As shipping continues to dominate international transport\(^1\), there are serious concerns about oil pollution from routine vessel operations\(^2\). India depends heavily on oil and gas, which are imported by sea from the Persian Gulf region. The countries along the coasts of Indian Ocean link the broad conveyer belt of maritime commerce that runs between the Indian and Pacific oceans. It is estimated that over 60000 tankers passes every year in this route carrying oil and hazardous substances. The western coast of India is very close to this international oil route and many major ports are located here. Total traffic handled at all major Indian ports for the past seven years is estimated at 560.15 million tonnes and out this majority are tankers\(^3\). The figures submitted by the Indian Ports Association shows significant rise in performance indicators at all major ports\(^4\). It states,

“The cargo traffic of petroleum, oil & lubricants (POL), the largest commodity handled by major ports, is expected to grow by 4.1% in 2013-14. POL cargo volume is likely to

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\(^1\) UNCTAD, “Review of Maritime Transport”, (2010), p.8. In 2009, goods embarked at ports worldwide are estimated at 7.8 billion tons; maritime trade of crude oil amounted to 1.72 billion tons and international trade of petroleum products amounted to 924.6 million tons


\(^3\) See, http://shipping.nic.in/writereaddata/l892s/7yearsTRAFFIC-79318523.pdf

rise from 185.9 million tonnes in 2012-13 to 193.4 million tonnes. The growth is likely to be backed by an increase in crude oil imports and petroleum product exports\(^5\).

The shipment of this huge volume of oil and energy fuels will certainly result in socio-economic and environmental impacts in major ports. For this reason, laws regulating and controlling vessel operations in ports should be preventive and effective to minimize pollution risks.

When it comes to operational discharges, oil pollution always arouses public outrages and media attention because of its visible impacts on the coastal environment\(^6\). “Oil discharged into the oceans contains enormous amounts of carcinogens and other toxic chemicals which may abruptly break the food chain by destroying the coastal phytoplankton. These discharges also immediately kill variety of waterfowls and mammals”\(^7\).

It is estimated that about seventy five per cent of oil released into the oceans by vessels is during routine operations\(^8\). As per the study conducted by Group of Experts on the Scientific Aspects of Marine Environmental Protection, out of the total operational discharges, oil spill from vessels make up 45 per cent of input of 4,57,000 tonnes per year\(^9\). Of this, oil tankers alone make up 10.3 per  

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\(^{7}\) Ibid


\(^{9}\) Group of Experts on the Scientific Aspects of Marine Environmental Protection, “Estimates of Oil Entering the Marine Environment from Sea-based Activities”, Study
percent of the input by means of fuel oil sludge and oil mixed ballast water. The major vessel operations that contribute to oil spills in ports are cargo tank washings and ballast water discharging.

The International Maritime Organization\textsuperscript{10} prescribes technical specifications for the construction, design, equipment and manning of ships. It specifies regulations and guidelines on oil pollution preparedness, response and co-operation and establishes the Fund regime for the compensation of pollution victims.

The MARPOL regime has been proactive and quite successful in confronting the technical, functional and human-element issues behind oil pollution from bunkering, loading and discharging of cargo and other port operations. The figures of large scale oil spills, both from routine operations and accidents have come down considerably with the coming into force of MARPOL 73/78\textsuperscript{11}.

The efforts of IMO in this regard are noteworthy, when considering the significant growth of the global shipping industry; both the size of the world fleet and the distances that it travels. Yet there are incidents of intentional non-compliance by marine fleet who defy procedural requirements thereby causing pollution in foreign ports. The flouting of operational requirements are more at the ports of the developing countries like India, where the administrations is less alert and the enforcement regimes are of mediocre standards. Bearing in mind

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\textsuperscript{10} Here in after to be referred to as the IMO

\textsuperscript{11} For the period from 2000-2009, the number of large scale oil spills, above 700 tonnes has come down to an average of 3.3 spills. See, International Tanker Owners Pollution Federation Limited (ITOPF) Statistics, Adapted from the “International Shipping Facts and Figures, Information Resources on Trade, Safety, Security And Environment”, IMO Maritime Knowledge Centre
India’s growing potential as a prominent maritime country and the size and types of vessels anchoring at its ports in huge numbers, it is high time that the administrations should give serious thoughts over potential threats of oil pollution from routine operations. What are the Indian standards of control in comparison to the international law and the legal issues and challenges faced by port administrations when implementing these standards in Indian ports? This question deserves a critical analysis.

**Sources of Operational Oil Pollution**

Substantial amount of oil may be discharged into port waters during tank washings. The ship’s cargo tank has to be washed in order to remove dirty water before it returns to the port for next loading. Tanks need to be cleaned before a new cargo is loaded or when different cargoes need to be loaded in order to avoid sludge formation. The unauthorized discharge of this dirty water into the ports may cause serious environmental pollution.

Engine effluents may also cause serious damage to the port environment. Emptying of bilge\(^\text{12}\) water is a routine process. Oil from machine spaces and usual leakages gets mixed up with the bilge water. The bilge water of oil tankers is typically contaminated with oil that leaks out of the cargo tanks. In addition, the water from water cooling and fireman systems, chain locker effluent, and other forms of engine effluents may pollute the port environment in the absence of adequate port reception facilities.

The release of fuel oil during bunkering may pollute the ports. Bunkering is identified as a crucial operation under the International Safety Management Code\(^\text{13}\). Bunker fuel commonly escapes through the air outlets of

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\(^{12}\) Merriam Webster Dictionary defines bilge as “that part of the underwater body of a ship between the flat of the bottom and the vertical topsides.”

\(^{13}\) The International Convention for the Safety of Life at Sea, 1974 (SOLAS), Annex, ch. IX, Management for the Safe Operation of Ships, herein after to be referred to as the ISM Code
the bunker, tanks breaches, the save-alls and plugged scuppers. This causes escape of fuel oil from the vessel into the marine environment. With the adoption and entry into force of the International Convention on Civil Liability for Bunker Oil Pollution Damage, 2001\textsuperscript{14}, the ship owners will have to face even more stringent regulations fixing their liability compensation against oil spills during bunkering operations.

Cargo spills occur during routine operations in ports, especially when loading and unloading. It may occur due to improper handling of cargo or by equipment failures. Albeit being relatively small in volume, the petroleum and other chemical spills are the most common types. Spills of hazardous cargo like toxics or flammable materials are rare because the safety measures taken in handling Hazardous Noxious Substances\textsuperscript{15} impose due diligence and strict liability. Yet, it is estimated that there is six per cent chance of release of HNS into port waters from errors during loading and unloading\textsuperscript{16}.

\textsuperscript{14} The International Convention on Civil Liability for Bunker Oil Pollution Damage, 2001 was adopted by IMO following a diplomatic conference held in March 2001. The Convention establishes a liability and compensation regime for spills of bunker oil. Ships over 1,000 gross tonnage registered in a State Party to the Convention will be required to carry on board a certificate certifying that the ship has insurance or other financial security, such as the guarantee of a bank or similar financial institution, to cover the liability of the registered owner for pollution damage in an amount equal to the limits of liability under the applicable national or international limitation regime. In all cases, this amount should not exceed an amount calculated in accordance with the Convention on Limitation of Liability for Maritime Claims, 1976, as amended, i.e. 1996 LLMC Protocol

\textsuperscript{15} Here in after to be referred to as the HNS

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Tanker Design Specification in the Pre-MARPOL Regime

The Load on Top System

The Load-on-Top system\(^\text{17}\) is usually preferred for long voyages. The operational discharges are put to rest still, when the water gets settled in the bottom and oil on top. This oil is then filled in slop tanks. On reaching the port, new cargo is loaded either on the top of this oil in slop tank or it is emptied into the port reception facility. Since, time is required for the oil and water to get separated in this process; it is not preferable for short coastal voyages\(^\text{18}\).

The 1969 amendments to the OILPOL 54 adopted the LOT system. This system did not produce the desired levels of control because it required difficult operating techniques which the most experienced crew were also not been able to carry out without errors. Often, the crew were able to by-pass this system and to flout the rule in discharge operations.

Since, many ships were already fitted and were into voyage with this system, the convention has automatically adopted this technique without much discussion on its defects and solutions for curing it. When MARPOL and its protocol were under discussion, the United States of America started threatening to take unilateral imposition of Segregated Ballast Tanks\(^\text{19}\) and it was incorporated under the convention.

Segregated Ballast Tanks and Crude Oil Washings

The SBTs minimizes the risks of pollution as there is no chance of mixing up of cargo residues and ballast water. In the traditional method, cargo tanks were used to carry ballast water and there was high risk of oil getting mixed up with the ballast discharge. SBTs are separate tanks designed to carry

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\(^{17}\) Herein after to be referred to as the LOT


\(^{19}\) Herein after to be referred to as the SBTs
ballast water. Cargo tanks may be used to carry ballast only in exceptional situations especially when the weather is unsafe and more ballast is required to ensure safety. SBT is an expensive option. Thus, cheaper substitutes like Dedicated Clean Ballast Tanks\(^{20}\) are also allowed\(^{21}\). CBT means keeping separate cargo tanks for storing ballast water. But, in the case of CBTs, using the same pipelines and pumping arrangements may again offer potential threats of mixing up of cargo with ballast water.

**Crude Oil Washings**

COW is a procedure in which, oil, instead of water is used to clean the tank. The use of water is eliminated completely so that nothing remains to be released into the sea.

All these methods have merits and de-merits. Mostly, the success of each procedure may depend upon the efficiency of the crew and their diligence, the ship owner’s willingness to adopt sophisticated and expensive cleaning operations and the availability of adequate port reception facilities.

**Post- MARPOL Control Regime for Operational Pollution**

The Stockholm Declaration of 1972\(^{22}\) and the establishment of the United Nations Environment Programme\(^{23}\) were significant milestones in creating environmental consciousness among the littoral nations. The Stockholm Conference debated over the inadequacy of the OILPOL regime on control over operational pollution, especially the inefficiency of the LOT system.\(^{24}\) Meanwhile, the Environmental Protection Agency\(^{25}\) started working

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20 Here in after to be referred to as the CBTs
21 MARPOL 73/78, Annex I, reg. 13A
22 UNDoc.A/CONF.48/14/Rev.1,11 I.L.M.1416(1972)
23 Herein after to be referred to as the UNEP
in the U.S.A and it took steps to revise the control regime. The Americans made proposals for strict port state enforcement, the technical requirements such as SBTs and double hull\(^\text{26}\) for tankers. The U.S.A started legislating vehemently on these technical specifications for tankers as well as non-tankers. These unilateral port entry requirements invited wide protest form the maritime community as its implementation was costly. The industry reluctantly accepted the expensive procedures for enabling smooth trade at the U.S ports. In the meantime, International Maritime Consultative Organization convened an International Conference on Marine Pollution in 1973. The conference adopted MARPOL 73\(^\text{27}\). The OILPOL 54 regime was repealed by MARPOL 73 which dealt with all aspects of operational pollution\(^\text{28}\). MARPOL incorporated all the existing provisions under the OILPOL regime and certain new requirements. For example, SBTs and oil separating systems were to be mandatorily installed in all ocean going ships. It took off the tanker- non-tanker differentiation.

\(^{25}\) Herein after to be referred to as the EPA

\(^{26}\) The double hull requirement mandated the construction of vessel with two protective layers encompassing the hull. Thus in cases of collisions, the chances of oil spill into the oceans would be very minimal

\(^{27}\) The International Convention for the Prevention of Pollution from Ships (MARPOL) was adopted in 1973 by the IMO and covered pollution by oil, chemicals, harmful substances in packaged form, sewage and garbage. The Protocol of 1978 relating to the 1973 MARPOL was adopted at a Conference on Tanker Safety and Pollution Prevention in 1978 held in response to a series of tanker accidents in 1976-1977. As the 1973 MARPOL Convention had not yet entered into force, the 1978 MARPOL Protocol was absorbed into the parent Convention. The combined instrument is referred to as the International Convention for the Prevention of Marine Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78), and it entered into force in 1983. In 1997 a Protocol was adopted to add a new Annex VI

\(^{28}\) MARPOL 73/78, art.9
The convention aims to eliminate completely ‘intentional pollution of marine environment by oil and other harmful substances and the minimization of accidental discharge of such substances’\(^29\).

The convention is applicable to all types of vessels except warships, naval auxiliaries and other sovereign government ships\(^30\). For the purposes of the convention, a ship includes, ‘a vessel of any type whatsoever operating in the marine environment and includes hydrofoil boats, air-cushion vehicles, and submersibles, floating craft and fixed or floating platforms’\(^31\). It excludes pollution from dumping, legitimate scientific research for marine pollution control and exploration and exploitation of seabed and mineral resources from its purview\(^32\).

Under its five annexes, the MARPOL has technical specifications for control of operational pollution from oil, noxious liquid substances, chemical substances in the packaged form, sewage and garbage. The convention has two protocols exclusively dealing with reports on cases involving harmful substances and arbitration proceedings. MARPOL basically lays down structural and procedural rules regulating intentional and accidental oil pollution in ports during routine operations. The procedural requirements obligate the crew to keep ship’s discharges as clean as possible and the flag states to monitor and punish those ships which violates operational requirements. The technical specifications are based upon design and construction specifications to reduce or control oil pollution.

**Summary of Technical and Monitory Specifications under MARPOL 73/78 to Control Oil Discharges during Routine Operations**

The MARPOL was highly controversial as it introduced SBTs for all new tankers over 70000 dwt\(^33\). Ships are categorized as new and old on the basis

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\(^{29}\) *Id.*, Preface of the convention

\(^{30}\) *Id.*, art.3(3)

\(^{31}\) *Id.*, art.2, definition.4

\(^{32}\) *Id.*, definition 3(b)

\(^{33}\) MARPOL 73/78, Annex I, reg.13 introduced SBTs for all new tankers over 20000 dwt.
whether they are built after certain dates depending on the date of the contract, keel lay and delivery\textsuperscript{34}. For existing vessels, COW and CBT may replace SBT\textsuperscript{35}.

The Regulation prohibited all new tankers over 4000 grt and all new oil tankers over 150 grt from using fuel tanks to carry ballast water\textsuperscript{36}. The convention retained the discharge specifications under the OILPOL 54/69 regime, especially the LOT system. In addition, new rules were introduced on installation of oil discharge, cargo monitoring and control devices\textsuperscript{37}, oil-water separator and oil filtering systems\textsuperscript{38}. The convention mandated slop tanks for all new tankers. Thus, complete prohibition of discharge other than into the shore reception facilities was to be ensured.

For tankers these control and monitoring systems were very stringent imposing new discharge limit of $1/30000$ of the vessel’s capacity in place of the existing limit of $1/15000$\textsuperscript{39}. Also, the rate at which oil is discharged should not be more than sixty litres per mile, travelled by the ship. The convention established total prohibition zones called as ‘special areas’\textsuperscript{40} in addition to the existing 50 miles zone, wherein no oil discharge by any type of tankers was permitted, only exception being those under 400grt on special circumstances\textsuperscript{41}.

\begin{itemize}
  \item \textsuperscript{34} Quoted from Andrew Griffin, “\textit{MARPOL 73/78 and Vessel Pollution: A Glass Full or Half–Empty?” Indiana Journal of Global Legal Studies 489 (1994)}
  \item \textsuperscript{35} MARPOL 73/78, Annex I, reg.13B
  \item \textsuperscript{36} Id., Annex I, reg.14(1)
  \item \textsuperscript{37} Id., Annex I, reg. 15(3) reads, “The monitoring hardware will record “the discharge in litres per nautical mile and total quantity discharged, or the oil content and rate of discharge” consistently and these data must be preserved for minimum three years.”
  \item \textsuperscript{38} Id., Annex I, reg. 14–19
  \item \textsuperscript{39} Id., Annex I, reg. 9(1) (a) (v)
  \item \textsuperscript{40} These special areas were the Mediterranean sea, Baltic Sea, Black sea, Red sea and the Persian Gulf
  \item \textsuperscript{41} Supra n.24, MARPOL 73/78, Annex I, reg. 10(2)
\end{itemize}
For other vessels, the discharge and control specifications are less stringent. The oil content of the effluents must be less than 100 ppm and total prohibition of discharge is applicable within the 12 nm zone and in ‘special areas’.

All ships should maintain and carry Oil Record Book\(^{42}\), which should enter the daily discharge particulars. Every aspect of the oil discharge from loading to unloading and from one vessel to another should be logged in this book. The state parties are given power to inspect this book\(^{43}\). The MARPOL 73 adopted port reception facilities as it was originally visualized under the OILPOL 54/69 regime\(^{44}\). In this regard, the wordings of OILPOL54/69 was adopted in verbatim, ‘states shall undertake to ensure provision’ of such facilities. Thus non-obligatory status of ‘port reception facilities’ continues to prevail under MARPOL 73.

**The MARPOL Enforcement Regime**

MARPOL enforcement may be carried out in three methods: by quality ship inspections to see that technical specification by the convention are carried out, through monitoring ship compliance with discharge standards and by imposing punishments for willful violations.

**Flag State Inspections and Surveys**

Every flag administration should conduct an initial survey before the ship is put in service or before the survey certificate\(^{45}\) is issued for the first time, which includes a complete survey of its structure, equipment, systems, fittings, arrangements and material\(^{46}\). Thereafter, the administration should ensure periodic surveys not exceeding five years to assess the same\(^{47}\). It should

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\(^{42}\) Herein after to be referred to as the ORB

\(^{43}\) *Id.*, Annex I, reg.20

\(^{44}\) *Id.*, Annex I, reg. 12(1)

\(^{45}\) Required under reg.5

\(^{46}\) *Id.*, Annex I, reg. 4(1) (a)

\(^{47}\) *Id.*, Annex I, reg. 4(1) (b)
also conduct at least one intermediate survey within the validity of the certificate period, to ensure that the equipment and associated pump and piping systems, including oil-discharge monitoring and control systems, crude oil washing system, oil water separating equipment and oil filtering systems fully comply with applicable requirements\(^{48}\) and are in good working condition\(^{49}\).

Every flag administration should nominate surveyors or recognized organizations to conduct surveys and inspections\(^{50}\). These surveyors conduct surveys as per the schedules to ensure the validity of certificate and technical requirements\(^{51}\). If deficiencies are found, the ship might be asked to conduct repair works before it sails away from the port. To carry out effective survey, the port and flag administrations should extend their full co-operation to the surveying officers and recognized organizations. The surveyors can inform the flag and port administrations about the deficiencies of the vessel, if any, after the survey. The object of the survey should be to ensure that the vessel is not offering unreasonable threat to the marine environment. It is important that after a survey has been successfully completed\(^{52}\), no change shall be made in the structure, equipment, systems, fitting, arrangements or material covered by the survey except the direct replacement of that equipment or fittings\(^{53}\).

After a survey has been successfully completed\(^{54}\), an International Oil Pollution Prevention Certificate\(^{55}\) shall be issued initially for a period of five years. It is the duty of port administrations to check the validity of IOPP once

\(^{48}\) Requirements of Annex I  
\(^{49}\) Id., Annex I, reg. 4(1) (c)  
\(^{50}\) Requirement under reg.4  
\(^{51}\) Id., Annex I, reg. 4(3) (a)  
\(^{52}\) As per the requirements of Annex I, reg. 4(1)  
\(^{53}\) Id., Annex I, reg. 4 (b)  
\(^{54}\) As per the requirements of Annex I, reg. 4  
\(^{55}\) Herein after to be referred to as the IOPP
the ship is in their jurisdiction. If the ship has no IOPP, it may conduct a full survey. The port state is empowered to conduct a complete survey if there are “clear grounds for believing that the condition of the ship or its equipment does not correspond substantially with the particulars of IOPP”.

**Monitoring and Control Systems**

Surveys and continuous assessment schemes may be considered as preventive measures. Sanctions may be imposed based on the evidence of willful violations. This procedure is extremely difficult for various reasons. Primarily, port states lack technology sophistication and interest to monitor violations on high seas. It is not at all possible to take enforcement actions against a vessel plying on high seas. In most cases visible oil slicks are seen trailing at the back of the vessel, but it is extremely difficult to link this slick to a particular ship. Even if it is fixed, the flag states may not accept the evidence. Thus, there is scope for monitoring and control systems only when the vessel is at ports. Evidences are usually collected by checking ORB, monitoring hardware and slop tanks.

Every ship should have on board a Shipboard Oil Pollution Emergency Plan approved by the flag administration. The plan shall amongst others make provisions for ‘the procedure to be followed by the master or other persons in charge of the ship to report an oil incident as required under the convention’; the list of authorities or persons to be contacted in the event of an oil pollution incident; a detailed description of the action to be taken immediately by persons on board to reduce or control the discharge of oil following the incident; and the procedures and point of contact on the ship for co-ordinating shipboard action with national and local authorities in combating the pollution’.

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56 *Id.*, Annex I, reg. 26

57 Requirement as per art.8
Port State Inspections

A certificate issued under the regulations by any party to the convention should be accepted by other parties for all purposes covered by the convention as having the same validity as a certificate issued by them. MARPOL empowers port state control whereby every vessel in ports or offshore terminals of a state party should hold valid certificates so as to enable the inspections by the officers of the port state. If the port state is having ample evidence to show that the ship does not have valid certificates, it may deny entry for the ship to the port or may prevent it from sailing away only after complying with the provisions of the convention. Before taking the port state control measures, there is a duty on the port states to inform the flag administration about the ship’s deficiencies and deny entry only after consultation. Upon port state inspections, if it is found that the ship has discharged harmful substances or effluents in violation of the provisions of the convention, the matter could be put to the notice of flag state and the latter may initiate investigations. The flag state may ask for more evidence on unauthorized discharges from the port state and if there is sufficient evidence proving the violations, the flag state should cause such proceedings to be taken in accordance with its law as soon as possible. The convention recognizes port state jurisdiction. Upon the request from a state party to the convention, the port states should also initiate inspections and proceedings against willful violations based upon sufficient evidence produced by the party affected. Under this provision, the ports state may initiate proceedings against the vessel in its port for offences committed elsewhere also.

58 Id., art.5(1)
59 Id., art. 5(2) & (3)
60 Id
61 Id., art.6 (1-4)
62 Id., art.6(5)
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The convention recognizes the primacy of flag state jurisdiction. Flag states alone cannot control violations happening at various ports. Therefore, the convention provides for concurrent jurisdictional regime in ports for the control of operational pollution. The enforcement framework ensures that every flag State has a duty to make sure that ships which fly its flag or which are under its control comply with MARPOL 73/78. The flag state may decide on how to carry out this obligation but generally they complete it by means of surveys and inspections of tankers and large ships.\(^{63}\)

**Sanctions for Violation of MARPOL**

If the flag administration gets ample evidence on intentional violations of the provisions of the convention, it should take as soon as possible all proceedings in accordance with its law and impose sanctions. The port states can also initiate prosecutions against the vessels, if found in its territory for violations or it may inform the concerned flag state and request it to take necessary actions against the vessel. In that case, the flag state should take necessary actions and inform the same to the requesting party and also to the organization.\(^{64}\) When sanctions are imposed, the flag state must ensure that it is “adequate in severity to discourage violations of the present convention and shall be equally severe irrespective of where the violations occur.”\(^{65}\) The penalties other than monetary one can be imposed by the coastal states only in cases of willful and serious pollution cases within the territorial sea.\(^{66}\) MARPOL does not mention about criminal prosecutions for willful discharges. It is left to the discretion of member states. Yet such a provision may be contemplated against willful polluter from a plain reading.

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\(^{63}\) *Id.*, Annex I, reg. 4(1). MARPOL mandates surveys for tankers of 150 gross tons and above and for other ships of 400 gross tons and above

\(^{64}\) *Id.*, art.4(1-4)

\(^{65}\) *Id.*, art. 4(4)

\(^{66}\) *Id.*, art.230(7)
of the provisions\textsuperscript{67}. The convention distinguishes between operational and accidental discharges\textsuperscript{68}. Broadly classifying, operational discharges are deliberate discharges of fuel oil, oil mixtures, oil wastes and noxious liquid substances whereas accidental discharges are those arising from maritime casualties such as collisions and grounding. The convention permits discharges under four circumstances, in (1) when the operational discharges meet with MARPOL requirements, (2) discharge in case of force majeure or to save life at sea, (3) discharge approved by the administration in order to combat pollution and (4) discharges due to unforeseen damages or in emergency situation done even after taking sufficient precautions and without any reckless intention to do so by the master, crew and the ship owner\textsuperscript{69}. Hence, it may be said that MARPOL considers criminal prosecutions for willful pollution during routine operations but does not support the same for accidental discharges.

**Critical Appraisal of Provisions to Control Operational Oil Pollution under MARPOL 73/78**

MARPOL 73/78 is a comprehensive treaty controlling all modes of operational and accidental pollution. Like all other international conventions, it is also a sweet comprise of developed and developing maritime interests. It was only when the American and British coasts were affected by a series of tanker disasters during the period 1967-77, these major maritime countries and the western world had lead the discussions on solutions for potential threats from operational pollution. Subsequently, they vehemently legislated on discharge


\textsuperscript{68} Id., Annex I, regs. 9, 10 and 11 and Annex II, reg. 5

standards and operational requirements and took unilateral measures of control over foreign vessels. If oil companies were to trade in the United States, they had to oblige to these unilateral requirements. Thus, when the conference was called up on to adopt MARPOL in 1973; there were already established American and British unilateral strong proposals. At the same time, the developing countries had no technology advancement to adopt these specifications. Without enough ratification, the treaty would have remained as a distant dream. Obviously, the draft was a compromise and had several drawbacks. The treaty is beautifully drafted with some really effective technical and procedural requirements to prevent operational pollution but with very weak implementation and enforcement provisions.

Regarding the technical requirements, the greatest drawback of MARPOL is that it compromised SBT requirement for existing tankers. As per the treaty provisions, only the new tankers above 20000 dwt were to adopt the SBT requirement. All existing tankers had the option to adopt among COW, LOT or SBT. This compromise was made following the U.S pressurizing for SBT and other nations proposing the economic advantages of COW and LOT over the SBT.\(^{70}\)

Annex I prescribe for LOT. Ships are to keep their oil residues on board through the LOT procedure so that it may be discharged only into the port reception facility. And, here is the real difficulty. Port reception facility is highly expensive and therefore most of the international ports do not offer it.\(^{71}\)

\(^{70}\) If SBTs were made mandatory for existing tankers as well, the tanker capacity may be reduced and more tankers would be in need to carry the same cargo. This had prompted independent tanker owners to demand for MARPOL 73 amendment so as to make SBTs mandatory. For political and economic realities of control regime, See Alan Khee Jin Tan, *Vessel Sourced Marine Pollution: the Law and Politics of International Regulation*, Cambridge University Press (2005)

Those ports which have this facility charges exorbitant costs on ship owners. MARPOL offers no solution for this problem.

MARPOL 73 prescribes only a weak enforcement regime. The regulatory regime depends too much upon the crew competency and diligence, maintenance of discharge record books and flag state enforcement measures. Practically it has the same short comings of OILPOL 54/69. The primary duty to inspect and certify vessels, investigate violations and impose punishments lies with the flag state. Coastal states are having jurisdiction for the same purpose only within their territorial waters. If at all a pollution incident happens, the procedure for exercising coastal state jurisdiction is extremely cumbersome as it involves informing the flag state and taking all steps to avoid discriminatory practices. In reality, most of the coastal states are not enthusiastic to invoke strong measures against violating vessels as it would affect their trade interests to a considerable extent. Often, environmental interests are sacrificed in order to avoid fiery political spat with the flag state.

Considering the fact that majority of the marine fleet belongs to flags of convenience, the flag state enforcement is not reliable anymore. Flags of convenience are too much concerned about their income from registries than policing the oceans and its conservation. Least is their concern for safety and environmental issues in foreign ports. The convention failed to establish basic standards and criteria for enforcement measures. Hence, every state may develop its own criteria for monitoring, inspecting, investigating and punishing foreign vessels for violations by enacting unilateral legislations at the domestic level. MARPOL has failed to establish universal enforcement regime for the control of operational pollution in ports.

It is not at all a welcoming provision that MARPOL amendments depend upon the sweet will of open registries. The amendments and ratifications depend on fifty per cent of world’s gross tonnage, which unfortunately are dominated by
the open registries like Liberia and Panama. Coastal and port state interests are given less priority in this regard.

Despite all these deficiencies, MARPOL is still recognized as a good treaty for the control of pollution from ships because of its technical specifications. The state parties were forced to implement the provisions if they were to continue in international trade. The convention compromising many of the stringent rules in favour of flag states and oil companies, have much to its credit when it comes to control of operational pollution in ports. Almost ninety per cent of the world marine fleet is already covered under the MARPOL regime which shows the success rate of this international convention. Had it not been a compromise of some of the provisions in favour of major maritime interests, the treaty would have never been adopted.

MARPOL Implementation and Enforcement in the European Union

On December 1999, the *Erika*, twenty five year old single hull tanker had caused fuel oil leakage polluting almost 400 Km along the French coastal line and killing ten thousands of seabirds. The Indian captain of the ship Karun Mathur was put behind the bars for charges of endangering human lives and for causing marine pollution. The Italian owners of the vessel were imprisoned for one year and a fine of EUR 75000 was imposed on them. The company was also heavily fined by the French court.

On 13th November 2002, the vessel *Prestige* wrecked of the coast of Spain, en-route Singapore, leaking almost 77000 tons of fuel oil into Spanish coastal waters. The Spanish Judge had found the captain of the ship guilty for the spill and sentenced him to imprisonment, which could have been for nine years, but luckily for him the evidences were not supportive.

MARPOL leaves it to the discretion of member states whether to conduct criminal trials for operational oil spills. Yet, the European Union directive

\[72\] MARPOL 73/78, art.15(1)
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prescribes for criminal prosecution of seafarers even for accidental discharges. Why should the organization be too much interested in implementing criminal trials? Public opinion and political pressure may be the reason.

In the European Court of Justice Case, C-308/06, concerning the validity of the European Union Directive, EU DIRECTIVE 2005/35/EC on Ship Source Pollution, the Commission had upheld the validity of the direction. It had opined that the international civil liability regime for oil pollution damages had its own limitations and hence, criminal prosecutions of pollution incidents are important. It had also held that even though MARPOL had detailed specifications for pollution control, it lacked effective implementation and enforcement standards. Hence, the directive would clarify the community law in this aspect and will ensure effective enforcement and implementation standards so as to prevent MARPOL violations. Under the Directive, discharging of polluting substances into the internal waters, including ports of the member states, by any ship is regarded as an infringement, if committed with intent, reckless or by serious negligence. Thus, unlike the MARPOL, the EC directive does not distinguish operational and accidental discharges to impose criminal sanctions.

MARPOL Implementation and Enforcement in the United States

Despite the reduction in the number of oil spills, there has been a considerable rise in the number of criminal prosecutions by the EPA in the U.S.A.

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73 The EU Directive 2005/667/JHA, Decision to strengthen the criminal-law framework for the enforcement of the law against ship-source pollution, 2005


75 2005/35/EC Directive on ship-source pollution and on the introduction of penalties for infringements, 2005, art.3(1)
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for vessel sourced pollutions\textsuperscript{76}. The powers of the United States Coast Guard\textsuperscript{77} have been enhanced greatly under the Coast Guard Authorization Act, 1998\textsuperscript{78}. The Act amends\textsuperscript{79} the Ports and Waterways Safety Act, 1978\textsuperscript{80}, whereby the USCG pilots have jurisdiction up to 12 nm from the shore for civil, criminal and administrative purposes\textsuperscript{81}. Under the PWSA\textsuperscript{82}, the coast guard has potential investigating powers. As per the Coast Guard Act, 1998\textsuperscript{83}, the coastguard is also the chief reporting agency on the ISM Code implementation. This section encourages the coast guard to develop a policy balancing trade and environment wherein they encourage precise and open reporting and auditing under the ISM Code by waiving enforcement penalties. In the \textit{United States v. Varlack Ventures, Inc.}\textsuperscript{84}, the court noted that, the coast guard has abundant powers to investigate environmental crimes and ensure safety on board without even a ‘search


\textsuperscript{77} Herein after to be referred to as the USCG


\textsuperscript{79} The Coast Guard Authorization Act, 1998, s.301

\textsuperscript{80} Herein after to be the PWSA

\textsuperscript{81} \textit{United States v. One Big Six Wheel}, 987 Fed. Supp. 169, 1998 AMC 934. After this decision, the federal government may prosecute ship owners, crew members and operators for violations of federal and state environmental laws within the 12nm limits of the territorial sea.

\textsuperscript{82} The PWSA, 1978, s.1227

\textsuperscript{83} The Coast Guard Act,1998, s.306

\textsuperscript{84} 1999 A.M.C 255 ( 3rd Cir.1998)
In this case, the vessel captain was convicted for not reporting oil discharge and the company was held liable to pay monetary compensation.

MARPOL is implemented generally under the Act to Prevent Pollution from Ships, 2000. All willful violations of the provisions of MARPOL, APPS and Coast Guard Regulations invite criminal prosecutions under the APPS. In the United States v. Royal Caribbean Cruise Ltd., the court observed, “MARPOL and APPS seems to compliment 18 U.S.C. Section 1001 so as to maximise pollution enforcement efforts both in domestic and international arena rather than bar a prosecution.”

The Clean Water Act, 1972 prohibits discharge of oil and hazardous substances. The National Pollutants Discharge Elimination System permit is required under the CWA to discharge pollutants into the navigable waters of the United States from the vessels. In order to avoid the administrative delay in allowing permits, the EPA has exempted discharge of certain substances that are considered as usual during routine operations from the purview of NPDES system. Some of the judicial verdicts are against these exemptions or

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85 The Coast Guard Act, 1998, s.89(a)
86 33 U.S.C §§1901-1912, herein after to be referred to as the APPS
87 33 U.S. C. §§1908 (a) (1994)
88 11 F.Supp. 2d 1358, 1998 AMC 1817
89 Id., at 1366
90 33 U.S.C. §1251 et seq. (1972)
91 The Clean Water Act, 1972, s.311
92 Here in after to be referred to as the NPDES
93 33 U.S.C § 1311 (1994), the Clean Water Act, 1972, s.301
94 40 C.F.R § 122.3(a) (1998). This includes “any discharge of sewage from vessels, effluent from properly functioning marine engines, laundry, shower, and galley sink wastes, or any other wastes incidental to the normal operations of the vessel.”
permissible discharges. Recently, the EPA has been charging vessels more under the NPDES scheme of Clean Water Act (CWA) than under the APPS or MARPOL.

Under the CWA, vessels violating the discharge specifications are strictly prosecuted. The conviction depends upon harm produced irrespective of negligent or willful conducts. In the case of MARPOL, APPS and Coast Guard Regulations, higher standards are required to prove violations. Hence, it is easy for the prosecution to prove the offence under CWA and convictions are comparatively easier.

For example, in United States v. M/G Transport Inc., the defendants were charged with unlawful discharge of garbage against NPDES regulations. In this case, the prosecution lasted for almost twenty years for illegal discharges of harmful quantities of oily waste from bilge slop and burned garbage from the M/G Transport’s tow into the Ohio and Mississippi rivers. This was the first case reported under CWA. Charges were also framed under the OPA and APPS. The Vice President of the company and many boat captains were convicted by the sixth circuit court.

In United States v. Overseas Ship Holding Group, INC., the Overseas Ship Holding Group was prosecuted for illegally discharging sludge and oily waste and deliberately concealing the pollution through false oil record books and fixing a tricky oil water separator. The company was convicted in 33 felony


96 173 F.3d 584 (1999)

cases and a record penalty of 37 million dollars was imposed on it. The trial went under CWA, OPA, APPS, the False Statement Act and other criminal laws.

In *United States v. Royal Caribbean Cruises Ltd.*<sup>98</sup>, the respondents pleaded guilty of discharging grey water from their vessels without an NPDES permit. The NPDES permit system has been extended to deal with aquatic nuisance for species from ballast water discharges. A criminal penalty of 25 million dollars was imposed on the corporation. Charges were framed under Clean Water Act, 1972, Oil Pollution Act, 1990 and the Resource Conservation and Recovery Act, 1976 for illegal discharges in port and coastal waters of oil and hazardous chemicals and falsification of oil record books.

Under the NPDES scheme, the newly introduced Vessel General Permit, 2008 regulates ‘discharges incidental to the normal operation of vessels’. The VGP notifies general effluent limits applicable to all discharges and 26 specific discharge streams, descriptive water-quality based effluent limits, provisions for inspection, monitoring, recordkeeping, and reporting of operational discharges<sup>99</sup>.

In an effort to codify Federal and State rules on permit for operational discharge from vessels, the EPA has enacted the Uniform National Discharge Standards, bringing into its purview even the U.S. military vessels.

Deciding a case on the greatest oil spill that the United States had ever witnessed, in the *United States v. Exxon Corporation (Alaska)*<sup>100</sup>, the U.S. District Court found Exxon Corporation guilty of violating the Migratory Bird Treaty Act, 1918<sup>101</sup> and the Exxon Shipping Company for violations of the Clean Water Act, 1972, the Refuse Act, 1899 and the MBTA. In this case, the Exxon was ordered to pay a fine of 25 million dollars. In a related case, *State of

<sup>98</sup> C.D Cal.1999

<sup>99</sup> See, http://cfpub.epa.gov/npdes/vessels/vgpermit.cfm#2008; Last visited in February 2012

<sup>100</sup> 41 ELR 20046 (2012)

<sup>101</sup> Hereinafter to be referred to as the MBTA
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Alaska v. Joseph Hazelwood\(^{102}\), the captain of the ship was convicted for discharge of oil in violation of the statutes and for not keeping records. Captain Hazelwood was acquitted of all the felony and misdemeanour charges. He was convicted of one count of negligent discharge of oil for which he had to perform 1000 hours of community service.

In oil spill cases, federal prosecution is also proactive under the Refuse Act\(^{103}\) and the MBTA\(^{104}\).

The Oil Pollution Act, 1990\(^{105}\) was enacted in response to the Exxon Valdez spill. The OPA establishes a National Oil Spill Liability Trust Fund and provides for National Oil and Hazardous Substances Pollution Contingency Planning for the government and industry. Under the OPA, rigorous punishments including heavy penalties are imposed on willful violators. The OPA regime enhances the authority and responsibility of federal government but also preserves the sovereignty of the state enforcement regime.

By means of a Presidential Proclamation in 1999, the contiguous zone of the United States has been extended to 24 nm\(^{106}\). The UNCLOS empowers coastal states to enforce their custom, fiscal, sanitation and health laws in contiguous zone\(^{107}\). It also recognizes coastal state jurisdiction in the EEZ for the protection of marine environment\(^{108}\). Reading together these provisions, the United States criminal jurisdiction extends up to 24 nm from the baseline. Although not related to environmental crime the decision in United States v. One Six Big Wheel\(^{109}\) has

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102 866 P.2d 827 (Alaska 1993)
103 33 U.S.C § 407 (1994)
105 33 U.S.C. §2701 et seq. (1990), herein after to be referred to as the OPA
107 UNCLOS III, art.33
108 Id., art.218
109 1998 A.M.C 934
importance. This case extended the federal government’s specific maritime and territorial jurisdiction over particular crimes committed in Federal Reserve areas outside the jurisdiction of 50 states. After this judgment it appears that the federal government may prosecute ship owners, operators and crew members for violations of state environmental laws, within the twelve mile territorial limits, even though some specific statutes like OPA and CWA limits the jurisdiction for criminal prosecutions up to 3 mile traditional limit.

The effect of all these legislations and judicial decisions are that any oil spill irrespective of whether it happens inside or outside the U.S. waters could be criminally prosecuted in the United States and strict liability may be fixed on the defaulter without any regard as to whether it was a negligent or intentional discharge. Hence, there is tremendous increase in criminalization of seafarers under the American admiralty jurisdiction. The commodity ‘oil’ finds diverse definitions under all the major pollution control laws in the United States\(^\text{110}\). Thus, oil may be petroleum or non-petroleum oil under different statutes and may be hazardous or non-hazardous. The carrier should be careful about these distinctions under various statutes as it may decide the civil and criminal liabilities.

In the United States, when there is pollution, criminal liability may be imposed under the federal and state environmental statutes. In addition, criminal liability may be imposed, \textit{albeit} when there is no pollution, on the basis of damage to port structures, personal injury or loss of life as the case may be under ordinary criminal laws. The criminal liability first of all falls on the crew and subsequently on ship owners, operators, managers, and finally corporate officers of such institutions. Interestingly, courts have applied the ‘responsible corporate officer doctrine’ in vessel pollution cases to extend the

\(^{110}\) The Oil Pollution Act, 1990 (33 U.S.C §§ 2701-2761), the Comprehensive Environmental Response, Compensation and Liability Act (42 U.S.C §§ 9601-9675 (1994)), the Clean Water Act (33U.S.C §§ 1251-1376) and the Act to Prevent Pollution from Ships (33 U.S.C 1901-1912)
criminal liability on shipping corporations and their corporate officers, irrespective of their real participation and knowledge of such incidents.

The draconian law in pollution cases imposes strict liability regardless of mensrea as the environmental statutes are meant to protect public welfare. Also, in negligence cases, proof of simple negligence is enough for the conviction. This has resulted in a hike in criminalization of seafarers in maritime pollution cases.

The civil liability runs parallel with the criminal liability. The issues involved in criminal prosecutions will be the same which could be the basis for civil actions. Long before the civil case even gets into serious discovery, the issues relating to negligence, recklessness and the specific facts regarding what happened will have already been determined by a court and jury. Thus, it is important to note that once caught for willful discharge of oil or hazardous wastes in U.S waters, there is no escape from civil and criminal liability. The American law is harsh on seafarers and ship owners.

**MARPOL Implementation and Enforcement in India**

MARPOL is implemented in India under the Merchant Shipping Act 1958, as amended by the Merchant Shipping (Amendment) Act, 2003 and under the allied rules and port regulations. The Act contains detailed provisions on control of operational oil pollution. The Act applies to tankers of 150 gross tons or more, other ships of 400 gross tons or more and ships under marine casualties but not to warships or government ships engaged in non-commercial activities.

According to the Act, no Indian tanker or ship shall proceed to sea or can operate in ports except with an International Oil Pollution Prevention

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111 The MSA, 1956, Part XI A, s.356A-356I. The Amendment Act of 2003 replaced these sections with 356A-356H.

112 The Merchant Shipping (Amendment) Act, 2003, s. 356A (1) & (2)
Certificate\textsuperscript{113} issued by the Central government\textsuperscript{114}. The same law applies to foreign ships in Indian ports. The IOPP certificate is mandatory for carrying oil and other noxious liquid substances.

Under the Act, the Central Government is the authority to prescribe any rule for Indian ships pertaining to “requirement for construction and equipment in ships to prevent pollution” from carriage of harmful substances\textsuperscript{115} or its mixtures\textsuperscript{116}. These rules can be regarding,

“such equipment and to comply with such requirements for construction, survey of equipment and structure of such oil tankers or other ships and specifying conditions for making of surveys of all oil tankers or other ships, as may be prescribed, prior to issuing of international pollution prevention certificates”.

The Act insists on maintenance of record books on all routine operations in accordance with MARPOL\textsuperscript{117}. The inspecting authority under the Act is the Marine Surveyor appointed by Director General of Shipping\textsuperscript{118}.

\textsuperscript{113} Here in after to be referred to as the IOPP

\textsuperscript{114} The Merchant Shipping Amendment Act, 2003, s.356 C

\textsuperscript{115} Id., Explanation reads, “For the purposes of this section, ‘harmful substance’ means any substance which, if introduced into the sea, is liable to create hazards to human health, harm living resources and marine life, damage amenities or interfere with other legitimate uses of the sea, and includes any substance subject to control by the Convention.”

\textsuperscript{116} Id., s. 356E

\textsuperscript{117} Id., s. 356F

\textsuperscript{118} Provisions are dealt under the M.S. (Amendment) Act 2003, Section 356G

It reads, “A surveyor or any person authorized in this behalf may go, at any reasonable time, on board an oil tanker or other ship to which any of the provisions of this Part applies, for the purposes of-
Enforcement powers for willful violations of MARPOL are vested with the Director General of Shipping in India. Upon the report of a surveyor on violations, he may detain the tanker or ship if necessary, until the causes of contravention are removed to his satisfaction or to that of an officer appointed by him. He may also proceed against the tanker or ship as the case may be for recovery of pollution costs and cleaning up processes. If necessary, he may seek the assistance of Indian Navy or Coast Guard for the enforcement of his powers. He may take action against the captain of an Indian vessel in a foreign port for violations of MARPOL, upon the satisfactory evidence given by the concerned government of the foreign country.

The Act also prescribes for port reception facilities for receiving oil and other noxious liquid substances in bulk. In case of any escape or discharge of oil and other noxious liquid substances in bulk in the port area, the Central Government can serve notice on the master, agent, owner and charterer of the tanker or ship. It may also take any action deemed fit to make these persons

(a) ensuring that the prohibitions, restrictions and obligations imposed by or under this Part are complied with;

(b) satisfying himself about the adequacy of the measures taken to prevent pollution;

(c) ascertaining the circumstances relating to an alleged discharge of substance which is subject to control by the Convention from the oil tanker other ship in contravention of the provisions of this Part;

(d) inspecting any record required to be maintained on board; and

(e) Checking the validity of the international oil pollution prevention certificates.

(2) The surveyor or any such person may, if necessary, make, without unduly delaying the oil tanker or the other ship, a true copy of any record of the oil or the other ship and may require the master of such tanker of ship to certify the copy to be a true copy and such copy shall be admissible as evidence of the facts stated therein.”

119 Id., s. 356H (1)
120 Ibid
121 Id., s. 356I
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comply with the specifications in the notice and fine them in spite of any separate
goal charged against them under the Act. The Act makes provisions for

collection of oil pollution cess from every ship visiting Indian ports which can be

used for the purposes of providing for port reception facilities, equipment and

materials for combating oil pollution in various ports in India. Until the dues on

oil pollution cess are not met up by the vessel, port clearance may be denied.
The Act gives rule making power for this part with the Central Government.

Accordingly, the Central Government has framed Rules for

implementing MARPOL, in 2010.

Rules for Preventing Oil Pollution from Ships

The Rule provides for initial survey of its structure, equipment, systems,

fittings, arrangements and material so as to ensure that they are put in service

before the IOPP certificate is issued in accordance with the international

convention. It also provides for a renewal survey in every five years and

intermediate surveys, such as to ensure that the equipment and the associated

pump and piping systems, including oil discharge monitoring and control systems,

crude oil washing systems, oily-water separating equipment and oil filtering

systems, fully comply with the requirements of the rules. Additional surveys are

also prescribed whenever repairs or renewals are being done in order to check that

\[122 \text{ Id., s. 356K} \]

\[123 \text{ Id., s. 356 M} \]

\[124 \text{ Id., s. 356N} \]

\[125 \text{ Id., s. 356O} \]

\[126 \text{ Details available at } http://www.dgshipping.com/dgship/final/rules/rules.htm, \text{ last visited in April 2012} \]

\[127 \text{The Merchant Shipping (Prevention of Pollution by Oil from Ships) Rules, 1974, as amended by the Merchant Shipping (Prevention of Pollution by Oil from Ships) Rules, 2010, G.S.R.329 (E), notified on 16th April 2010} \]

\[128 \text{ Id., rules 6, 7 & 8} \]
the repairs are conducted in accordance with the rules. The surveyor appointed by
the Central Government is the authorized person to conduct surveys and submit
the reports on deficiencies to it. If upon the survey, it is found that the ship is not
fit to proceed to sea, the surveyor may direct corrective measures. A report should
be submitted to the Central Government upon the issue and the Central
Government shall notify the matter to all port states concerned, if the ship is en-
route to that port. Under this rule, it is clearly stated that ‘the Central Government
shall fully guarantee the completeness and efficiency of each such survey and shall
take necessary steps to satisfy such obligation’. Accordingly, the Central
Government may detain the vessel and order it to conduct repairs before
proceeding to the sea. It may also pass on the information to the flag state or port
state concerned, if the ship is en-route to a foreign port.

In case of any material changes in the structure, design and equipment
of the vessel happening out of marine casualties or of any other cause after the
completion of surveys, it is the duty of the master or owner as the case may be
to inform the Central Government about it in order to conduct investigations.

Upon satisfactory completion of the initial or renewal surveys, the IOPP
certificate may be issued to an oil tanker en route to the ports of other state
parties of the convention, which are above 150 gross tons or any other ships
above 400 gross tons. An Indian IOPP may be issued under the same
condition for ships or tankers of the same specifications engaged in coastal trade.

Port State Control Specifications

Every foreign ship can be inspected at Indian ports by the surveyor or
any other authorised persons in order to check MARPOL specifications and

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129 The M.S. Act, 2003, ss.9 and 356G
130 The M.S. (Prevention of Pollution by Oil from Ships) Rules, 2010, ch. II, rule 6
131 Id., rule 7
132 Id., rule 11
certificates under it. If upon such an inspection, it is found that the master, owner or crew of the ship or tanker are not fully versant with the operational requirements and procedures specified under the Merchant Shipping Act, 2003 and the rules there under, the matter should be informed to the D.G. Shipping and he may initiate proceeding under the Act\textsuperscript{133}.

**Control of Operational Discharges of Oil from Machinery Space Operations and Cargo Areas**

Control of Operational Discharges of Oil from machinery space operations are also provided in the rules\textsuperscript{134}. Any discharge of oil or oily mixture into the sea is totally prohibited\textsuperscript{135}. Controlled discharge is allowed outside special areas only when the ship over 400 gross tons is proceeding en route. The oil mixture should pass through an oil filtering equipment. The oil content of the effluent without dilution should not exceed fifteen parts per million. The oily mixture should not originate from cargo pump-room bilges on oil tankers and the oily mixture, in case of oil tankers, should not be mixed with oil cargo residues\textsuperscript{136}.

**Oil Record Book**\textsuperscript{137}

Part I of the oil record book deals with machinery space operations\textsuperscript{138} and Part II with cargo and ballast operations\textsuperscript{139}. Every oil tanker of one hundred and

\begin{footnotesize}
133 The M.S. Act, 2003, s.356H
134 The M.S. (Prevention of Pollution by Oil from Ships) Rules, 2010, r.15, 34
135 The M.S. (Prevention of Pollution by Oil from Ships) Rules, 2010, r. 15
136 Ibid
137 Id., rules 17 & 36, herein after to be referred to as the ORB
138 These operations include ballasting or cleaning of oil fuel tanks, discharge of dirty ballast or cleaning water from oil fuel tanks, collection and disposal of oil residues (sludge and other oil residues), discharge overboard or disposal otherwise of bilge water which has accumulated in machinery spaces, and bunkering of fuel or bulk lubricating oil
\end{footnotesize}
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fifty gross tons and above and every ship of four hundred gross tons and above other than an oil tanker should be provided with an ORB. The ORB should be updated with details on machinery space operations. Every entry in the ORB should be accurate and it should be readily available for inspection. The surveyor may inspect the ORB on board any ship while the ship is in an Indian port or offshore terminals and the provisions the Act shall accordingly, apply.140

Whenever visible traces of oil are seen behind a vessel, the Central Government can conduct investigations on the basis of wind and sea conditions, speed and track of the vessel and discharge books141. The discharge into the sea should not contain chemicals or other substances in quantities or concentrations, which are hazardous to the marine environment or chemicals or other substances shall not be introduced for the purpose of circumventing the conditions of discharge specified in the rules142. The oil residues that cannot be discharged into the sea should be retained on board for subsequent discharge into port reception facilities143.

Ship Board Oil Pollution Emergency Plan144

Every oil tanker of one hundred and fifty gross tons and above and every ship other than an oil tanker of four hundred gross tons and above should

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139 These operations are loading of oil cargo, internal transfer of oil cargo during voyage, unloading of oil cargo ballasting of cargo tanks and dedicated clean ballast tanks, cleaning of cargo tanks including crude oil washing, discharge of ballast except from segregated ballast tanks, discharge of water from slop tanks, closing of all applicable valves or similar devices after slop tank discharge operations, closing of valves necessary for isolation of dedicated clean ballast tanks from cargo and stripping lines after slop tank discharge operations; and disposal of residues

140 The MSA, 2003, s. 356G (2)

141 Id., sub rule 7

142 Id., sub rule 8

143 Id., sub rule 9

144 Id., sub rule 37, sub rules 1-4
carry on board a shipboard oil pollution emergency plan based on MARPOL, approved by the Central Government\textsuperscript{145}. This plan should name the list of persons to be contacted in case of an oil pollution incident, actions to be taken to mitigate the damage and scheme for effective co-ordination among various authorities. All oil tankers of five thousand tonnes deadweight or more should have prompt access to computerized shore-based damage stability and residual structural strength calculation programmes.

**Reception Facilities**\textsuperscript{146}

The Central Government should ensure that adequate reception facilities are available at all oil loading terminals, repair ports and other ports “for the reception of such residues and oily mixtures as remain from oil tankers and other ships, which should be adequate to meet the needs of ships using them without causing undue delay to ships”\textsuperscript{147}.

For the violations of the rules, the Central Government can impose a fine of one thousand rupees and if the breach is a continuing one, with a further fine of fifty rupees, every day during which the offence continues\textsuperscript{148}.

**Standards of the Indian Port State Control Inspections to Control Operational Vessel Pollution in Ports**

The D.G. Shipping is the enforcement agency under the Merchant Shipping Act 1958 and the amendments thereto for controlling vessel sourced operational pollution in ports. The Mercantile Marine Department acting under the D.G. Shipping should ensure that Merchant Shipping Rules 2010 are effectively implemented at all ports in India. The port state officers are the

\textsuperscript{145} Id., rule 37

\textsuperscript{146} Id., ch. VI, rule 38

\textsuperscript{147} Id

\textsuperscript{148} The M.S. Act 1958, s.458, cl.2 (b)
Surveyors acting under the direction and control of the Chief Surveyor of the Mercantile Marine Department, regional zones.

DG’s office issues circulars and notifications regularly on the latest IMO guidelines about operational requirements. Most of these circulars are technical requirements on board for MARPOL compliance. These notifications are issued on the background of increased number of ship detentions for deficiencies identified during surveys such as defective or inoperative oil-water separators, illegal by-passing by pipes and direct illegal oil discharges overboard.

Consequences of non-compliance generally includes detention of the vessel, assessment of substantial fines and penalties as decided by the D.G. Shipping or port authority, withdrawal of vessels certificate of registry and fine, suspension or withdrawal of certificate of competency of the concerned ship’s officer for MARPOL violations.

The effectiveness of the survey depends upon its quality and timely inspections of certificates under the MARPOL, especially the IOPP. D.G. Shipping has been directing MMD surveyors to carry out stringent initial surveys on IOPP certificate. It is doubtful whether the renewal and annual surveys are carried out effectively as per the MARPOL regulations and the Merchant Shipping Act and rules thereunder. The efficiency of the follow up surveys will definitely have high hand on tracking substandard shipping and enforcement of corrective measures.

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150 Ibid

151 Ibid
This would also require the co-operation of crew on board as in most cases defective and crooked practices may be adopted to by-pass routine surveys which are extremely difficult to identify. A good ISM ship board plan may cure these illegal practices to a considerable extent. On the contrary, port state inspection technics may be refined by using expertise and sophisticated technology to detect such defective and illegal discharges over board.

When analyzing the causes of these illegal discharges over board and defective practices resorted to on board by the crew to bypass detentions, the key reason may be the deficiencies in the enforcement of MARPOL compliance.

**Powers of the Port Authority**

The port authority may frame rules relating to ballast or cargo discharge, discharge of oil or oily mixture at the port, regulating bunkering of liquid fuel including description of barges, pipelines or tank vehicles used during such bunkering. The port officers who are to implement the provisions of the Act are

152 From discussion with Chief Engineer Ayinippully Vineeth, Maersk Tankers, he says, “mostly discrepancies may be identified as missing pages or erasures in oil record book/ cargo record book/ sewage or garbage record book, ORB and bilge sounding records discrepancies, ORB record exceeds bilge capacity, in operative or modified oil water separators and un- familiarity of the crew with operational requirements.”

153 Indian Ports Act 1908, Section 6 reads, “ The Government may, in addition to any rules which it may make under any other enactment for the time being in force, make such rules, consistent with this Act, as it thinks necessary for any of the following purposes, namely:--

(e) for regulating vessels whilst taking-in or discharging passengers, ballast or cargo, or any particular kind of cargo, in any such port, and the stations to be occupied by vessels whilst so engaged;

(ee) for regulating the manner in which oil or water mixed with oil shall be discharged in any such port and for the disposal of the same;

(eee) for regulating the bunkering of vessels with liquid fuel in any such port and the description of barges, pipe lines or tank vehicles to be employed in such bunkering.”

the conservator of ports, the harbour master and his assistants\textsuperscript{154}. The port officer may board the vessel for inspections relating to violations of any provisions of the Act\textsuperscript{155}.

**Criminal Prosecution under the Indian Ports Act**

Under the Indian Ports Act 1908, improper discharging of ballast water, rubbish or any other thing which may form a bank or shoal or obstruct navigation in port area may invoke criminal prosecutions\textsuperscript{156}. The same rule is applicable to illegal discharge of oil or oily mixture into the port waters. Any person who contravenes the Act, either by himself or another so casts, may be fined up to 3 lakhs rupees\textsuperscript{157}. Even after receiving directions from the conservator of ports on not to throw ballast, rubbish or such other things, if the master of the vessels so casts, he is liable to be punished\textsuperscript{158}.

All offences under the Act are triable by the Magistrate having jurisdiction over any district or place adjoining the port\textsuperscript{159}.

\textsuperscript{154} Id., s. 7
\textsuperscript{155} Id., s. 15
\textsuperscript{156} The Indian Ports Act 1908, s.21
\textsuperscript{157} Id., Cl.2 and s.6 (e ), (ee) and (eee)
\textsuperscript{158} Id., Cl.3. The provision details on imprisonment up to 1 year or with a fine up to 5 lakhs rupees or with both
\textsuperscript{159} Id., s. 60. It reads, “Any person offending against the provisions of this Act in any port subject to this Act shall be punishable by any Magistrate having jurisdiction over any district or place adjoining the port.

(2) Such Magistrate may exercise all the powers of a Magistrate under this Act, in the same manner and to the same extent as if the offence had been committed locally within the limits of his jurisdiction, notwithstanding that the offence may not have been committed locally within such limits, and, in case any such Magistrate exercises the jurisdiction hereby vested in him, the offence shall be deemed, for all purposes, to have been committed locally within the limits of his jurisdiction”.

Indian Law on Control of Vessel Sourced Pollution in Maritime Ports
Oil Spills are recorded usually in terms of its size. Any spill above 7 tonnes is normally recorded but this does not mean that Indian waters are devoid of accidental or operational spills. Over 85% of the spills are minor ones which are usually not recorded by any organization. There is a serious criticism that port authorities are generally reluctant to prosecute the offenders. Since, the amount of pollution is minimal, blame worthiness is also minimal and there is no other fact to contradict the said preposition.

Minor spills resulting from improper operations of certain valves, pipes or due to improper judgment of the employee, rather than a deliberate disregard of corporate good governance by the owner, normally results in minor prosecutions, imposing fine. Only when major spills resulting from maritime casualties such as collisions and groundings happens, the doctrine of ‘corporate responsibility’ is invoked binding the owner with strict liability upon the principle, the “polluter pay”. A reasonable proportion of operational spills happen in dry docks, where the damage to the environment is minimal. Criminal prosecution will certainly depend upon all these facts.

In Primate Shipping INC. six v. The Board of Trustees for the Port of Calcutta, the Calcutta High Court, while deciding the validity of the notice issued by the Calcutta Port Trust against the appellants, to remove the grounded vessel from the channel of navigation in default of which imposing on them a fine of rupees 10 Crores held:

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160 One of the organizations keeping track of oil spills includes International Tanker Owner’s Pollution Federation Ltd. (ITOPF). The details of major oil spills at international level as well as near to the Indian coast area accounted in their website. The details of major spills in Indian coasts may be seen in “Blue Waters”, The Indian Coast guard Publication, especially in editions from 2000-2012.

161 APO No. 36 of 2005 in WP No. 2022 of 2000 (In the High Court of Calcutta, dated 17th September 2008)
“A read of section 21(1) of the 1908 Act shows that the provisions are mandatory. It obligates that no ballast or rubbish and no other thing detrimental to navigation, without lawful excuse be cast or thrown into any port and no oil or water mixed with oil shall be discharged in or into any such port otherwise than in accordance with the Rules. Since the ship which ran aground was carrying ‘dangerous cargo’ and fuel oil it was detrimental to navigation under section 21 of the 1908 Act. Hence, the action of respondent no.5 is just and proper. Moreover, sections 14 and 21 of the 1908 are beneficial provisions for navigation ensuring protection to shipping from the impediment or even threat of impediment or against pollution”.

The Indian law has provisions for the criminal prosecution of mariners for willful pollution incidents. The details are given in Chapter 8 of the study.

**Prevention and Control of Pollution in Major Ports**

The Central Government had framed rules under the Indian Ports Act 1908 to prevent and control pollution in major ports\(^\text{162}\).

No vessel should discharge, throw, place, empty or allow to leak or flow or to fall to quay, jetty or pier or within the limits of a major port any pollutant\(^\text{163}\). The rule prohibits discharging of ballast or oily mixture within the port limits that exceeds the count 15 parts per million. If at all discharged the count should not exceed the ceiling limit and it should be under the consent of

\(^{162}\) The Indian Ports Act, 1908, s.6

\(^{163}\) Id., rule 3.
the port authority, namely, the conservator of ports. When oil and de-ballasting has to be conducted simultaneously, the master of the vessel should ensure sufficient separation between the loading pipeline and the operation is conducted without polluting the waters of the port. While cleaning tanks or bilging no detergents should be thrown overboard otherwise than by oil-water separator or oil-filtering equipment and in no case it may pollute the port waters. Discharge of oil, tank washings, bilge water or other noxious substances are prohibited under the Act except with the consent of the conservator of ports. “No vessel shall load, discharge, transport, bunker ballast or de-ballast within limits of a major port without observing the precautions specified in the manual on Prevention of Oil Pollution and the International Safety Guide.” If any vessel has to discharge, oil, water or pollutant at any of the major ports, twenty four hour notice should be given to the port authority to provide for port reception facilities. Three hours prior to bunkering, written permission need to be obtained from the competent authority. The master of the vessel shall ensure ‘safety checklist’ as per ‘international safety guide’ and ‘pollution check list’ as per the Manual on Prevention of Oil Pollution before commencing cargo operations and at all times. If any oil or pollutant is found floating near or around a vessel, the onus of proving that it was not discharged or allowed to escape from such

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164 Id., rule 4
165 Id., rule 5
166 Id., rule 6
167 Id., rules 7, 8 & 9
168 Id., rule 10
169 Id., rule 11
170 Id., rule 13
171 Id., rule 16 & 17
vessel shall be on the master of the vessel. It is the responsibility of the master of the vessel to make available as per the IMO conventions and the Merchant Shipping Act, 1958 for verification and inspection and give all assistance in the process by the competent authority.

Conclusions

In August 2011, the vessel M.V.RAK sank off the coast of Mumbai, with 60,000 metric tonnes of coal on board. The cargo ship, which was on its way from Indonesia’s Tutung to Dahej in Gujarat, had a 30-member crew of Indonesian, Jordanian and Romanian nationalities. All of them were rescued by defence personnel before it sank. An FIR was registered against the owner, captain and crew members of the vessel and a probe was ordered into the cause of the incident under the Indian Penal Code, i.e. for “act endangering life or personal safety of others” and for negligent spill of fuel oil because of the maritime casualty. Later both the captain and the chief engineer were released on bail of Rs.25000. A petition was also filed by a Bombay based Environmentalist before the National Green Tribunal. As per the National Green Tribunal Act, the person responsible for causing an adverse impact to the environment is liable to pay relief and compensation for the damage.

In a similar incident that had hit the coasts of New Mangalore, the Hong Kong vessel M.V. Asian Forest was given port of distress by the Indian Coast Guard and while anchoring it tried to stabilise the list by flooding its ballast tanks and by maneuvering the vessel. However, the vessel could not control its stability and dangerously listed to 45 degrees to port side and finally sunk off the Mangalore port. After many warnings were issued to the owners of the

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172 Id., rule 18
173 Id., rule 20 & 21
174 The Indian Penal Code 1860, s.336
175 The National Green Tribunal Act, 2010, s.17(1)
vessel of possible litigation being filed against them, after two years, salvage was arranged for lifting the sunken vessel.

The technical and procedural requirements prescribed by MARPOL Annex I are incorporated in the Merchant Shipping Act, 1958\textsuperscript{176}. In the recent past, many pollution incidents and maritime casualties have been reported in Indian ports because of improper cargo operations. The preliminary investigations on the grounding of M.V. RAK and M.V. Asian Forest had identified that the ships didn’t comply with the requirements of the convention and the ports never applied the codes of safe practices as applicable to their different terminals. There was no effective coordination between the ship and the port. The “port-ship interface” guidelines were not adhered to. Hence, these incidents prove that the Ship and the port will have to complement each other by following applicable safety guidelines, codes and rules as applicable for the effective implementation of MARPOL Annexes.

The disposal of oil generated from ships is a hazardous substance and therefore its disposal has to comply with the provisions of the Hazardous Wastes (Management and Handling) (Amendment) Rules, 2002\textsuperscript{177}. The oil generated from ships like sludge, slops and dirty ballasts fall under the category of ‘waste oil’ under the rule\textsuperscript{178}. It has carcinogenic and toxic impacts on the port environment. Therefore, its safe disposal is a requirement not only for environmental safety but also for public health. The chief objective of legal control is to ensure this.

\textsuperscript{176} The Merchant Shipping Act, 1958, part XII A

\textsuperscript{177} Published under the notification of the Government of India in the Ministry of Environment and Forests number S.O. 553(E), dated 21st May, 2002 in the Gazette of India, Part-II, Section 3, Sub-section (ii)

\textsuperscript{178} Id., s.1(35) of the Act defines “waste oil” – which includes spills of crude oil, emulsions, tank bottom sludge and slop oil generated from petroleum refineries, installations or ships; and is unsuitable for re-refining, but can be used as fuel in furnaces if it meets the specifications laid down in Schedule 6
Generally before a ship enter into a major port in India, if it requires the PRF, will contact the agent, who is required to fill up the notification form under the port regulations, indicating the quantity of waste oil that has to be disposed and submit the same to the port authorities at least before 24 hours of its arrival. This time interval may be different for various ports. This request should be accompanied by the undertaking by the waste collector who is an authorized licensee of the Central and State Pollution Control Boards and Indian customs. The registration of these licensees is mandatory under the Hazardous Substances Rules. The license will be issued only upon the proof submitted by the waste collector that the waste oil reception plant installed for collection of waste oil is working in accordance with the specifications prescribed by the CPCB and SPCB and that the emission, effluent and treatment standards and disposal of waste oil is done as per the rules issued there by. Accordingly, “any waste oil which does not meet the specifications laid down in Schedule 6 shall not be auctioned or sold but shall be disposed of in hazardous wastes incinerator installed with air pollution control devices and meeting emission standards.” The CPCB and SPCB certainly are obligated to monitor this.

Upon receiving such requests, the port may grant these licensees permission to collect sludge and waste oil from the vessel. The private contractor is also required to submit bank guarantee and insurance policy for public liability. The permission is granted by the Port, if all the above documents are valid.

Sludge discharge is permitted only between 6 AM to 6 PM. The clearance of sludge from the port area, custom formalities, treatment and disposal of waste are the responsibility of the contractor as per the relevant legislation. The list of authorized waste oil collectors or recycling/processing companies is hosted in the websites of all major ports in India. The conservation

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179 The Hazardous Substances Rules, 1989, rule.9
180 Id., rule. 20
181 The Major Ports (Prevention and Control) of Pollution Rules, 1991, rule. 20
of ports is to ensure that the discharges are being done in accordance with the MARPOL regulations and that the technical specifications and procedural requirements as under the Merchant Shipping Act and the Indian Ports Act are complied with. If the provisions are violated, the provisions of the Indian Ports Act\(^{182}\) may be invoked so as to initiate criminal prosecutions against the offending officers and the shipping company. Yet this provision is very sparingly used unlike in the United States of America which follows deterrent punishments. They strongly believe that criminalization of seafarers would certainly prevent the incidents of willful violations of MARPOL. The adjudication of such crimes is very difficult in India because of the laws are not specific on this issue. Who is to enforce laws against who is a major concern!

The system operates through private contractors and unless there are clear rules for monitoring such operations there can be serious deterioration of prescribed standards. Also, it has to be seen where these waste oil collected ultimately reaches for safe recycling without causing any harm to the environment. Strict monitoring by the conservator of ports and the pollution control boards would plague the discrepancies. There is a pollution control cell in all major ports whose duty is to ensure safe discharge operations. In addition to this the conservator of ports is also obliged to ensure the same. Segregation of powers under different officers has made the monitoring and control regime extremely inefficient.

As per the central vigilance commission, if tenders are allotted without proper works manual, work may be contracted to same parties as per the whims and fancies of individuals, thereby renewing the contracts as such for many years\(^{183}\). “A memorandum of the Rajya Sabha secretariat and reports from

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\(^{182}\) The Indian Ports Act, 1908, s.21

\(^{183}\) Chief Technical Examiner’s Organization, Central Vigilance Commission, “Common Irregularities/Lapses Observed in Award and Execution of Electrical, Mechanical and
Comptroller and Auditor General of India and a Parliamentary panel had highlighted a port sector scam, estimated at Rs 1.5 lakh crore, in which major discrepancies were found in the sector that had appointed cargo handling agents and disposing waste oil from the ports\textsuperscript{184}. The report submitted by the Parliamentary committee on transport, tourism and culture identified that the private contractors appointed for waste oil disposal in major ports in India are unauthorized and there is a huge financial leakage though the government is reluctant to take any action on it\textsuperscript{185}. A comprehensive work manual set commonly for such contractors setting guidelines, procedures and standards for waste oil disposal may bring about better efficiency in the system.

The PRF procedure is cumbersome. Often the agent will have to get permission from customs, port and environmental agencies for disposing of the waste oil safely into the shore reception facilities. This may prompt the crew to bye-pass technology specified under the convention making illegal discharges into the coastal waters itself. The inadequacy of sufficient PRF in major ports is another constraint for MARPOL compliance.

There are reports that the discharge is being carried out in jetties at Mumbai port making the areas highly greasy, unsafe and unhealthy for general public. Every port is to have an environmental audit and submit the same to the Ministry of Environment and Forests through the port trust authorities. All major ports should also have Environmental Management Plan as per their needs and pollution risks in terms of cargo handled at the ports. In India, very few ports are having the Environmental Management Plan and the environmental auditing is not regularly conducted at ports. As a result, the

\textsuperscript{184} Indronil Roy Chowdhury, “House Panel Reports Points at Discrepencies in Ports”, The Indian Express, dated 19\textsuperscript{th} August 2013

\textsuperscript{185} Ibid
seriousness of vessel sourced oil pollution issues in ports albeit being reported in major studies conducted under the auspices of various organizations are not promptly reported by the port trust to the Ministry of Environment and Forests. In many cases, the information supplied is contradictory to the scientific studies.

India’s proximity to international trade route and her growing role as a maritime country suggests urgent need to amend existing laws on operational pollution by vessels and secondary rules thereon. At present, India does have large number of legislations to combat pollution from illegal discharge of oil, cargo residues but the system is fragmented. The control and monitoring systems under various Acts are not updated with the international regime and are inept to meet extreme contingencies such as a major oil spill.

In the U.S.A, the EPA has specific functions on marine pollution control but the Coast Guard has got ample powers of surveillance, monitoring and control of vessel entry. Hence, the USCG is playing a major role in eliminating substandard vessels from American ports. In this context, what India would require is a strong and consolidated marine environmental protection law clearly defining and balancing the roles of various authorities.

Often the costs involved in mitigating the effects of oil and other cargo spills cannot be estimated. Hence, it is better to strengthen the control and monitoring systems- a well-organized system with basic competencies, proficiency and authority to deal with extreme contingencies arising out of operational spills.