CONTROL MEASURES TO PREVENT ACCIDENTAL POLLUTION IN INDIAN PORTS

Vessel sourced accidental pollution in ports is the hidden risk associated with increased maritime traffic. But its chances are often neglected until it occurs. “Neglect until some event dramatizes an old and hidden but significant danger and then over reaction”, as noted by a risk management scientist. Some of the worst maritime casualties in the recent past must have contaminated the oceans with over 192000 tons of oil. The Organization for Economic Co-operation and Development study report says that vessel accidents are more frequent in ports than on high seas. The reason may be that ports are highly exposed to traffic congestions. Another reason may be that recurrent human and navigational errors occur more frequently during vessel operations in ports.

1 See UNCTAD, Review of Maritime Transport (2010), p. 3. It states, “In January 2010, there were 102,194 commercial ships in service, with a combined tonnage of 1,276,137 thousand dwt. Oil tankers accounted for 450 million dwt (35.3 per cent) and dry bulk carriers for 457 million dwt (35.8 per cent), representing annual increases of 7.6 and 9.1 per cent respectively.”


There has been tremendous rise in maritime transport coupled with oil exploration along the Northern Indian Ocean region, exposing the Indian coastal line highly vulnerable to maritime casualties\(^5\). Most of the Indian ports are at geostrategic location, along the two busiest oil routes connecting Persian Gulf with Mozambique Channel\(^6\). In order to avoid the risk of Somali pirate attacks, a large number of ships in transit are reported to be sailing very close to the shores of India\(^7\). Hence, all major ports in India are under high alert on chances of major maritime casualties due to traffic congestions\(^8\). This risk is predicted to be even higher during the monsoon season\(^9\). In the last four years there have been 153 maritime accidents reported in India, out of which, 78 ships involved were of Indian flags\(^10\). The environmental threats from shipping accidents may be more detrimental for a developing country like India, where the prevention, preparedness and response systems may not be comparable with international standards. The inefficiency of the Ministry of Shipping, Ministry of Environment and Forests and the Ministry of Home affairs in


\(^6\) Road Map for Oil Spill Management for India, Prepared and Submitted by the Project Review and Monitoring Committee for Oil Spill Management, Government of India (2003)


\(^8\) Id., p.64


coordinating the response systems in the past during the grounding of M.V. Rak Carrier and M.V. MSC Chitra had invited wide media criticisms.

Even among the most modern maritime countries, there has been no consensus as to how the industry and government should respond in case of major casualties. It took more than a decade to curate the effects of the Torrey Canyon Spill. Speaking on the topic, White, Nicholes and Garnette wrote, “Little progress has been made over the past decade to reduce the impact of oil spills to the extent that available technology should allow”\(^{11}\). It may take years to mitigate the serious environmental and ecological impacts from a disastrous oil spill and the costs for cleaning-up process may be exorbitant\(^{12}\). A spontaneous and technologically advanced regulatory system is indispensible to prevent hypothetical blows to the port environment from shipping incidents.

Under the aegis of IMO, the international law on vessel sourced accidental pollution has achieved significant milestones that the number of tanker accidents has come down considerably\(^ {13}\). Yet, a single event may transpose the entire statistical data on profound consequences. Therefore, many western countries have revised the laws controlling vessel movements in ports


\(^{12}\) See, www.itopf.org., shows a detail account of all major international oil spill incidents. A case summary on the Exxon Valdez disaster describes it as the greatest oil spill in U.S. waters till now, spilling around “37,000 tonnes out of its 1,85,000 tonnes cargo of Prudhoe Bay crude oil”, affecting almost 1100 miles in Alaska. The cleaning up process that had begun in April 1989 continued until 1991

\(^{13}\) Supra n.3. As a result of stringent prescription and enforcement standards at the international level, there has been a considerable fall in the number of major accidental spills. The year 2011 recorded only a single large spill and four medium spills
as a precautionary measure against maritime casualties. Many of these countries have detailed legislation covering the topic as they have conceptualized the risks of accidental pollution from a blooming economic perspective. Hence, it becomes important to analyse the Indian standards of control to prevent accidental pollution in ports.

**Sources of Accidental Pollution in Ports**

Vessel sourced accidental pollution in ports are collisions as in the *MSC Chitra & MV Khalizia III* near the Mumbai Port and the *Hebei Spirit* in Korea, structural failures of vessels such as the engine failure of the *Braer*, failure of the steering gear as in the *Amoco Cadiz*, hull failure like in the *Erika* and the *Prestige*, groundings like in the *Torrey Canyon* and the *Exxon Valdez*, fires and explosions on board the vessels and pollution from improper port operations. It is identified that human error during routine operations like improper operations of valves and substandard handling of hose

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14 Nengye Liu & Frank Maes, “Prevention of Vessel-Source Marine Pollution: A Note on the Challenges and Prospects for Chinese Practice under International Law”, *Ocean Development & International Law* 356 (2011). The authors quote that since 1983, the MARPOL and SOLAS have undergone considerable development. The European Union has strengthened its law on vessel source pollution after the *Erika* in 1999 and *Prestige* in 2002, the United States after the *Exxon Valdez* in 1989 and South Korea after the *Hebei Spirit* incident in 2007

15 *See, Supra* n.3, Accounts for around 51% of vessel accidental pollution

16 *Id.*, Accounts for 21% of the major spills

17 *Id.*, In the United States’, accidental spills from cargo handling were reported to be on large proportion

connections is the chief cause of vessel accidents\(^{19}\). The greatest maritime casualties like the *Titanic* and *Exxon Valdez* are also reported to have happened because of poor navigational aiding and ship operations by the crew. It is thus understood that unsafe vessel operations in port area is a major concern to be clogged and to achieve this, the safety laws and laws ensuring crew competency should be tightened\(^{20}\).

**General Scheme of Control under UNCLOS III**

The general framework of control of accidental pollution can be found in the International law. Since, licensing and certification of vessels belong to the jurisdiction of flag states; it is their primary responsibility to ensure seaworthiness of vessels sailing into the oceans.

Towards this, flag states are required to conduct periodic inspections in order to ensure that their ships carry on board valid certificates under various conventions\(^{21}\). In case of violations of pollution control laws, flag states will have to investigate, prosecute and punish the ship with stringent penalties\(^{22}\).

The port states are required to co-ordinate these control measures in ports by means of port state control. Port state control inspectors should verify the documents of the ship and ensure that it is safe to continue the voyage. Or else, international law empowers the port states to detain the ship so that it cures the deficiencies\(^{23}\). These enforcement measures can be initiated only

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\(^{21}\) UNCLOS, III, art. 217 (1) – (3)

\(^{22}\) *Id.*, Cl. (4)-(8)

\(^{23}\) *Id.*, art. 218 & 219
upon the request from flag states or the concerned coastal state and includes the arrest and detention of the vessel, and a release under an undertaking that it is sailing to the nearest repair yard\textsuperscript{24}. If the suspicions fall short of ample evidence the inspecting port state is liable to pay damages for the undue delay caused to the ship\textsuperscript{25}. The pre-emptive provisions of the UNCLOS further emphasize on flag state implementation and limits un-necessary interruptions by the port states\textsuperscript{26}.

Efforts were made towards screwing up flag state implementation. Also, pressure has been made on the industry to eliminate substandard shipping by the joint efforts of port states and industry organizations such as the International Association of Classification Society, Comite Maritime International, International Association of Independent Tanker Owners\textsuperscript{27}, International Group of Protection and Indemnity Clubs and the Oil Companies International Marine Forum\textsuperscript{28}.

The coastal state could not prescribe laws and regulations that are applicable to construction, design, manning and equipment standards of foreign ships unless they are giving effect to ‘generally accepted international rules or standards’\textsuperscript{29}. Now, what constitutes ‘generally accepted international rules and standards’ are to be analyzed. These are the conventions and treaties under the aegis of the International Maritime Organization. These rules and regulations are in fact true depictions of major maritime flag interests at the conferences of the IMO. The port states with minor shipping interests hardly inspire any of

\begin{footnotesize}
\begin{enumerate}
\item \textit{Ibid}
\item \textit{Id.}, art. 232
\item UNCLOS III, arts. 230, 231 and 232
\item Herein after to be referred to as the INTERTANKO
\item UNCLOS III, art. 21(2)
\end{enumerate}
\end{footnotesize}
these standards adopted at the conferences. The port states wish that the costs for implementing standards of safe shipping should be borne by flag states. The flag states in turn are reluctant to recognize the hegemonic shipping safety regime demanded by a small group of port states. The port states have neither legislative competence nor technology sophistication for the strict enforcement of the prescribed international standards at the domestic level. As a result, strict port state enforcement mostly remains on papers.

Some of the dominant maritime countries are so advantageously placed that they may even prescribe unilateral legislations and set standards higher than those prescribed under the IMO conventions thereby forcing port states to enforce it exclusively over vessels and crew, if the latter wishes to trade with the former\textsuperscript{30}. Such incidents have pulled down the international efforts to bring in uniformity in the port state enforcement measures. The IMO at the apex level co-ordinates safety in shipping and various self - regulatory NGOs support it. Despite this, the issue of substandard shipping continues to plague the industry. The problem is identified because of ineffective co-ordination, inadequate sharing of data regarding substandard ships\textsuperscript{31} and the reluctance of individual port state control officers\textsuperscript{32} and self -regulatory organizations\textsuperscript{33} to recognize the vetting inspections and other surveys conducted by each other. This could be cured by entering into memorandum of understanding between


\textsuperscript{31} For Example the OCIMFs ship inspection report program (SIRE) and INTERTANKOs maritime database allow members and some non-members like national regulators to access information on substandard ships. If this data is properly shared between national and industry regulators, it would have been easy to track substandard ships and the governments would have been able to take better decisions on eliminating them from the industry.

\textsuperscript{32} Herein after to be referred to as the PSCOs.

\textsuperscript{33} Here in after to be referred to as the SROs
the organizations, whereby efficiency in surveys and inspections can be maintained and duplications and unnecessary hurdles for shipping operators can be eliminated.\(^{34}\)

**The Construction, Design, Equipment and Manning Standards and Physical Seaworthiness of the Vessel**

It has been widely recognized that preserving the integrity of ship is the best way to ensure safety.\(^{35}\) Safety and pollution control though distinct are inter-linked concepts. Various externalities like un-seaworthiness of the ship and improper safety systems in ports may run the risk of accidental pollution. It is certain that construction design equipment and manning\(^ {36}\) standards are very important to ensure seaworthiness and to rule out the risk of vessel sourced accidental pollution. The CDEM standards include the physical seaworthiness and structural qualities in maintaining the stability of the vessel, the equipment it carries and the competency of the crew on board.

The international law on CDEM standards may be found generally under international conventions such as the SOLAS 74\(^ {37}\), the MARPOL 73/78\(^ {38}\), the COLREG 72\(^ {39}\), the STCW 74\(^ {40}\) and various guidelines issued by

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\(^{34}\) For example, *See*, the memorandum of understanding between the U.S coast guard and the American Bureau of Shipping, whereby the latter is allowed to conduct inspections on some vessels.

\(^{35}\) *Supra* n.20, at p.3

\(^{36}\) Here in after referred to be the CDEM


\(^{38}\) The International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978

\(^{39}\) The Convention on International Regulations for Preventing Collisions at Sea, 1972

\(^{40}\) The International Convention on Standards of Training, Certification and Watch keeping for Seafarers, 1978
the International Maritime Organization\textsuperscript{41}. The guidelines are mandatory under SOLAS regulation\textsuperscript{42} for bulk carriers and oil tankers which are more than five years old. The guidelines are also mandatory under the MARPOL\textsuperscript{43}. The guidelines prescribe for complete, enhanced and transparent survey of hull structure and piping systems in accordance with the SOLAS 74 specifications. The surveyor should ensure the completeness of documents on board. In case any corrosion or structural defects are identified, the matter should immediately be reported before the administration and the ship should undertake correction measures before sailing to the next port. The guidelines have specifications on enhanced surveys during preliminary, periodic, annual and intermediate surveys. The chief objective of enhanced surveys is to ensure the stability of the vessel by periodic and timely evaluations and reporting of deficiencies found to the administrations as well as ship owners.

**The Prescriptive Standards for Preventing Vessel Accidents under the SOLAS 74**

Under the SOLAS 74, the fire safety provisions are more stringent for tankers when compared to ordinary cargo vessels as they carry more risk because of the oil, chemicals and other hazardous substances on board\textsuperscript{44}. Therefore, the convention provides for compulsory establishment for ‘inert gas system’ for all newly constructed tankers and for those of 20000 Dead weight ton\textsuperscript{45} or above. Non-explosive gases are filled from ship’s boiler flue in empty tanks and on the top of that oil is loaded in order to eliminate every single risk of spark which may lead to an explosion. In order to eliminate the risk of

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\textsuperscript{41} For example, the IMO Resolution A.744 (18) had adopted the IMO Guidelines on Enhanced Programme of Inspections during Surveys of Bulk Carriers and Oil Tankers.

\textsuperscript{42} The SOLAS, 1974, ch. XI/2

\textsuperscript{43} The MARPOL 73/78, reg.13G (3)

\textsuperscript{44} The SOLAS 74, Ch. II, amended on 1\textsuperscript{st} January 2002

\textsuperscript{45} Herein after to be referred to as dwt
mechanical failure, SOLAS 74 requires the duplication of steering gears and almost all the navigational equipment. This compulsory regulation was incorporated in response to the stranding of *Amoco Cadiz* on 16th May, 1978 following her steering gear failure. Mandatory towing arrangements were insisted to be created before 1st January 1999 for all existing tankers and those new ones above 20000 dwt built after 1st January 1996.

**Safety Management to Control Pollution under the ISM and ISPS Codes**

In the wake of *The Herald of Free Enterprise*\(^{46}\) and *The Estonia*\(^{47}\) tragedies, the U.K government had heavily lobbied the IMO to implement the ‘International Management Code for the Safe Operation of Ships and for Pollution Prevention’ (ISM) by its formal incorporation into SOLAS 74. It is mandatory under the SOLAS that all member states should implement the ISM code by incorporating it in the domestic law. If there is any contradiction between the domestic law and the ISM code, the domestic law would prevail. But the party would be deemed to have committed a breach of duty to implement SOLAS 94.

The protection of marine environment is one among the chief objectives of the code\(^{48}\). The ship owners are under obligation to set the standards for achieving the objective of the code by formulating safety management system\(^{49}\). The main purpose of SMS is to ensure that equipment are properly


\(^{49}\) Herein after to be referred to as the SMS, *Id.*, s.1.4
tested and maintained, the staff are properly trained and fully informed of the equipment, deficiencies are met up- all being done to ensure good practice in safer and pollution free shipping, the absence of which would render the vessel unseaworthy.\footnote{The Toledo, (1995) 1 Lloyd’s Law Report. 40, at p. 50; The Lydia Flag (1998) 2 Lloyd’s Law Report. 652}

Under the code, the vessel has to undergo regular maintenance and equipment tests and audit its environmental report. Accordingly, the ISM Compliance certificate\footnote{Herein after to be referred to as the DOC} and the Ship Management Certificate\footnote{Herein after to be referred to as the SMC} will be issued to the company. These certificates are issued by flag state administrations initially for five years but require periodic inspections annually and in every 2-3 years.\footnote{The SOLAS 94, Ch. IX, reg.4 & 6} The ship management should maintain annual audit reports as to the compliance of ISM Code on board and with off shore agencies.

The code is established at multilateral level by the IMO in such a way that the flag state will enforce it while port states and other entities ensure its safety compliances. The responsibility for the verification of the code is on the flag states. Ship owners seeking classification and P&I insurance would be required to possess ISM compliance certificate. Those who do not possess ISM Compliance certificate will be targeted by the PSCOs.

**The ISPS Code**

The Maritime Security Conference of December 2002 of the IMO incorporated the International Ship and Port Facility Security Code (ISPS Code), by formally amending SOLAS 74. The main objective of the code is to ensure safety on board ships and at ship-port interfaces. The code details duties on the governments, port authorities and shipping companies to ensure security of the ship at various levels. Although the code was adopted in the light of
Recent threats from maritime terrorism, certain provisions of the code have got application in ensuring ship stability, subdivision and overall safety.

The code provides for a ship security plan and also port security plan. There shall be designated security officers both in ports and on board to implement the plan. The national level administrations should set the level of security in ports and it is the duty of flag administrations and shipping companies to raise their security plans to this level in all ports of call. The provisions entrust with the master of the vessel the duty to act independently upon his judgment in accordance with the security plan to ensure safety of the ship.

The code also provides for security alert systems, unique identification number and continuous synopsis record for the ships. Every ship shall be fitted with the Automatic Information System.

The code gives specifications for additional safety requirements on design and construction for bulk carriers. As per the new regulations, the water level detectors require high level alarms and monitoring systems to check water ingress. Under regulation, “pumping systems require the means for draining and pumping dry space bilges and ballast tanks any part of which

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54 The SOLAS 2002, Ch. XI-2 reads, Special Measures to Enhance Maritime Security
55 Herein after to be referred to as the CSR. The CSR should detail the history of the ship like name of the ship, flag state, the date of flag state registration, identification number, the port state registration, registered owner(s) and their registered address. The CSR should be updated with all subsequent changes regarding the history of the vessel
56 Herein after to be referred to as the AIS. The SOLAS 2002, Ch. V
57 Id., ch. XII
58 Id., reg. 12
59 Id., reg.13
is located forward of the collision bulkhead to be capable of being brought into
operation from a readily accessible enclosed space”.

There are provisions relating to construction- structure, subdivision and
stability, machinery, and electrical installations\(^{60}\). As per the regulation, “each
space within the cargo area is to be provided with an appropriate means of
access to enable, throughout the life of a ship, overall and close-up inspections
and thickness measurements of the ship’s structures to be carried out”\(^{61}\). The
code has specifications on machinery automation systems, designed to give
sufficient warning to the navigation officer about imminent slow down and
shut down of the propulsion system in order to meet an emergency\(^{62}\). It also
provides for fire protection, fire detection and fire extinction systems\(^{63}\). The
convention is amended to incorporate the mandatory International Maritime
Dangerous Goods Code\(^{64}\).

**Legal Consequences of Non- Compliance with the Safety Codes under SOLAS 74**

Any report of non-compliance with ISM Code would make the ship un-
seaworthy under the Hague –Visby rules\(^{65}\). In *Ingram & Royle, Limited v.
Services Maritimes du Treport*\(^{66}\), the ship owner embarked certain bags of
metallic sodium saturated with petrol which was inefficiently packed and was
stowed with inadequate care. The vessel underwent rough weather; the bags
got loosened and came into contact with water resulting in many explosions.
Finally, fire broke out on board. Subsequently the cargo was lost by reason of

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\(^{60}\) *Id.*, ch. II, reg.1

\(^{61}\) *Id.*, reg. 1/3-6

\(^{62}\) *Id.*, reg.13

\(^{63}\) *Id.*, ch. II

\(^{64}\) The SOLAS 2002, ch. VII, Herein after to be referred to as the IMDG code

\(^{65}\) Hague-Visby rules, art. III, rule.1 & art. IV, rule. 1

\(^{66}\) (1914) 1 K.B. 541
fire. Held, the vessel was unseaworthy because of bad stowage and was charged for violations of the ISM Code and thereby the Hague-Visby Rules.

A ship should carry all navigational documents, ship board emergency plans and all other documents for safe loading and unloading of the cargo in order to get a port entry. It is the duty of the ship owner to make available to the crew all the navigational documents including sailing charts, mariner notifications and all other nautical publications that would allow her to navigate safely. In Grand Champion Tankers Ltd. v. Norpipe A/s and Others (The Marion)\(^67\), the vessel was awaiting berthing at Teesside. The master wanted the vessel to anchor somewhere near the loading and unloading point until a berth is allotted for the vessel. The nautical chart was an old one and he was not aware of Ekofisk pipeline laid in this area. Hence, the court held that the vessel was unseaworthy due to lack of up-to-date charts and the deficient system to supervise this operation.

The adequacy of documents may change along with each voyage, depending upon the law of the flag state and port of call concerned\(^68\). The ISM Code requires that all the safety documents on board of the vessel are mandatory for every voyage and it has to be updated\(^69\). The code casts the duty upon the ship owner to ensure that all documents are up dated and kept ready for a particular voyage. Similarly, the ship should also carry emergency plans on board to tackle any crisis during a voyage. This is more important when the engineering crew on board is inexperienced. They can refer the manuals in order to familiarize the engine specifications.

Absence of any of these documents may render the port entry and cargo discharge difficult.

\(^{67}\) [1982] 2 Lloyd’s Rep. 52, p. 57

\(^{68}\) Alfred C. Toepfer Schifffahrtsgesellschaft G.M.B.H v. Tossa Marine Co. Ltd. [1985] 2 Lloyd’s Rep. 325, at p. 331

\(^{69}\) The ISM Code, s.11
In India, ISM Code is mandatory by means of the D.G. Shipping notice of 2003\(^{70}\). Thereafter, the IMO specifications on the code has been updated and incorporated from time to time through the engineering circulars issued by the Director General of Shipping. Hence, all the requirements under the code and certificates ensuring it are mandatory for a port entry in India.

These being the requirements, the success of the Code would to a large extent depend upon the participatory approach on the parts of company managers, crew and the regulators. Generally, in the present scenario, the ISM Code implementation is considered as a burden- some paper work by the crew. Sometimes they maintain it properly. But in most cases they do it of short cuts so as to satisfy the company requirements and as evidences for satisfying PSCOs. They should be educated regarding the fact that all the specifications are for their own safety and that of the ship, to avoid occupational health hazards and to protect marine environment. This could not be achieved unless; there is real participation of managers, crew and the regulators\(^{71}\).

Elimination of Single Hull Tankers under the MARPOL Scheme

Early phasing out of single hulled tankers and the mandatory requirement of double hulls have been highly controversial as it prescribed expensive and highly sophisticated construction and design standards\(^{72}\). Regulations 13G and 13F were the brain child of the United States following the *Exxon Valdez* incident.

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After the incident, the U.S.A passed the Oil Pollution Act 1990, making double hulls mandatory for all U.S. flagged tankers. The author argues that in order to enhance profitability of American oil companies, the United States heavily lobbied the IMO to amend MARPOL 73/78 so as to adopt the double hull requirement for all new tankers. Similarly, the EU introduced its own laws to prevent single hull tankers from sailing in its waters.  

Apart from all the controversies, the double hull requirement is argued to have advantages as against other designs for preventing accidental pollution during collisions. It is compulsory under MARPOL 73/78 that the tankers of or above 5000 dwt constructed after 6th July 1993 have to be equipped with double hulls or any such alternative design as prescribed by the IMO. The convention provides for the option of double-side or double bottom for existing tankers. Accordingly, oil tankers of 600 dwt and above but less than 5,000 dwt were to be fitted with double bottom tanks and the capacity of each cargo tank is limited to 700 cubic metres, unless they are fitted with double hulls by 2008.

In the conference for the adoption of the double hull design, Japan had proposed equally efficient mid-deck design as an alternative. In spite of the United States’ serious opposition that design also got recognized by the IMO. Thus, the double bottom and double wing designs are also in practice.

Technical studies reveal that the double hull requirement may reduce the risks of accidental pollution but one cannot say with utmost precision that they are smarter options to replace single hulls albeit statistical records prove the contrary.

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75 Id., reg. 13 H
An ITOPF\textsuperscript{76} statistics reveal that after the adoption of this requirement, the number of major oil spills over 7 metric tons have reduced to a considerable extent\textsuperscript{77}. The concept of the double-hull design is based upon the fact that the outer hull being detached from the cargo tanks by some space may ‘absorb low speed impacts’ during groundings or collisions\textsuperscript{78}. Owing to the ship owner’s opposition on the grounds of huge cost involved in the implementation of double hulls and upon the argument that if the ship’s hull is breached, double hulls are more prone to sink or capsize\textsuperscript{79}, a compromise between the double hulls and other recognized designs was reached in the final amendments\textsuperscript{80}.

### Phasing Out of Single Hulls

New Regulation 20 in the revised Annex I of MARPOL 73/78 prescribes for a timely schedule for phasing out of the single hull tankers\textsuperscript{81}. Under the revised regulations, either ships over 30 years need to be altered with double hulls or they will have to be decommissioned. Under the revised schedule, all the Pre-MARPOL oil tankers\textsuperscript{82} have already phased out either by

\textsuperscript{76} Supra n.3

\textsuperscript{77} Elizabeth Galiano, “In the Wake of the PRESTIGE Disaster: Is an Earlier Phase-Out of Single-Hulled Oil Tankers the Answer?”, 28 Maritime Lawyer 113 (2003), p.8


\textsuperscript{80} A. Griffin, “MARPOL 73/78 and Vessel Pollution: A Glass Half Full or Half Empty?”, 1 Indiana Journal of Global Legal Studies 490 (1994). This was actually a compromise between major and minor maritime flag interests

\textsuperscript{81} Amendment to MARPOL Annex I

\textsuperscript{82} Those tankers which are not having protectively located segregated ballast tanks and which are oil tankers of 20,000 tons deadweight and above carrying crude oil, fuel oil, heavy diesel oil or lubricating oil as cargo, and of 30,000 tons deadweight and above carrying other oils
April 2005 or on its anniversary delivery date in 2005, whichever was earlier. The speeding up of phasing out of category 2 and 3 vessels were the after effects of the *Erika* incident and the *Prestige* sinking in the European waters. These incidents prompted the European Union to pressurize the IMO to make amendments to the MARPOL schedule thereby gearing up the phasing out period of single hulls. As a result, the MEPC made amendments to MARPOL in 2003, whereby, category I vessels delivered by 1982 or earlier are now already phased out by April 2005 or 2007. The phasing out of category II and III vessels continues as per the schedule decided.\(^83\)

Category 2 and 3 oil tankers have gradually phased out during the period 2005 to 2010, depending upon its delivery date. The regulation prescribes for a ‘Condition Assessment Scheme’\(^84\) for all single hull tankers above 15 years or more. The scheme permits flag states to operate single hulls of category 2 and 3 either until its anniversary delivery date in 2015 or on completion of 25 years whichever is earlier, provided the ship satisfies the specification under the scheme. Under the revised regulations a port state may deny entry to its ports or carrying oil into its ports by single hull tankers.\(^85\)

**Indian Standards on the Phasing out of Single Hull Tankers**

In April 2005, India had communicated to the parties to the convention regarding its position as to the application of MARPOL regulations.\(^86\) Accordingly, India has taken full advantage of the provisions of the revised

\(^83\) Caroline Stenman, *The Development of the MARPOL and EU Regulations to Phase out Single Hulled Oil Tankers*, Master thesis submitted to the School of Economics and Commercial Law, Goteborg University (2005)

\(^84\) CAS is applicable to certain types of tankers under MARPOL. It prescribes for enhanced transparent and complete verification of structural conditions of the vessel and that documentary survey and procedures have been effectively carried out

\(^85\) MARPOL 73/78, reg. 13G & 13H of Annex I, Para 8(b)

\(^86\) By means of MEPC/Circ. 442, dated 8\(^{th}\) April 2005
regulations and the new regulation thereby extending the operation of Indian and foreign single hull tankers in Indian waters on the basis of their required conditions until 2015 or on their attaining 25 years whichever is earlier. As of now, India will allow entry of foreign flagged single hull oil tankers into Indian waters provided they have been granted permissions from their respective flag states under the said provisions of the revised regulations.

87 Supra n. 86, cl.5 reads, “Notwithstanding the provisions of paragraph (4) of this regulation, in the case of a Category 2 or 3 oil tanker fitted with only double bottoms or double sides not used for the carriage of oil and extending to the entire cargo tank length or double hull spaces which are not used for the carriage of oil and extend to the entire cargo tank length, but does not fulfill conditions for being exempted from the provisions of paragraph (1)(c) of this regulation, the Administration may allow continued operation of such a ship beyond the date specified in paragraph (4) of this regulation, provided that:

(a) the ship was in service on 1 July 2001;
(b) the Administration is satisfied by verification of the official records that the ship complied with the conditions specified above;
(c) the conditions of the ship specified above remain unchanged; and
(d) such continued operation does not go beyond the date on which the ship reaches 25 years after the date of its delivery.”

Revised Regulation 13 G (7) reads, “The Administration may allow continued operation of a Category 2 or 3 oil tanker beyond the date specified in paragraph (4) of this regulation, if satisfactory results of the Condition Assessment Scheme warrant that, in the opinion of the Administration, the ship is fit to continue such operation, provided that the operation shall not go beyond the anniversary of the date of delivery of the ship in 2015 or the date on which the ship reaches 25 years after the date of its delivery, whichever is the earlier date.”

89 Regarding the exemptions on prohibitions to carry heavy grade oil
and also subject to their compliance with standing orders of D.G. Shipping in India.  

Most of the Single hull tankers registered in open registries and engaged in international trade is taking advantage of the extended phasing out schedule. These tankers may find easy entry into Indian ports in the absence of early phasing out schedule as it is practised in the United States and the European Union.

**Comparative State Practices Relating to MARPOL Implementation Regarding Construction and Design Specifications**

The discretionary jurisdiction of coastal states under the UNCLOS III has been misused by many major maritime countries by the unilateral implementation of CDEM standards prescribed under the MARPOL regime.

“On 8th August 2011, the Gujarat Maritime Board decided to impose ban on over 25 year old vessels ahead of Government plans”. The formal notification to this effect was issued later.

In the wake of the *Exxon Valdez* incident in 1989, the United States Congress had passed the Oil Pollution Act, 1990. The OPA imposed mandatory double hull requirement on all new oil tankers in the U.S. Ports by 2015. Initially some vessels that were engaged in lightering activities or those

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92 Herein after to be referred to as the OPA

93 The Oil Pollution Act, 1990, s.4115, amended Title 46 of the United States Code (U.S.C.), with a new section 3703a. The provisions as to the double hull requirements and phase-out schedule for single hull tank vessels operating in U.S. waters are given
operating in licensed deep water ports, vessels used to respond to oil discharges and those less than 5000 gross tons equipped with the double containment system as prescribed by the United States Coast Guard were given exemptions from this requirement. The existing tankers were either forced to be retrofitted with double hulls on the basis of their age or to retire at their option by 2015. Under the OPA system, the international fleet engaged in oil trade need to have complied with double hull requirement by 2020, if they wish to trade with the United States.

The OPA increased sanctions imposed for breaching the regulations and extended the response of the authorities to establish legislation regulating the prevention of spills of hydrocarbons by oil tankers. The Coast Guard is given wide enforcement powers under the OPA. The double hull requirement has to conform to Coast Guard specifications.

In Maritrans Inc. v. United States and in Lucas v. South Carolina Coastal Council, the vessels were taken under the double hull requirement of OPA. The U.S. Supreme Court had held that the Coast Guard activity under OPA 1990 belongs to the realm of regulatory taking.

under this section. It excludes single-hull tank vessels of 5,000 gross tons or more from U.S. waters from 2010 onward, apart from those with a double bottom or double sides, which may be permitted to trade to the United States until 2015, depending on their age. From 2000 onwards all Aframax and most of the Suezmax vessels, without double bottoms or double sides over 23 years were banned from U.S trade. The OPA 90 timetable for double hull requirements for single hull tank vessels is set out in 33 CFR part 157, Appendix G. For more details See, Criston Cicala, “The Double Hull Requirement of Oil Pollution Act of 1990: Does It Constitute a Regulatory Taking”, 24 Tulane Maritime Law Journal (1999-2000)

94 Ibid.
95 Ibid
96 29 ELR 21068 [1999]
97 505 U.S. 1003 [1992]
Under the Oil Pollution Act 1990, the U.S phase-out is complete for Post-MARPOL tankers built from 1995 to 2010, except for tankers with double bottoms or double sides and tankers which are less than 5,000 gross tons and tankers that call at LOOP or designated lightering areas.

As per the European Union Regulation 1726/2003\textsuperscript{98}, Phase out of Pre-MARPOL tankers was completed in 2005. Prescribed category vessels continued to phase out until 2010. Also, no heavy grade oil is permitted to be carried in single hulls from 21\textsuperscript{st} October 2003. The continuous assessment scheme will be applicable to all categories of vessels over 15 years old.

China has extended the operation of Chinese registered single hulled but double bottom and double sided ships\textsuperscript{99} until the anniversary of the date of delivery of the ship in 2015 or 25 year after the delivery date, whichever is earlier\textsuperscript{100}. For the pre-MARPOL tankers and Post-MARPOL under the CAS scheme, the Chinese registered vessels are not allowed to be continued in service beyond the date specified\textsuperscript{101}. Foreign flagged double bottom and double sided vessels are denied permission to enter Chinese ports. Also, category 2 and 3 vessels operating beyond the dates specified under regulation but under the CAS scheme\textsuperscript{102} are denied to access Chinese ports. This means that all the foreign flagged single hulled oil tankers have ceased out of Chinese waters if they are above 25 years or by their anniversary due date falling in 2015 whichever is earlier. Only Chinese flagged vessels are given exemption from this rule to operate in Chinese waters.

\textsuperscript{98} Entry into force on 21\textsuperscript{st} October 2003
\textsuperscript{99} MARPOL, reg. 13G (5)
\textsuperscript{100} Given in MEPC/ CIR.440, dated 5\textsuperscript{th} April 2005, IMO Ref. T5/1.01, available at http://www.imo.org/blast/blastDataHelper.asp?data_id=11946&filename=440.pdf, last accessed in December 2013
\textsuperscript{101} MARPOL, reg. 13G (4)
\textsuperscript{102} Id., Regulation 13G (7)
Issue of Disparity in the Phase out Schedule Practiced by State Parties

Under the MARPOL scheme, the flag states may extend the phase out period until 2015 or on the vessel attaining 25 years of age, whichever is earlier but the port state may also deny access in that case. As of now, the waters of the United States and the European Union are devoid of the threat from risky vessels. The acceleration of unilateral phasing out movement in the United States under the OPA, 1990 and in the European Union by means of more recent directives\(^\text{103}\) have made unseaworthy vessels to sail in other parts of the globe, where their life is extended up to 2015. The accelerated phasing out movement of ships of the U.S.A and European Union find their way to the scrapping yards of South Asia thereby raising severe environmental threat to the coastal waters\(^\text{104}\). Hence, MARPOL and SOLAS amendments of design and construction standards have produced more harm to developing countries like India. Mostly, tankers operating in Indian waters are still single hulled complying with minimum international requirements so as to operate under low costs and by hoodwinking the port administrative surveillance. India is not having a specific legislation covering the topic as OPA in the United States or the EU Regulations in the Europe. As a result, the phasing out of old tankers takes place leisurely, through basic engineering circulars issued by the Director General of Shipping in India. When countries around the world are framing policy decisions and implement those at the international level through stringent legislations and strong political will, it is quite astonishing and


\(^{104}\) The European Commission, Oil Tanker Phase Out and the Ship Scrapping Industry: A study on the implications of the accelerated phase out scheme of single hull tankers proposed by the EU for the world ship scrapping and recycling industry, final report (2004)
agonizing that India’s major legislation doesn’t have sound provisions to ensure physical sea worthiness of vessels operating in the ports.

**Controlling the Human Error**

Human error is one among the major causes of vessel accidents. Some of the worst shipping casualties such as the *Herald of Free Enterprise* and *Exxon Valdez* were the results of human errors. Hence, competency of the crew is an important aspect in ensuring safe navigation in ports. It is also an important aspect of seaworthiness. Earlier attempts made by international law towards this could be seen in SOLAS and the ILO Convention. Both these laws were very general and abstract on providing specifications of the crew competency on vessels. The UNCLOS gives a general description on crew competency. Admitting the fact that human error is an important cause for vessel accidents and there is a need for specific international prescription to ensure crew competency, the International Convention on Seafarers’ Training, Certification and Watch keeping, 1978 was adopted under the sponsorship of IMO. The major amendment to the convention was made in 1995; thereby the technical annexures were divided into six chapters, and introduced a Seafarers’

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105 *Supra* n.2.

106 The SOLAS 1974, ch.V, reg. 13 provides that all ships should be ‘sufficiently and efficiently manned.’

107 The Convention Concerning Minimum Standards in Merchant Ships, 1976, art.2 (e) provides that the Contracting State must ‘ensure that seafarers employed on ships registered in its territory are properly qualified or trained for the duties for which they are engaged.’

108 UNCLOS III, art. 94(4)(b) reads, “Such measures shall include those necessary to ensure that each ship is in the charge of a master and officers who possess appropriate qualifications, in particular in seamanship, navigation, communications and marine engineering, and that the crew is appropriate in qualification and numbers for the type, size, machinery and equipment of the ship.”

109 Herein after to be referred to as the STCW, 1978
Training, Certification and Watch keeping Code\textsuperscript{110}. The STCW imposes a mandatory duty on state parties to communicate to the IMO about measures adopted to implement the convention including, administration measures, such as education and training courses, and certification procedures\textsuperscript{111}. The information will be reviewed by competent persons and may be passed on to the Secretary General who may give it to the Maritime Safety Committee\textsuperscript{112}. Based on this information a ‘white list’ is prepared and published by the IMO. This list specifies the flag states who have implemented the 1995 Amendment. This step is considered to be an innovative pressure tactics adopted by the international community for the implementation of the convention\textsuperscript{113}. Thus, ships not getting into the ‘whitelist’ may be repeatedly targeted by the port state control officers. A flag state may not accept the crew with certificates issued by non-whitelist countries on its ships. The STCW 1995, the STCW Code and Manila amendments 2010 thereto provides for watch keeping standards by seafarers at ports.

The convention aims to set “mandatory standards of competence and other mandatory provisions necessary to ensure that all seafarers are properly educated and trained, adequately experienced, skilled and competent to perform their duties in a manner which provides for the safety of life, property and security at sea and the protection of the marine environment”\textsuperscript{114}. The code

\textsuperscript{110} Herein after to be referred to as the STCW code. Part A of the STCW Code is compulsory and prescribes minimum standards of competence required for seagoing personnel enlisted in a series of tables. Part B is a recommended guidance intended to help Parties implement the Convention

\textsuperscript{111} The STCW code, 1995, s. A - I/7 provide guidance to administrations as to what information has to be submitted to the IMO

\textsuperscript{112} The STCW1995, Part A, Ch.I, s. A-I/7, para. 5


\textsuperscript{114} The STCW 78, annex IV
identifies responsibilities of management, operational and support levels to minimize pollution risks and ensure the safety in navigation, cargo handling and stowage, controlling the operations of the ship and care for persons on board, marine engineering, electrical, electronic and control engineering, maintenance and repair and radio communications. The rules incorporate the general duty on “the masters, chief engineers and crew to be aware of the serious effects of accidental or operational pollution of marine environment and shall take all possible precautions to prevent such pollution, particularly within the framework of international and port regulations”. The STCW 1995 details on the watch keeping standards in ports on deck, engineering and radio watch, in accordance with the specific port regulations.

In order to eliminate human error, there should be sufficient number of competent crew on board. In *Burnard & Alger, Ltd. v. Player & Co.*, the vessel met with bad weather which led to the hatchway being uncovered and the cargo being damaged. The cargo owners claimed that the vessel was not seaworthy due to insufficient manning and non-attention to adequate tightening of the wedges which held the battens holding the tarpaulin in place over the hatches of the ship. The court found that the vessel was unseaworthy due to both causes and that the absence of one of the ship mates made a difference which led to such a result.

In *Hong Kong Fir Shipping Company, Ltd. v. Kawasaki Kisen Kaisha, Ltd*[^119^], the court found that insufficient and incompetent engine crew member had made the vessel unseaworthy.

[^115^]: Id., Ch. VIII, rules 40-41
[^116^]: The STCW, 1995, Ch. VIII, rule. 12
[^117^]: Id., Ch. VIII/2
[^118^]: (1928) 31 Lloyd’s Law Reports 281, at p. 248
[^119^]: [1961] Lloyd’s Law Reports 159
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The competency of master and chief engineer is of paramount importance and it is the duty of carrier to appoint persons of competency and due diligence to these posts. “A competent crew means that the staffs are familiar with the vessel and its equipment and able to deal with any problem that may arise during the voyage”\footnote{Roger White, “The Human Factor in Unseaworthiness Claims”, Lloyd’s Maritime and Commercial Law Quarterly, p. 24 (1996)} Competency also requires sufficient experience\footnote{[1967] 1 Lloyd’s Law Reports 232} and physical fitness on board.

In \textit{The Farrandoc}\footnote{[1962] 1 Lloyd’s Law Reports 316, at p. 336}, the ship owner had engaged a chief engineer without verifying his post qualification experience in a similar type of vessel. He opened a wrong valve thereby causing a casualty that damaged the entire cargo. The court held that had there been sufficient management plan for the in-experienced crew, the mishap could have been avoided.

Similarly in \textit{The Makedonia}\footnote{(1923) 15 Lloyd’s Law Reports 155, at p.156}, quoting the judgment in the \textit{Moore and Another v. Lunn and Others}\footnote{(1923) 15 Lloyd’s Law Reports 155, at p.156}, Lord Justice Bankes observed;

“I think that the learned Judge has found, and in my opinion rightly found, that she was not seaworthy in that respect, and for the reason that the captain and the chief engineer, at any rate, from the time the vessel arrived in Mobile in the previous September, had both of them been what I may call habitual drunkards”.

\textit{Manifest Shipping & Co. Ltd. v. Uni-Polaris Insurance Co. Ltd. and la Reunion Europeene, (The Star Sea)} (1997) 1 Lloyd’s Law Reports 360
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Company v. Clan Line Steamers¹²⁶, the courts had held that sufficient information about the vessel is most important to manage it. Hence, if the carrier has not given complete information about the vessel to the master or chief engineer, the same would render the vessel unseaworthy. It is noteworthy that admiralty decisions are stressing on every minute aspect for safer shipping.

Considering the fact that two third of the seafarers in world fleet are from Asian countries, like India and Philippines and the inadequacy of training institutes in these countries it is important that the government take necessary steps to implement STCW 2010 in India. The STCW 95 is implemented in India under the Merchant Shipping (Standards of Training Certification and Watch keeping for Seafarers) Rules, 1998¹²⁷. The D.G. Shipping by means of notification had incorporated STCW 2010 provisions mandatory for Indian crew¹²⁸. Accordingly, Indian seafarers have to undergo the Ship Security Officer Course¹²⁹ and the Security Training for the Seafarers with Designated Security Duties¹³⁰ approved by the D.G. Shipping and conducted in various maritime training institutes. By means of new notifications, the grace period was allotted to officers until 1st January 2014¹³¹. These courses are made mandatory by the D.G. Shipping from 2003 onwards and the new STCW 2010 requirements would definitely enhance crew competency.

The system basically works sound under enhanced flag state implementation, effective port state control and willingness of the shipping companies to perform their responsibilities under the convention. The STCW 2010 stresses on skill based rather than knowledge based training for the sea farers.

¹²⁶ (1924) A.C. 100, at pp. 120-12
¹²⁷ The Merchant Shipping Act, 1958, ss. 87, 98, 457 and 458
¹²⁸ The STCW Training Circular No. 5 of 2011
¹²⁹ Herein after to be referred to as the SSO course
¹³⁰ Herein after to be referred to as the STSDSD Course
¹³¹ STCW Training Circular No. 20 of 2013
Many of the advanced countries are using simulators to train the seafarers. Even though very expensive, considering the risk involved in a major spill due to human error, the maritime institutes in India may be equipped with similar infrastructural facilities for better training of the seamen as envisaged under the convention.

**Measures to Ensure Safety of Navigation**

Ship routeing systems and traffic separation schemes will reduce the risks of vessel accidents, especially in the dense traffic zones. The practice of predetermined ship routeing system had originated in 1898. TSSs introduced in Dover Strait had brought down the number of collisions considerably across the North Atlantic. Thus, the ship routeing and TSSs are meant for the safety of navigation and for protecting the marine environment and adjacent coast from the probable adverse effects of dense traffic. Later on, connected provisions were incorporated in the SOLAS Convention.

“Ships’ routeing systems are recommended for use by, and may be made mandatory for, all ships, certain categories of ships or ships carrying certain cargoes, when adopted and implemented in accordance with the guidelines and criteria developed by the Organization”.

The routeing should be introduced only after submitting the same to IMO for its approval and should be in accordance with its guidelines issued on the topic. The state parties should specify whether the routeing is recommendatory or mandatory based upon considerations such as the environment, vulnerability of the area to collisions

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133 The SOLAS 1974, ch. V

134 The SOLAS 1999/2000 Amendments, reg. 10(1)

and stranding and previous history of vessel accidents. The 1995 Amendments made the ship routeing system mandatory, subject to the control and jurisdiction of the coastal states\textsuperscript{136}. This step is indeed a bold attempt to empower the coastal and port states with more powers of scrutiny over foreign vessels.

Under the SOLAS, Vessel Traffic System\textsuperscript{137} was made compulsory\textsuperscript{138}. This is yet another type of ship routeing system to reduce the risk of accidental pollution. The same amendment had introduced deep water routeing and areas to be avoided and made the manoeuvring of vessels compulsory. The convention makes it mandatory that all ships should be sufficiently manned to ensure safety of life at sea\textsuperscript{139}. The later Amendments made the compulsory establishment of voyage data recorders and automatic ship identification system\textsuperscript{140}.

Regulation also provides for ship board navigational systems and requirements and for navigational aids such as lighthouses, lightships, buoys and radar beacons. It also makes it obligatory to ‘arrange for information relating to these aids made available to all concerned’\textsuperscript{141}.

**Routeing under the COLREG 72**

Originally, routeing measures were provided by SOLAS 60. The COLREG 72 replaced those measures with requirements to prevent collisions and ensure safe navigation. The convention applies to all ships on the high seas and in all waters connected thereto that are navigable by sea-going vessels\textsuperscript{142}. The provisions of the

\textsuperscript{136} The STCW, 1995, reg. 8

\textsuperscript{137} Herein after to be referred to as the VTS

\textsuperscript{138} Supra n.137

\textsuperscript{139} The SOLAS 1999/2000, amendments to Chapter V

\textsuperscript{140} Id., reg. 20

\textsuperscript{141} Id., reg. 19

\textsuperscript{142} The International Regulations for Preventing Collisions at Sea, 1972, rule 1(a), herein after to be referred to as the COLREG.
convention are to control the movements of vessels in relation to other vessels in areas of poor visibility. COLREG 72\textsuperscript{143} provides the Traffic Separation Schemes\textsuperscript{144} that rule out the chances of collisions considerably\textsuperscript{145}.

In India, the ship routeing system under SOLAS and COLREG are implemented by means of the Merchant Shipping (Prevention of collision at sea) Rules, 1977 and by the Merchant Shipping (Safety of Navigation) Rules, 1997\textsuperscript{146}. Accordingly, the Directorate General of Shipping has established “Safety Fairway, Recommended Routes and TSSs meeting national and international laws to regulate the movement of large number of ships or vessels in congested or restricted Indian waters including offshore development area for facilitating smooth, safe and efficient flow of commerce along the Indian Coastal line up to the EEZ”\textsuperscript{147}. If these guidelines are violated, the master and owner of the ship shall be liable as per the provisions of the Merchant Shipping Act, 1958 and the Indian Ports Act, 1908.

\textsuperscript{143} Id., rule 10
\textsuperscript{144} Here in after to be referred to as the TSSs
\textsuperscript{145} S. Mankabady, \textit{the International Maritime Organization Volume 2: Accidents at Sea}, Croom Helm, Kent (1987) p. 53
\textsuperscript{146} The Merchant Shipping Act, 1958, s. 286 reads, “Observance of collision regulations:

(1) The owner or master of every ship and the owner or tindal of every sailing vessel to which section 285 applies shall obey the collision regulations, and shall not carry or exhibit any lights or shapes or use any fog or distress signals, other than those required by the said regulations

(2) If any damage to person or property arises from the non-observance by any such ship or sailing vessel of any of the collision regulations, the damage shall be deemed to have been occasioned by the wilful default of the person in charge of the ship or the sailing vessel, as the case may be, at the time unless it is shown to the satisfaction of the court that the circumstances of the case made a departure from the regulations necessary.”

\textsuperscript{147} Merchant Shipping Notice No.15 of 1998, dated 16\textsuperscript{th} July 2008, No. 44-NT (13)/2007
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The individual Port regulations have incorporated the COLREG and SOLAS provisions for safe navigation and the port authority is responsible to implement the same within the port area. The harbour master and the manager of the traffic department are responsible to ensure safe vessel movements within the port area. The master of the ship should inform the vessel movements before entering the port through the VTS system, and co-ordinate the movements with the port authority as per the port regulations.

Mandatory Ship Reporting System

The earliest institutional efforts on mandatory ship reporting system can be traced back to the IMO Resolution of 1989\(^\text{148}\). This was later replaced by the IMO Resolution of 1997\(^\text{149}\). Upon reaching a designated routing system, the ships will have to report to shore authorities all information as to its name and cargo. This system helps the shore administrations to track the vessel using radar and monitor its course of voyage. Now, the technology is so advanced that there is Automatic Identification Systems\(^\text{150}\), which gives proper information on the above said facts to the coastal authorities and to neighbouring vessels. AIS should be fitted on board all vessels of 300 gross tonnes or above in international voyages\(^\text{151}\). All cargo ships of 500 gross tonnes or above which are not in international voyages should also be equipped with the system\(^\text{152}\). Also, the

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\(^{148}\) The General Principles for Ship Reporting Systems and Ship Reporting Requirements, including Guidelines for Reporting Incidents Involving Dangerous Goods, Harmful Substances and/or Marine Pollutants, adopted on 19\(^\text{th}\) October 1989, MEPC res. A.648 (16)


\(^{150}\) Herein after to be referred to as the AIS

\(^{151}\) The SOLAS 1974, Ch. 5, Safety of Navigation

\(^{152}\) Ibid
passenger ships, regardless of their size built on or after 1st July 2002 and all existing tankers, those constructed before 1st July 2002, not later than their first survey on safety equipment on or after 1st July 2003 should be fitted with the AIS\textsuperscript{153}.

**Mandatory Ship Reporting Under MARPOL 73/78**

Under MARPOL 73/78, if there occurs any incident of pollution, or threat of pollution of the marine environment, and also when salvage or assistance is required, the master of the ship has to inform the coastal states and the concerned parties about the incident without any delay\textsuperscript{154}. MARPOL73/78 as amended, The Master of the ship involved in the marine casualty should inform the coastal states, without any delay, particulars of the action planned or undertaken. In addition to this, the coastal state needs to be updated with all relevant developments\textsuperscript{155}.

The ship’s sailing plan, position report, deviation report, final report, dangerous goods report, harmful substances report, marine pollutants packaged report should be served with the coastal state\textsuperscript{156}.

**The Indian Ship Position and Information Reporting System**

India has constituted the Indian Ship Position and Information Reporting system\textsuperscript{157} in order to exercise open ocean vessel management, to provide security to the vessel, weather forecast to ensure safety of navigation and to report on incidence of pollution. The D.G.Shipping’s office co-ordinates INSPIRES through the Indian Naval Communication Centres of Mumbai and

\textsuperscript{153} Ibid

\textsuperscript{154} The MARPOL 73/78, art. V(1)

\textsuperscript{155} Id., Protocol I, art. II 1(a) and (b)

\textsuperscript{156} Ibid

\textsuperscript{157} Herein after to be referred to as the INSPIRES
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Vizag. All Indian ships above 300 GRT and all foreign ships above 100 GRT are encouraged to participate with INSPIRES.

Supplementary Ship Positioning System

India is a party to the Search and Rescue Convention, 1979. The Indian coast guard has established a supplementary ship positioning system called the INDSAR w.e.f 1st February 2003. This system is operated through the Maritime Rescue Co-ordination Centre at Mumbai. All Indian ships of 100 GRT in the Indian Search and Rescue Region\(^ {158}\) should participate in the INDSAR. All ships above 100 GRT carrying dangerous and hazardous goods are encouraged to participate in the INDSAR, irrespective of their flags. All ships above 20 years are expected to send relevant reports under the INDSAR within the ISRR.

Compulsory Pilotage in Port Area

The most dangerous part of a ship’s voyage is while entering or departing from the port. Hidden navigational risks such as confined waters, unpredictable current and tides and increased traffic density require the implementation of local compulsory pilotage rules and regulations. This is most significant for the elimination of port pollution from potential maritime casualties. Marine pilots are inevitable for safe navigation in the port area. These seafarers have wide knowledge on geographical conditions of the port and high level of expertise in navigation\(^ {159}\). The marine pilot embarks on board when a ship reaches the pilot district and works with the ship’s crew to safely navigate it into the port or anchorage and disembarks at the end of pilot district when the ship starts its voyage back to the next port of call.

\(^{158}\) Herein after to be referred to as the ISRR

In 1968, the IMO had recommended compulsory pilotage for safe navigation. The provisions of Chapter V of SOLAS, IMO Resolutions and circulars issued by the D.G. Shipping cover the performance standards for mechanical pilots, embarking and disembarking of pilots in very large ships, pilot transfer and boarding arrangements for pilots.

**Indian Standards of Control on Vessel Movements in Ports**

The Conservator is the authority to appoint persons assisting safe navigation of vessels into the port area and out of it. The movement of vessels above 200 GRT is prohibited within the port area unless accompanied by the pilot or harbour master or their assistants. The master or owner of the vessel will be liable for any damage or loss caused to the port environment from negligent voyage in the port area. On this aspect, the common law doctrine of vicarious liability of the master or owner of the ship sailing with or without a pilot in the port area is retained under subsection (1) and (2).

Under the common law, pilots were originally self-employment. The pilots under pilotage associations got statutory recognition in the United Kingdom. Under the “compulsory pilotage defence,” the ship owners got exemption from loss caused in port area by negligent navigation due to the

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160 The MEPC res. A.159 (ES.IV), Recommendation on Port Advisory Services, 1968  
162 MSC/Circ.568/Rev.1 on required boarding arrangements for pilots, 1995  
163 The Indian Ports Act, 1908, ss. 5, 6 and 7  
164 *Id.*, s.31  
165 *Id.*, cl. 1 and 2  
166 The Merchant Shipping Act, 1979, s.11  
167 The Merchant Shipping Act, 1974, s. 633
faults of pilots. This section was repealed and their liability for negligent act by pilots was fixed by means of statutory reforms\textsuperscript{168}.

In India, separate pilotage rules framed under the authority of the Indian Ports Act and the Major Port Trusts Act exist in some major ports. The Cochin Port (Authorisation of Pilots) Regulations, 1964 is an example\textsuperscript{169}. Compulsory pilotage is mandatory within the port limits\textsuperscript{170}. The port will issue license to pilot who should always act under the command of the harbour master and the deputy conservator. A pilot, whenever any accident has happened to or been caused by the vessel while in his charge, should as soon as possible report the facts in writing in the approved form to the deputy conservator\textsuperscript{171}. It shall be the duty of the pilot to report to the deputy conservator any change in the navigational marks or signals which may affect the safety of navigation\textsuperscript{172}.

The Calcutta Pilotage Act, 1948 is meant to ensure safe navigation through Hooghly River which was extended as a part of Calcutta port\textsuperscript{173}. The Calcutta Port Rules 1994\textsuperscript{174} provides for compulsory pilotage within the port area and movement of vessels within the port limits can be made only under the authority of harbour master, pilots or traffic manager\textsuperscript{175}.

For negligent navigation in the port area due to the incompetency or negligence of marine pilots, and for any instance of pollution, the port authority

\begin{thebibliography}{17}
\bibitem{168} The Pilotage Act, 1913
\bibitem{169} The Merchant Shipping Act, 1958, powers conferred under ss.24(1) and 28
\bibitem{170} The Indian Ports Act, 1908, s.4(2)
\bibitem{171} The Cochin Port (Authorisation of Pilots) Regulations, 1964, rule.21
\bibitem{172} Id, rule.20
\bibitem{173} The Indian Ports Act, 1908, s.31
\bibitem{174} The Indian Ports Act, 1908, s.6(2)
\bibitem{175} The Calcutta Port Rules, 1994, rule. 5
\end{thebibliography}
will be liable as they are the pilot service providers\textsuperscript{176} and the ship owner or master would also be liable under the common law scheme.

**Enforcement of the Safety Provisions of the M.S. Act and Rules**

The Central government is given power to detain unseaworthy vessel and stop it from proceeding further into the sea, until it rectifies the deficiencies quoted by qualified surveyors appointed at ports\textsuperscript{177}.

According to state practices, the definition of seaworthiness may vary depending upon the law of the flag and the port states, the place where a maritime casualty happens, based on the cargo it carries and the deficiency for which it is being detained. The law of the sea empowers coastal states to set criteria for detention in order to protect its marine environment. The criteria set to define a ship unseaworthy may be higher than those set by the IMO in countries like the United States\textsuperscript{178} and Australia.

\begin{itemize}
\item \textsuperscript{176}Herein after to be the PSPs
\item \textsuperscript{177}The Merchant Shipping Act, 1958, s.336
\item \textsuperscript{178}The United States Coast Guard Marine Safety Manual, ch.4, s. D, reads, “A ship is regarded as substandard if the hull, machinery, or equipment, or operational safety, is substantially below the standards required by the relevant conventions or if its crew is not in conformance with the safe manning document, owing to, inter alia:
\begin{enumerate}
\item The absence of required principal equipment or arrangement
\item Non-compliance of equipment or arrangement with relevant specifications
\item Substantial deterioration of the ship or its equipment
\item Insufficient operational proficiency or unfamiliarity of the crew with essential operational procedures
\item Insufficiency of manning or insufficiency of certification of seafarers
\item Noncompliance with applicable operational and/or manning standards
\end{enumerate}
\end{itemize}
Under common law seaworthiness means physical stability of the vessel to sail into safe shores. In *Kopitoff v. Wilson*\(^{179}\) it was held that the carrier should provide a vessel “fit to meet and undergo the perils of the sea and other incidental risks to which she might be exposed in the course of the voyage”. Tetley defines seaworthiness as “the state of a vessel in such a condition, with such equipment and manned by such a master and crew, that normally the cargo would be loaded, carried, cared for and discharged properly and safely on the contemplated voyage”\(^{180}\). In *Actis Co. Ltd. v. The Sanko Steamship Co. Ltd.*\(^{181}\), Lord Justice Griffiths stated:

“As I understand the authorities, there are two aspects of seaworthiness. The first requires that the ship, her crew and her equipment shall be in all respects sound and able to encounter and withstand the ordinary perils of the sea during the contemplated voyage. The second requires that the ship shall be suitable to carry the contract cargo”.

Under the Indian Merchant Shipping Act 1958, a ship is considered to be ‘unseaworthy’ “when the materials of which she is made, her construction, the qualifications of the master, the number, description and qualifications of the crew including officers, the weight, description and stowage of the cargo and ballast, the condition of her hull and equipment, boilers and machinery are not such as to render her in every respect fit for the proposed voyage or service”\(^{182}\). Hence, as per the Indian law any ship which falls short of these standards may be detained.

\(^{179}\) (1876) 1 QBD 377, p. 380


\(^{181}\) The *Aquacharm*, [1982] 1 Lloyd’s Law Reports 7, p. 11

\(^{182}\) The Merchant Shipping Act 1958, s.334(5)
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It is understood that the standards set by the Indian law is equivalent to the one set by IMO Conventions but lower than those existing in major maritime countries like the USA and the U.K. For example, the USCG may detain any ship for seaworthiness violations, if there is a risk to the ship or the life of people on board or for an unreasonable threat to marine environment. But the Indian law is vague and sets the criteria for detention as deficiencies if found, ‘not to render her in every respect fit for the voyage’.

In Leena Mathew v. The Kerala Shipping Corporation Ltd.\(^{183}\), the radars of the ship *M.V.Kairali* were found to be defective. In spite of the captain’s refusal to resume the voyage, the defendants compelled him to do so. The ship encountered rough weather and caused the death of a seaman. Upon the suit for damages filed by the deceased seafarer’s dependants, the Court held that under the Fatal Accidents Act, 1855, the captain of the ship was primarily liable for negligence and the owners were vicariously liable under the Act. The investigation report by the magistrate\(^{184}\) was admitted into as evidence. The judgement establishes a duty on the ship owner and the captain of the vessel to ensure seaworthiness before the ship begins its voyage.

The supporting provisions of the Indian Ports Act, 1908 and the Merchant shipping Act, 1958 obliges the conservator of ports to detain the unseaworthy vessel and not to allow it to proceed into the sea. If there is breach of this duty, the party injured may claim under a tort. On the occurrence of accidental pollution, the captain of the ship and the owner should report it to the Maritime Rescue and Co-coordinating office on the shores, failing which action may be taken against the officer and owners.

In modern Admiralty systems, the dimensions of seaworthiness have wider amplitudes so as to ensure the safety of navigation, security of lives of people and cargo and protection of marine environment. Still, the Indian law

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\(^{183}\) 1988(1) KLT 212

\(^{184}\) The Merchant Shipping Act, 1958, s.361
limits the scope of the concept to ensure ‘fitness in voyage’. This definition is very vague and narrow and does not take into account the developments in international law.

The power of detention extends over Indian as well as foreign ships in Indian ports which may be sailing without valid safety certificates under various conventions.\(^{185}\) When detaining a foreign ship, it shall deemed to be an Indian ship for all administrative actions against it and correction measures may be recommended by the surveyors, after consulting the particular consular office of the state of registration of the ship.\(^{186}\) A ship may be unsafe because of the defective condition of her hull, equipment or machinery or due to overloading or improper loading.

The detention under the M.S. Act, 1958\(^{187}\) is administrative detention for correcting the deficiencies if it is found to be unsafe. It checks the compliance standards prescribed under various international conventions. Whether the ship is unsafe or not is to be declared by qualified surveyor and assessor of the central government. The basis for detention is for ‘protection of human life’\(^{188}\). The opinion of qualified surveyors and assessors play a big role as to the detention and release of ships in ports. As the scope of strict port state control measures would depend upon the qualifications and expertise of these persons, there is ample scope for administrative bureaucracy hampering strict enforcement actions against the law evading vessels. Ordinary prudence suggests that courts are usually reluctant in judging the correctness of the administrative decision, especially on technical issues.\(^{189}\) Thus, the law as it exists today is ‘self-regulatory’ and imposes a duty

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\(^{185}\) The Merchant Shipping Act 1958, s.342

\(^{186}\) Id

\(^{187}\) The Merchant Shipping Act 1958, s. 336(1).

\(^{188}\) Id

\(^{189}\) Cochin Port Trust and Deputy Conservator v. Laxmi Cranes and Trailers (P) Ltd., WA. No. 1803 of 2010, dated 16.11.2010, by the High Court of Kerala
on the vessel owner, charterer and master to make it fit for voyage. It is important that the technical surveys maintain its quality from the enforcement perspective.

The efficiency of the system may depend upon the due diligence of the port administrations. Hence, the effectiveness of port state control plays a major role in ensuring compliance of international safety standards.

**Conclusions**

In practice, majority of ships operating in India’s coastal waters does not comply with documentary seaworthiness. The international law on control of vessel safety and pollution is changing rapidly. These radical changes are implemented in countries like the USA and European Union by means of specific legislations. There are ample provisions in these legislations to empower the enforcement authorities. As a result criminalization of seafarers has become very common in major maritime countries.

For example, in the United States, there are a large number of federal, state and local laws, regulations and ordinances controlling vessel sourced accidental pollution in the port area. The USCG regulates vessel movements by means of authority vested with the captain of the port. The USCG is given wide powers under the Espionage Act, 1917 to impose criminal penalties on any crew on board if the incident affects security of the state. The USCG is given strong authority to increase vessel safety and protect marine environment in ports and harbours by means of establishing VTS control, navigational and operational control and related port safety control. Any violation would invite both civil and criminal penalties. A handful of legislations like the Federal Water Pollution Control Act, 1972 delegate enforcement jurisdiction to USCG in case of major oil and

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190 33 CFR 6, Protection and Security of Vessels, Harbours, and Waterfront Facilities (Espionage Act), 1917

hazardous substances spill. The Oil Pollution Act, 1990\(^{192}\) delegate surveillance duty on the Coast Guard by means of vessel traffic service systems, vessel and facility monitoring, oil spill prevention and clean up. In addition to this, each state has got specific port legislation to ensure environmental safety. The vessel should comply with federal as well as state legislations. The type of cargo to be handled in port requires the prior approval of the chief engineer of the fire department. Pilot services are voluntarily rendered but this does not evade master’s liability in case of accidental pollution. The pilots operate under the control of the Coast Guard. Every commercial vessel should have someone responsible on board to take emergency action as the executive director of port may direct. Every member of the board of directors, the executive director or the port warden may inspect any vessel at any time inside the port area. When doing so, the port warden shall have the powers of police officer of the city including the power to arrest violators. After getting the approval of the executive director, the port warden shall report the incident to federal, state and municipal officials. Anyone found guilty of violating the provisions will be prosecuted for misdemeanour. Upon conviction, fine and imprisonment may be imposed. The system is effectively streamlined under the USCG, delegating definite duties on various authorities as per their respective jurisdictional regime. This is being done by intensely legislating on various issues.

The major problem of the Indian law is the poor enforcement of environmental and safety regulations in ports. The reasons are several. The far-reaching changes made in the international norms of vessel safety, navigational requirements, manning, equipment standards, response and planning in case of incidents are merely repeated verbatim in the rules framed under the Merchant Shipping Act, 1958 and circulars issued by the Director General of Shipping. These changes are not incorporated into the port regulations. Hence, obsolete standards on lighting, manning, crewing and piloting are found in port

\(^{192}\) 33 USC 2701
regulations. Most of the vessels find it easy to make a port entry as they need to comply only with these out of date specifications.

The provisions regarding safety of navigation and powers of authorities to ensure it lay scattered in a handful of legislation making it difficult to co-ordinate under a single agency. It is high time that the port environmental regulations are consolidated and up dated in accordance with the international standards. The enforcement could be made effective by clearly defining the role and hierarchy of enforcement agencies and streamlining their activities under a central agency. The powers of the ICG are described very vaguely in the Indian Coast Guard Act, 1978. It can be modified to make it the Central agency to monitor, survey, enforce and punish the offenders causing pollution in the Indian waters. At present, the Coast Guard is exercising jurisdiction beyond the port limits.

As a second line of enforcement, the port state inspections should be regular, stringent and targeted to complete the required number of inspections by port states. In the absence of strict flag state implementation, only when the PSCOs are functioning efficiently, substandard vessels could be easily tracked and detained. The port state inspections in India are below the target set under the port state control regime. The port laws being archaic, these PSCOs cannot be expected to function like those acting under regional memoranda of understanding. The enforcement agencies find it extremely difficult to track and detain unseaworthy vessels because of the lack of expertise and deficient infrastructural support from port administrations. By extending the scrutiny powers of Coast Guard over these official inspections, the international standards can be achieved to a greater extent.

The phasing out schedule for single hulls has been extended till 2015 and is likely to continue at least for a few more years. Taking advantage of this situation the ghost ships that were expelled from the western territories are brought to be dismantled at Alang. Reports show that many of the ships that are anchored in the territorial waters and seeking clearance to Alang is causing
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substantial threat of being capsized during the monsoon seasons. Hence, these vessels may cause potential pollution in ports.

If maritime accidents happen, its effects on environment can be minimized by advanced legislation, proper regulation and effective litigation processes. For this, India has to set long term plan for port environmental management and a well-suited economic policy. In the long run, the ‘polluter pays principle’ along with “the anticipate and prevent strategies” alone could eliminate the risks of maritime casualties in ports.