doubt, it is the ship owner who chooses the trade, ship, construction yard, classification society, flag state and insurance. The performance of the owner depends on the performance of all these key players involved in ensuring the best standards for ship operations. When there is an option of choice for owners, it means that the system provides for good and bad key players, certainly with varying standards and usually choosing a lower standard entails a lower cost. This choice would create the gap of benefits between the standard and sub-standard shipping companies. In a market mechanism, this would act as a competitive disadvantage to the standard companies, when substandard operators enjoy a cost advantage. As a result the standard company is unlikely to get business in a freight sensitive market.

4.5 Implementation problems

The implementation of the Code has been affected by the following factors:

Lack of uniformity in the industry

The gap between the desired and the attained level of safety at sea has led to various maritime initiatives. The initiatives that are taken from time to time have resulted in proliferation of regulations and control measures. Such manifested regulations are complicating the shipping operations, irritating ship owners and sometimes resulting

in an adverse attitude to safety considerations. The important measures for preventing maritime casualties and pollution is to design, construct, equip, maintain and operate the ships at the required level of standards. Unfortunately, there is a lack of such uniformity in the standards achieved in these areas. As a consequence of this, the ship owners have derived the benefits of choosing the services of different organisations to suit their commercial compulsions. The substandard shipping companies will choose classification societies, insurers, flags and trading areas to suit their cost requirements at the cost of safety. For instance, if one class is found stringent in quality, the owner may find another class who is relatively less conscious. This is possible due to competition among service providers for more business. The very fact that there is an existence of sub-standards in every stage of the total maritime safety chain, certainly there are substandard ship owners in significant numbers, who continue to escape from the ISM Code.

Fear of victimisation

It seems that many ship owners are not prepared to implement the ISM Code effectively, because of the fear that the creation of documentary evidence could be self-incriminating. It could be used against them personally or against the company. There are indications that the ship owners have even un-officially advised ship staff not to send certain specific documents to the office. Most owners consider an accident reporting as self-incriminating evidence. There have been uncertainties as to what to and what not to report, and what would be the consequences of reporting. In response to this, "what was anticipated by the ISM Code was the development of a safety culture where such matters could be reported without fear. We need to remove the fear that pervades much of our industry's attitude to reporting" (Anderson, 2001, Oct).

Paperwork

There are already about 40 international maritime instruments in place, in addition to the forthcoming ISPS Code. Although the ISM Code represents genuine progress,

many unhelpful side effects have appeared, most notably the never ending paper chase. Too much paper work distracts attention from the real issues of operation of the ship and its safety. If rules are not viewed by the ship staff as practical, more often the rules will be manipulated or evaded. Then, the compliance can be mere paper work, tick-in-the-box process, which sometimes bears little resemblance to realities at sea. The continuous flow of auditors, inspectors, surveyors, port health, PSC, vetting teams, cargo interest, customs and port authorities would place more and more burden on less ship staff. Commercial papers apart, the impractical approach of regulators, with regard to trivial matters, has resulted in a mountain of papers requiring an additional administration. It has been noted many times deficiencies were found because some check list had not been marked. Of course, this is a non-compliance as per the SMS manual, however small it is. But the issue is that it can divert attention from what should be the point of concern from the accident prevention point of view.

The seafarers' feeling that they are under pressure, whether perceived or actual, to complete the paperwork within the working-hours limits under the ILO/STCW rules, results in resorting to filling in forms and writing reports on watch at the expense of maintaining a proper lookout and attending to navigation. This is obviously a highly dangerous practice (Anderson, 2001, Oct).

Human factor

The human error is the most important contributor to most accidents. Furthermore, the negative human behaviour and failure to follow correct procedures according to the manual renders many lives, ships, and the environment at risk. The issue of manpower is very compelling with an ageing work force and health problems afloat and ashore. Medical certification, health and welfare, occupational risks, safety and procedures for responding to medical emergencies all appear to be neglected in the industry. A moment's reflection shows that good surveillance of health, coupled with healthy working conditions and active health promotion, are key factors both in

reducing the frequency of medical emergencies at sea and in securing a fit long-term work force (Carter, 2003, June). Added to this, there are issues related to personal attitudes, management styles, responsibilities and authorities that are acting as bottlenecks to the proper implementation of the Code.

Ownership and management

Depending on the ownership, companies may have different strategies and philosophies. Traditional shipping companies with their own ships, deal with manning, technical support and maintenance by themselves, whereas some companies delegate all operational responsibilities to different sub-contractors. However, a potential situation for corner cutting in ship safety exists, since this is also a competitive market. Further, if a ship has been subjected to several changes in ownership and management, it is more likely to have deteriorated in terms of postponed maintenance and services carried out. Unscrupulous management of all these activities surely has a negative impact on the quality of the shipping industry and consequent claims.

Government intervention

Recently, governments have become increasingly interventionist, following a series of tanker casualties. This is driven by the growth of environmental concern and rising public expectations. The results are in the form of more and more stringent regulatory responses to recent spills, and most disturbingly, a tendency to spare no efforts to chase scapegoats, the unfortunate target usually being the master. Needless to say, the trend of fear has set in especially in the minds of seafarers due to an upsurge in prosecutions and fines against the ships' staff. More often, this might discourage seafarers from reporting and maintaining records, defeating the very basic essence of the Code. This would only lead to despair and a frustrating environment on board.

Commercial compulsions

Increasing competition in all major trade sectors means commercial pressures on ship owners. The constant challenge to drive down the operating costs leads to smaller crews leading reduced capacity for day to day maintenance and postponement of maintenance and routine repairs. An improvement in reduced port stay is obviously beneficial to owners; however, planned maintenance cannot be carried out due to the short time in port.

Absence of real commitment from cargo owners, charterers and ports

The cargo owners/charterers should show committed responsibility in fixing safe ships and using safe ports in a practical way. Of course, they have a contractual obligation of providing a safe port. They should ensure that ships are safely arrived, cargo operation done and sailed from the berths they are ordered to. No doubt, an ideal example is the oil majors, who have developed their own terminal inspection to ensure compatibility between the ship and shore interface for safe operation of the ship. There are many dry cargo ports as well undertaking technical and operational audits of ports on a routine basis. However, many ports are still without such self-regulating measures in the absence of charterers' pressure like in case of many substandard ships. They have latent ability to cause many accidents, as almost all contact damages are inside the harbour limits with pilot on board and with the ship assisted by port tugs. The major portion of oil reported to be released into sea is from shore based incidents and normal operations. Still ports will hold ships responsible for incidents which are not caused by the ships. Ports in developing countries often do not employ personnel with sea going experience and without requisite training, except for a few positions. This hinders the safe operations in port activities and improvement of the quality of shipping operations as well.

Unlike the oil majors, all the cargo owners/charterers have not developed their own screening procedures of avoiding substandard ships. The strict vetting systems adopted by the oil majors have eliminated a great number of substandard tankers. As

a result the tonnage of sub-standard tankers will not be competing for the oil majors' shipments. Thus, the quality ship owners can get premium freight due to less tonnage in the market for the shipments of oil majors. In fact, the look out for lower freights by other charterers encourages substandard ships, which quote such low rates due to their inherent advantage of lower operational costs.

It is appreciated that the tanker trade is geographically concentrated in the hands of a few oil majors, who own oil fields, terminals, trading and refineries with full control of the supply chain. Unlike the tanker trades, the dry cargo trades are more scattered and complex in all respects. However, the industry needs to work on similar principles, maybe with different strategies. Such measures would encourage quality ship owners and which will have positive effects on accidents and consequent claims.

4.6 Insurance coverage: Implications

The effective implementation of the ISM Code will potentially have enormous benefits for ship owners in terms of considerable reductions in accidents and consequent claims. In addition a ship owner is fully covered without any prejudice for accidents, if any, by virtue of his compliance to the Code requirements. However, what happens if a ship owner fails to comply with the requirements of the Code?

4.6.1 P&I Clubs

The Clubs consist of ship owners members offering third party cover in most events. All Clubs have different policies on the ISM Code. However, the minimum standards to the ISM Code compliance as defined by the International Group of P&I Clubs is followed by all member P&I Clubs, they are

1) An obligation to maintain valid ISM certificates in accordance with the flag state;
2) Clubs to monitor general compliance with the ISM Code
3) Clubs to decline accepting new members or ships that do not have valid ISM certificates.

It is certain that, regardless of the Club in which the ship is entered, failure to comply with the Code requirements will put P&I cover at risk. As is known, the P&I insurance is liability insurance, and the whole idea of the cover is for the assured members to have insurance in place for errors and omissions made by the employees, for which members can be held liable. The introduction of the ISM Code has not changed this principle irrespective of such breaches being seen subsequently by an auditor as non-conformities. For instance, the breach of instructions by an engine room officer resulting in an oil spill while bunkering a vessel is still covered (Levy, 2000, p.61).

4.6.2 H & M (ITC) cover

The implementation of the ISM Code will influence the interpretation of principles under the Marine Insurance Act 1906 as follows:

- **Disclosure:** The Assured's duty of "the utmost good faith" in the disclosure process includes compliance with the ISM Code and the status of its SMS, failing which may void the coverage.
- **Sea worthiness**: The English marine hull policies have implied warranties of seaworthiness, which will have a bearing on the compliance with the ISM Code. If a ship is sent to sea in an un-seaworthy state with the knowledge of the assured, then the loss attributable to such un-seaworthiness is not covered.
- **Perils**: Hull & machinery policies are either "all risks policies" or "named perils policies". Some of the named perils are covered irrespective of whether or not the assured has exercised a due diligence and others are not covered, if found there is a material lack of due diligence by the assured.

What "due diligence" entails is affected by the ISM Code. The full compliance with the ISM Code is the only evidence to prove that the assured has exercised due diligence and that a cause of an un-seaworthiness is not as a result of non-compliance of the SMS. The important issue here is the test of due diligence will be reflected in the way in which the company has set up and is operating its SMS. The cover also depends on how insurance companies are going to interpret these non-

conformities so far as due diligence is concerned. If every possible non-conformity is considered as a failure on the part of owners to exercise due diligence, then in most of the cases, the owners will be without cover. However, it appears that the P&I Clubs and H&M underwriters will not use this as an excuse and most of the non-conformities, which would affect the members loosing the cover, will be so called major non-conformities and subject to the evidence of non-compliance.

4.6.3 What if there are non-conformities on board the vessel?

A minor non-conformity can result from a lesser defect in the system which requires rectification within a specified time, whereas a non-conformity is considered a major one when there is a serious breach of the SMS, such as a vital piece of machinery being left out of the implemented SMS. Such a major non-conformity, when found, can lead to either the SMC or DOC being withdrawn. If this is the case, certainly the insurance cover is also withdrawn due to non-fulfilment of minimum standards under the Club's or underwriter's policy. However, even after the SMS is being implemented and followed, there could still be a major casualty but such major casualty might only be caused by a minor non-conformity, if at all, depending on the circumstances. Therefore, the existence or lack of a major non-conformity is not necessarily a reflection on the technical state of the vessel concerned, but rather the SMS used by the vessel and the operating company.

To prove this, the company must have a corrective action system for rectifying all non-conformities involving the following stages:

1. Discovering and reporting the non-conformity;
2. Finding the root cause of the non-conformity;
3. Dealing with the root cause;
4. Verifying that the measures taken have been effective;
5. Dealing with follow-up reports and possible changes to the SMS;
6. Recording the corrective action (Dickinson, 1999).

Thus, dealing with and reporting on non-conformities can have a great impact on insurance cover.

Nevertheless, the ISM Code may create a problem and perhaps a serious problem for honest shipping companies, who report all non-conformities which, without the ISM Code, would never have come to light. On the one hand, there is a clear requirement to report the deficiencies as part of the SMS, but on the other hand, the findings may result in the production of self-incriminating evidence against owners. It is appropriate to penalise owners, who have not implemented SMS fully, but those who have implemented an SMS, but have not quite reached perfection and have incurred a liability, should continue to be under cover, provided the member is actively taking corrective action.

In the past however there have not been many cases due to these rules where insurance cover is withdrawn on account of un-seaworthiness, it seems with the Code requirements of reporting and maintaining perfect records will make it easier to investigate the extent to which the members have followed up on non-conformities, and complied with the functional requirements of ISM Code.

Chapter 5

ISM Code and review of emerging issues

5.1 Introduction

In order to achieve an international standard of safety for operational safe management of ships and for pollution prevention the key players involved need to perform their part of the responsibilities. However, a number of developments have taken place during the last couple of years. This chapter briefly deals with some of these developments with regards to their role in ensuring the compliance with the ISM Code and the implications thereof on the shipping industry.

5.2 Flag State Control[1]

The important role of the Administration[2] is its responsibility for setting and monitoring safety standards as per the mandatory regulations. Generally speaking, the flag state has the supreme responsibility and obligation to regulate the ships flying its flag. However, the level of enforcement of those standards varies greatly from administration to administration. In the more traditional maritime fleets, standards are tightly controlled and carefully monitored, proper provision for training is provided for officers and crew and the examinations for the certificates of competency are rigorous. Nevertheless the same is not the case with many flag states, as they do not have their own supervision systems to examine and enforce the standards. Therefore, they delegate the authority to classification societies for issuance of DOC and SMC including the periodical verification of the vessels. This

[1] The flag state is the state whose nationality is held by a ship.
[2] Administration means the government of the state whose flag the ship is entitled to fly.

has effectively brought about commercial competition among the classification societies, which in turn can give an impression that safety is a relative value.

Flags of Convenience (FOC)

In the recent years, an increasing proportion of the world fleet has been registered under flags of convenience to minimise the operational costs and for avoidance of strictly applied safety and environmental standards. Although there are some reputed open registries, a number of states are likely to compromise their position as effective administrations providing less regulated environment for shipowners. As a result of such varying regulatory standards, there are substantial differences between the FOCs themselves. The owners most likely to have an un-seaworthy vessel seek to flag their vessels with the least burdensome regulatory framework. No doubt various maritime administrations have in recent years taken initiatives to exercise more effective control and to enhance the safety standards of their registered tonnage, but this has in some cases led to a change of registry. This is an indication of owners chasing short-term profits by evading standards. The vessels thrown out of improving flags of convenience such as Cyprus and Belize, are reported to be accepted by other registries like Cambodia and North Korea, thereby extending the working lives of such vessels (Substandard ships…, 2003). Therefore the mere presence of a regulatory system is no guarantee of safety, unless the appropriate standards are monitored or enforced.

The problem with these states is a lack of funds. These states are not prepared to divorce revenue generation from this process, to maintain and enforce the standards. In the absence of an adequate budget, how can a flag arrange periodical inspection and audits to monitor a growing fleet? Secondly, even if states wish to take enforcement duties seriously, it is unlikely that any legal actions against the owners could be an option as they are non-residents. The FOCs are a negation of any kind of effective international order and supervision. The disadvantages of such

international disorder have been an increasing adverse impact on safety standards. The effective enforcement of international regulations has become a matter of urgency to reduce the disorder in the international safety standards. Port state control has forced FOCs and substandard shipping companies into the mainstream to some extent by applying more hard line measures. According to the Paris MOU, most flags that were considered 'very high risk' in 2001 remain so in 2002. The poorest performing flags are still Albania, Bolivia, Sao Tome& Principe, Tonga, Lebanon and Cambodia (Secretariat Paris MOU, 2003 b, p.15).

However, the measures of Port State Control officers need to be supplemented with a similar process of stringent flag state control to clean up the system. Flag states are mandated to implement this international regime. Flag states have key responsibilities, as they give shape to the international regulatory environment. In order to make flag states responsible, IMO has been working on a Flag State Audit scheme, under which the flags would be audited for compliance with six main IMO conventions. Efficient performance of flag states requires heavy investment (time and money) to develop an appropriate infrastructure and expertise. This in turn demands sustained political will, otherwise these administrations will fail to enforce proper standards and rely on the port state control regime to prevent accidents on their ships. Port State Control, however, has distinct limitations. They can inspect the ships only when they arrive in their ports. The PSCO may be carrying out the same checks which a flag state has already done. The cost apart, which would be enormous, the Code also stipulates that a ship should not be unduly delayed. Hence, flag states will have to control their own ships.

With the two-pronged attack of pushing for increased flag state control and tighter port state control, it will be possible to achieve the desired level of ISM Code compliance.

5.3 Port State Control (PSC)[3]

Chapter IX of SOLAS provides for PSC to verify compliance with the ISM Code and successful implementation of Code is largely dependent on the position that Port States would take (Schieferli, 2000, p.96). Thus, the success or not of the ISM Code depends on how well the system is polished by the PSC. There are many international agreements on PSC, known as Memorandums of Understanding (MOU)[4] presently in force in different regions of the world. Their purpose is to achieve effectiveness and frequency of port state inspections for ensuring compliance with various international conventions. The Paris MOU has been adopting a hard line regime with enhanced inspections. The Paris MOU, known for its aggressiveness, has met more than its own standard of achieving an inspection target of 25% although a few of the member countries have fallen well short of this target. Their resources are being targeted at low quality flag states and classification societies for eliminating the substandard ships. It is only a matter of time before the other MOUs will also follow suit with effective methods of identifying and banning substandard ships from their respective areas.

According to US Coast Guard data, the average number of oil spills over 10,000 gallons has dropped by almost 50% in 2000 from pre- 1991 levels. This has been attributed to the success of preventive measures adopted by the US Coast Guard (North, 2000. p.102). The Australian Maritime Safety Authority (AMSA) detained 166 foreign flagged ships in 2002 (AMSA, 2003). In the opinion of Mr. Everard, president of BIMCO, PSC in combination with full implementation of the ISM Code and STCW 95 Convention, will assist in raising standards (Everard, 2002, p.72). Some regional PSC MOUs have proved to be effective in eliminating substandard ships. The main reason for the growth of substandard ships can be seen in the failure

[3] Port state control inspectors are officials representing maritime administration of the government of the country which the ship is visiting.
[4] International cooperation between port state control and consequently governments in different countries is effected through MOUs.(Anderson, P. 1998. p.42)

of the flag state controls. However PSCOs have been criticised for reasons like intervention without proper grounds, duplication in conducting the same survey in two consecutive countries, a general lack of consistency between two inspectors, poor standards of some of the PSCOs etc. There is no doubt that mistakes do happen to every human being. The question is what the implications of such mistakes are in commercial and legal terms to ship owners?

Commercial implications

Sometimes the number of deficiencies is being artificially inflated, e.g. five open doors equal five deficiencies. The inspectors, not being available for re-inspection of the ships during working hours or not turning up at the appointed time, cause substantial off-hire hours. They have their own interpretation of mandatory rules that not only contradicts the vessel's ISM authority but also leads to unnecessary costs with no improvement in the safety of the vessel. The consequence of such inconsistent approach is that there are unnecessary delays to vessels. Needless to say, the owners suffer substantial financial losses. Such economic losses would affect the commercial ability of the vessels.

In forthcoming tough rules by the Paris MOU 'two strikes and you're out', the ships detained twice in three years will be banned from Europe and the North American Atlantic coast. A similar policies adopted by other regional MOUs would restrict all such ships calling in these major trading areas. As a result there could be a possibility of sudden imbalance in the total tonnage of quality ships in these areas, which would create a severe repercussion on the transportation of goods.

Legal implications

Unlike the ship arrests, PSCOs detain ships on the basis of their own professional judgement without any judicial supervision. The PSCOs derive their powers from

the sovereign state which employs them and are subject to the national laws of the jurisdiction. Generally speaking, a coastal state enjoys complete sovereignty over its internal waters and coastline. In particular, the maritime authorities have specific powers to exercise PSC including those provided within various international maritime conventions. Nevertheless any steps taken must be reasonable, public and non-discriminatory (Rodgers, 2000, p.289). However, there is an increasing likelihood of negligence, bias, over stretch of the powers, innocently or otherwise, and miss-interpretation of a huge array of regulations and rules. Under such circumstances, what is the owners' recourse?

The MOUs do not have the force of law and only apply to the countries that sign them. Their provisions are not directly enforceable by the ship owners against the port state. It must be emphasized that the powers used by PSCOs are derived from specific original international conventions. For instance, in case of Paris MOU, all Paris MOU members are not EU members hence each member state of Paris MOU is required to implement the directives of the European Union by introducing domestic legislation and the available appeal procedures for operators are as follows;

Appeal procedures:

The relevant provisions of the European Council Directive 95/21/EC are as follows:

> **Article 9(7):** *When exercising PSC under this directive, all possible efforts shall be made to avoid a ship being unduly detained or delayed. If a ship is unduly detained or delayed, the owner or operator shall be entitled to compensation for any loss or damage suffered. In any incidence of alleged undue detention or delay the burden of proof shall lie with the owner or operator of the ship.*

Article 10: *The owner or the operator of a ship or its representative in the member state shall have the right of appeal against the detention decision taken by the competent authority. An appeal shall not cause the detention to be suspended* (Rodgers, 2000, pp.289- 290).

The appeal procedure in England is governed by the Arbitration Act 1996. During the arbitration, Rule 11(3) allows the arbitrator to take into account "any other matter not specified in the detention notice, which appears to him to be relevant, whether the ship was or was not liable to the detention". Thus, the inspector can introduce and an arbitrator can accept further evidence of deficiencies in the vessel, even though they were not mentioned in the original notice of detention to justify the original detention order. In case the arbitrator decides that the owner has proved that there was no basis for detention, the award could include compensation for the owners' lost freight, port expenses, detention, legal costs and so on (Rodgers, 2000).

It can be noted from the above provisions and given the inspector's right to subsequently submit further evidence to defend his order, it appears extremely difficult for owners to get any compensation for wrongful detention. Any compensation, even if awarded, may possibly be inadequate as well.

In case the owners decline to go for appeal, they are entitled to lodge a complaint through the flag state for re-consideration of the detention decision. The port state will investigate the decision and convey the outcome to the flag state. If the owner is still not satisfied with the port state's outcome report, a further request can be made to the Paris MOU for review. The review of the detention will be done by the "Review Panel" (Secretariat, Paris MOU, 2003.a)

Under contractual agreements

Time charter parties

If the vessel on time charter is detained at a port, it is generally for the owners' account unless and until it is proved as a result of charterer's breach. If it is due to charterer's breach of obligations, then all costs and delays to the vessel are on the charterer's account.

However, most of the detentions are due to alleged or actual physical deficiencies of the vessel. The off-hire clauses differ between each standard charter party and accordingly the issue of off-hire due to detention by PSC is dealt with as per the relevant clause agreed. Some of the printed clauses under different charter parties are examined vis-à-vis the position of off-hire due to detention by PSCOs as shown in Annex C.

In case the time chartered vessel is on a voyage sub-charter the lay-time commences and runs as per the express terms of the executed charterparty for the voyage. The commencement of lay-time is based on following conditions:

1) The vessel must have arrived at the customary anchorage.

2) Readiness in all respects, including both physical and legal readiness.

3) Tendering of a valid Notice of Readiness (NOR).

In practice, when lay-time has commenced and the vessel is subsequently found 'not ready' only the time from the discovery of non-readiness until the rectification of defects is not counted as on hire. However, if for example, a vessel is detained on berthing for not having a valid SMC on board, it cannot be construed as a readiness of the vessel when tendering NOR. Against this background, a detention order may provide evidence that the NOR was not valid at the time of tendering the notice and lay-time would not commence from the date/time the NOR is tendered. This is more serious in case the vessel had a long waiting period at the anchorage.

It is clear from all the charterparty forms that the detention by PSC is considered as an off-hire event by the charterers. As a result, an owner will incur a loss to the extent of the detention period and there may be consequential losses claim too. With the formation of MOUs in almost all regions of the world and their ever increasing powers, there will be more detentions. As a result, clearly the implications of a PSCOs orders are considerable, especially in the situation where the remedies available to the ship-owners will vary from country to country.

5.4 Classification Societies

In the management of ship safety and pollution prevention, the classification societies hold a unique position, not only because the class roles are enshrined in the relevant conventions, but also because many flag states delegate their own roles to them. The role and scope of classification societies have changed, involving everything from the ship design and construction stage to certification, verification of the ISM Code and now also including the certification of ports under the forthcoming ISPS Code. Thus they have become vital partners in the regulation of the shipping industry.

In the opinion of Robin Bradley, Permanent Secretary of IACS, class has travelled a long way in achieving much to regain its traditionally acknowledged reputation as a technical guardian of the standards of ship construction and essential engineering systems. The SOLAS Convention makes the ship's compliance with its safety standards conditional in conformance with the structural and mechanical rules and standards of a vessel's classification society. The compliance with classification rules, therefore, becomes a strict prerequisite for the safety certification (Bradley, 2000, pp.119-120). Further, class also acts on behalf of flag administrations in undertaking inspections of ships and issuance of statutory certificates, including ISM certificates. Thus, the entry of class into new areas such as improving ship

performance, quality assurance, consultancy and advice, and certification and verification on behalf of flag states is headway towards a system covering the total safety of the ships. IACS member societies have developed their own guidelines for IACS auditors undertaking certification and a mandatory series of model training courses for auditors. The member societies of IACS certainly appear to have been working hard to corner the market of ISM certification and the development of Safety Management Systems for various companies.

In view of the increased roles by class, their contribution in ensuring an appropriate level of reliability and safety has become a fundamental necessity in controlling the maritime accidents caused by technical and human error. It is important to see the performance of classification societies with regard to compliance of the ISM Code.

Performance of classification societies

Classification societies, especially the members of IACS, have gained world fame in the industry in ensuring the safety and quality of shipping. However, some classification societies continue to fail in their responsibilities for various reasons. This can be noted from the details of the responsibility of classification societies for detainable deficiencies published by the Paris MOU. Out of 1,577 detentions recorded in 2002, 20% (312) were considered class related, a slight improvement when compared with 2001 (22%). When considering the rate of class related detentions as a percentage of inspections in 2002, Register of Shipping (Albania) 34.5%, Isthmus Bureau of Shipping (Panama) 27.8%, Inclamar (Cyprus) 15.2%, International Register of Shipping (U.S.A.) 14.3% and International Naval Surveys Bureau (Greece) 12.1% are topping the list.

The Paris MOU Annual Report 2002, indicates that the performance of classification societies that issue ISM certificates remains a reason for concern. The overall picture indicates that the certification does not guarantee an actual implementation of a

management system on board (Secretariat, Paris MOU, 2003 b, p.12). This could be the reason that the Concentrated Inspection Campaign by Paris MOU in conjunction with the Tokyo MOU in 2002 was dedicated to test key elements of the ship's safety management system. In April 2001, the Paris MOU announced an increasing rate of detentions of tankers due to lack of structural maintenance and defects in firefighting equipment. The glaring point is that all the detained tankers were surveyed by members of the IACS and five detentions involved items for which class is responsible (Schiferli, 2002,p.68).

It can be concluded that there are some societies, which have failed in their responsibility in ensuring proper compliance with the ISM Code. The lapse on the part of classification societies could be attributed to stiff competition among them to garner a larger portion of the lucrative commercial market. However, members of IACS are working to sustain the process of safety improvement and some of the measures are:

- Increasing use of the Formal Safety Assessment (FSA) technique, which brings benefits of risk identifications and valuable foundations for appropriate rules, regulations, designs and actions leading to safer operation.
- IACS will keep close cooperation with the PSC regime and develop its analysis of detention data in order for the members to be able to examine their own performance with that of different flag states and owners.
- A series of data initiatives include the database tracking of the subsequent records of ships leaving an IACS society and rigorous follow-up of any IACS classed ship banned by PSC.

Chapter 6

Conclusions and recommendations

The study has examined the effects of ISM implementation on maritime claims. The analysis of maritime risk in general and the claims analysis of SCI in particular shows an improved claims record at a marginal rate with the human factor still being the main contributing cause for such risks. Recognising the significance of human error in improving the safety, the Code aims at addressing the issues of human factor. It is suggested that the reduction in claims achieved over the last five years is due to the combined effects of more than one reasons, but there is no doubt that the ISM Code has acted as a major instrument for this trend. However, the Code has not produced a similar effect throughout the industry due to various reasons.

It is observed that a majority of the companies are just complying with the mandatory process without serious commitment. Nevertheless, room still exists for effective implementation of the Code by ship owners to improve its effectiveness in creating a safety culture and thereby reducing maritime claims. However, there are many stumbling blocks affecting implementation of the Code. There are observable differences between the performances of various key players in the industry. As a consequence of this, operators with sub-standard ships seek to flag their vessels to flag states with the least burdensome regulatory framework creating a competitive disadvantage to the diligent owners in the competitive freight market. Flag states have the responsibility for enforcing the Code, but unfortunately, many flag states have failed to ensure compliance with the Code. Indeed, vessel inspections by PSCs have currently become more effective and as a result the survival of such flags that offer ever more relaxed regulatory environments may be difficult in the near future.

The following is a summary of the main findings of the study and recommendations to the identified problems.

6.1 Human factor

Human error is still the main contributing cause of most of the accidents and consequent claims. The analyses of claims have revealed that the underlying factors such as, fatigue, discomfort, boredom, illness and stress make people more prone to mistakes. However, with regards to the human factor, although the Code is attaching an importance to the competency of crew and training, it seems to have done little to address issues of crew's health, motivation and personal care. Some forms of human error, those which derive principally from human temperament and mood cannot by their very nature be completely eliminated. However, thoughtful and well designed working environment, sound procedures, proper training and enforcement of good practices help to make such errors less likely.

6.1.1 Possible solutions

I. Most companies are trying to meet the minimum criteria with regards to crewing strategies under various regulations. Nevertheless, personnel policies should be based not only on statutory requirements but also on quality criteria as the competency or skill levels required for each rank need to be defined from a company perspective.

II. Another aspect of good performance is motivation of the employees to attain levels of commitment and effectiveness to achieve the objectives of the organisation. In this respect, company policies and shore management must be conducive to the seafarers and may be supported by on board social activities, gym facilities and free email for employees. The benefits would outweigh the costs of such welfare measures by addressing the important issue of social isolation, which has always set seafarers apart from public life.

III. The fullest orientation and briefing should be given not only to officers but also to crew to prepare them for the new environment.

IV. Personnel policies of the company should be such as to attract and retain competent officers and ratings. With continuity of employment, mutual trust, employee identity and company loyalty can be achieved in the organisation which lead to a true feeling of belonging.

V. There are many examples where communication difficulties have led to accidents during basic operations such as lifeboat drills and problems during interaction with shore side personnel. Moreover, continued globalisation of labour raises obvious concerns in respect of safety issues. While knowledge of English will be of great help, proficiency in the use of the Standard Marine Communication Phrases (SMCP), as adopted by the IMO, should be demonstrated as a bare minimum.

VI. Companies should establish a career development plan by way of a structured training and promotion programme for their employees. It is suggested that in today's world of high employment turnover, a company should have a bond with the seafarers in order to confidently invest in their development by providing a full range of training.

VII. Forming relationships directly with the maritime training academies as training partners is also a potential area of interest.

6.2 Implementation problems

Good companies have shown that the Code can be a good instrument given the right conditions but unfortunately, many operators have failed in effective implementation of the Code.

6.2.1 Possible solutions

Some possible suggestions to improve the implementation of the code are:

I Comprehensive loss prevention data base

A comprehensive record of claims and their analysis is most important to provide an awareness of claims costs, to identify areas of potentially high claim costs and to set targets for remedial actions. Presently, few P&I Cubs have given access to their members for sharing claims information, which helps members to benefit from the

collective claims experience of different fleets. Analysis of P&I and hull claims for specific loss prevention purposes should be presented to members in summarised, easy to use formats.

The international group of P&I Clubs is custodian of claims information for as much as 95% of the world fleet. It should also share information on claims of smaller values of up to $50,000 per claim. A larger database of claims would benefit a majority of ship owners, particularly smaller ones, who generally do not have in-house risk management systems.

The loss prevention programmes of P&I Clubs are also quite successful in reducing claims. Loss prevention guide books, posters and other support materials should be available with commercial operating officers of shipping companies, so that suitable loss prevention measures can be included in the voyage instructions for the Master with a special instructions.

II Risk management

The Code is non-prescriptive and it is the operator who has to develop a company specific safety management system. A practical process of risk assessment needs to be undertaken by the company as a basis for the development of the company specific SMS. Risk assessment, taken with the accompanying hazard identification and measures for control is an effective method for preventing accidents and injuries. There are no fixed rules as to how the risk assessment should be undertaken; however, each risk assessment should contain the following:

1. Clarification of work activities;
2. Identification of hazards;
3. Decision as to which risks are acceptable;
4. Preparation of an action plan;
5. Review of adequacy of action plan.

III Fear of victimisation

If the ISM Code is to have a significant impact on accidents and claims, the ship staff should feel confident that they can report deficiencies and hazardous situations, which may develop into a dangerous situation, without fear of getting victimised. However, the master and seafarers, being the key implementers of the Code, are living in a culture of blame and fear. Thus, fear of victimisation is an apparent reason for their reluctance to report such incidents. An environment where such fear is removed from the minds of seafarers needs to be created. Influential individuals and organisations like regulators, politicians, judges and lawyers need to have a positive and realistic approach to accidents. The following is suggested:

I. Similar to the aviation industry, a Confidential Hazardous Incident Reporting Programme (CHIRP) may be established for a maritime industry that ship staff can report errors or omissions without fear of any consequences. Such maritime branch of the CHIRP has already been created in the UK in 2003. Many such branches should be opened covering whole of a maritime industry.

II. There should be an indemnity scheme for the master and other ship staff against their prosecution and custodial sentences until and unless acceptable evidence establishes their responsibility for the accidents.

IV Enforcement

The flag states have primary responsibility for enforcing the ISM Code with an authority to withdraw, suspend or cancel the ISM certificates if they find major deficiencies while auditing the ships. However, many of them have failed to ensure compliance with the ISM Code for various reasons. Whilst it is not a problem for the flag states, which have adequate infrastructure and resources, the flags and open registries, which do not have the required resources, experience difficulties in performing this function. As a consequence, many flags have delegated this responsibility to the classification societies and classification societies are acting on behalf of the flag states without any responsibility. The failure of the flag states has

led to the strengthening of the role of Port State Control as a policing mechanism for the compliance with various regulations. Therefore, the following is suggested:

I. A system of a small squad of independent surveyors should be set up under the IMO, who can randomly select and audit ships of the flags which are known for flouting safety rules. If and when a ship is found non-compliant, the independent auditors should be authorised to hold both the flag state surveyor and class accountable with significant penalties on the operator.

II. Internationally agreed performance requirements with corresponding provisions for penalties against the countries failing to meet their obligations are needed. Further, the flag states or classification societies with consistently high detention rates may further be penalised by refusing recognition of certificates issued by them. These measures may be difficult to put into practice, but it is certain that without the commitment of flag states, the objective of eliminating substandard ships will not be achieved. Radical measures such as the OPA 90, which was opposed by most maritime nations, have produced excellent results today.

V Exchange of information

Promoting information exchange through the establishment of centralised databases will improve:

I. Simplification and standardisation of pre-arrival and other types of information of ships required by ports, customs, port agents, port health authorities, cargo receivers and so on, will reduce a substantial burden on ship staff. Further, it can be made available through a centralised information system.

II. Exchange of information between the regional MOUs will enable PSCs to avoid frequent inspections of ships, especially quality ships while at the same time saving valuable time and cost to target the high risk ships.

III. Enhance transparency so that quality charterers will be under pressure not to choose bad quality ships and thereby reducing accidents.

VI Incentives to ship owners

The main reason for managing many ships in sub-standard condition is to save on the annual running cost for a vessel, which is more significant in a competitive market. Giving some level playing field advantage to those honest shipowners, who have invested large amounts of money in maintaining high standards and discouraging the substandard shipowners may be a good solution. This can be achieved by strict and frequent inspections and detentions by enforcers, strict pre-charter screening by charterers and frequent condition surveys by Clubs so that a sub-standard owner will not get an advantage by running ships in sub-standard conditions. As a consequence, there will be fewer accidents and claims.

VII Shore-side facilities

There is a need for shore-side facilities to be properly maintained and regularly inspected as part of the drive for greater safety in shipping as most accidents occur in the port areas. Port users should have service agreements containing a responsibility clause for safe port so that legal actions can be initiated to recover losses resulting from casualties for an established fault on the shore side.

Closing remarks

While it is early to draw any firm conclusions on the extent of effects of the ISM Code on claims, to a certain extent the experience gained through the introduction of the Code has resulted in changing behaviour towards safety. A commitment to continuous improvement of the company's safety record would certainly bring in a safety culture and an improvement in the claims records. After all, until such time as owners, operators, other industry players, flag states, classification societies and PSC accept and fulfil their responsibilities, accidents will continue to occur.

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Annex A

Detainable deficiencies identified by Port State Control

Following are the deficiencies identified on ISM compliant 6 bulk carriers detained by Port State Control (PSC) in 2002 are:

- Unable to launch lifeboat;
- Several maintenance related deficiencies observed.
- Numerous closing clamps for all top side ballast tanks on main deck seized in open position;
- Emergency fire pump was not functional;
- Emergency fire pump unable to deliver required water pressure;
- Engine room funnel casing found corroded/holed;
- No 1 hold ventilation damper not closing;
- Oil discharge controller non-functional as oil water separator (OWS)/water interface sensor defective;
- Excessive soft patches in engine room;
- Hull in wasted condition;
- Machinery space openings not watertight;
- Port side bilge pump leaking;
- Leaking hydraulic fluid at a connecting union for steering gear hydraulic pump;
- Wasted links port and starboard anchor chains.
- Inadequate record keeping of SMS (records of preventive maintenance not maintained);
- Water tight integrity of No 5 Hatch breached;
- Oily water separator auto stop device not working;
- Oil water control separator control system unable to control discharge of effluent within convention limits.

Annex B

Table 9- STCW courses conducted in SCI, Jan 2002- July 2002

SCI Maritime training institute Mumbai No. of STCW courses conducted from 01.01.2002 to 31.07.2002									
Sr. No.	**Name of courses**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Total**
1	AFF	2	2	1	2	2	2	3	14
2	AFF up gradation	5	4	4	2	3	2	2	22
3	Basic up-gradation	5	4	4	4	5	4	5	31
4	Chemical tanker familiarisation	2	1	1	1	0	1	0	6
5	Class IV preparatory	0	0	0	0	0	0	0	0
6	FPFF	4	4	2	4	9	6	7	36
7	GMDSS	1	1	1	1	0	1	1	6
8	GP rating	1	0	0	0	1	0	0	2
9	Liquefied gas tanker familiarisation	0	1	1	1	1	0	1	5
10	Liquefied gas tanker operations	1	0	1	0	0	0	0	2
11	LNG familiarisation	0	0	0	0	0	0	0	0
12	Master up-gradation	0	0	2	0	0	0	0	2
13	2nd mate up-gradation	0	0	0	0	0	0	0	0
14	Medical care	1	0	1	1	1	1	0	5
15	MEO up-gradation class I-II	1	1	0	0	0	0	0	2
16	MEO up-gradation class IV	1	1	0	0	0	0	0	2
17	OTFC	2	1	1	2	1	1	1	9
18	Passenger ship familiarisation	2	2	2	2	4	2	3	17
19	PEFA	3	3	3	3	3	2	3	20
20	PMFA	2	1	2	1	2	1	2	11
21	PSSR	2	3	2	4	3	2	3	19
22	PST	4	4	2	4	4	2	2	22
23	Specialised tanker safety	1	1	0	0	0	0	1	3
24	STS up-gradation	2	1	1	1	1	2	1	9
25	TFT	0	0	0	1	1	0	0	2
26	TNOC	1	0	0	0	0	0	0	1
27	Training for instructor	0	0	0	0	0	0	1	1
	Total number of courses	43	35	31	34	41	29	36	249

Source: SCI Mumbai, 2003.

Annex C

Detention off-hire clause of time charter parties

1. Shelltime 4(1984) clause 21(a)

On each and every occasion that there is loss of time (whether by way of interruption in the vessel's service or, from reduction in the vessel's performance, or in any other manner).

> (v)due to detention of the vessel by authorities at home or abroad attributable to legal action against or breach of regulations by the vessel, the vessel's owners, or owners (unless brought about by the act or neglect of the charterers); then without prejudice to charteres' rights… the vessl shall be off-hire…

From this, it is clear that, the detention of a vessel for breach of regulations, unless due to act or neglect by charterers, would put the vessel off-hire.

2. New York Produce Exchange Time Charter (NYPE-46) clause 15.

"That in the event of the loss of time from deficiency of men or stores, fire, breakdown, or damages to hull machinery or equipment, grounding, detention by average accidents to ship or cargo, dry-docking… or by any other cause preventing the full working of the vessel, the payment of hire shall cease for the time thereby lost… "

It can be seen from the relevant clause that the intentions behind the phrase "or by any other cause preventing the full working of the vessel" can be interpreted in many ways by the parties to the contract.

However, in the opinion of Paul Rodgers, the words 'full working of the vessel' intend 'physical' working only and the words 'any other clause' include 'physical causes. Thus an NYPE form would keep the vessel on-hire following a

detention order, unless the detention arises from alleged physical deficiencies of the vessel, when she might be off-hire. If the clause is amended with 'whatsoever' after 'cause', then the vessel is off-hire whenever detained (Rodgers, 2000. p. 295).

3. Baltime 1939

(A) "In the event of dry-docking or other necessary measures to maintain the efficiency of the vessel, deficiency of men or owners' stores, breakdown of machinery, damage to hull or other accident, either hindering or preventing the working of the vessel and continuing for more than 24 consecutive hours, no hire to be paid in respect of any time lost thereby……"

The clause does not stipulate detention as one of the reasons for off-hire. Instead it restricts off-hire to situations where the vessel is delayed by dry-dock, deficiency of men, or machinery or other accident. Thus, a detention per se may not be sufficient to put the vessel off-hire, but an order under detention to repair or improve may well put the vessel off-hire as an indirect consequence.