



Offshore Platforms: A Legal Overview in Indian Ocean Perspective

Dr. Brij M. Dimri*

The inadequacy of the legal regime to regulate and protect the fragile marine ecosystem is brought forth by recent incidents (e.g. Montara, Australia; Deepwater Horizon, USA) involving deep offshore oil rigs. When the pollution is massive in scale, who pays for the damages? In different regions, fragmented regional arrangements are available to resolve this problem but that is not the answer. Efforts are being made to address this problem internationally. Until the time an internationally acceptable solution for this problem is found, the ongoing spate of unregulated offshore exploration and production (E&P) activities in Bay of Bengal is a cause for concern to India and its neighbours.

During the last hundred years, hydrocarbons have brought out both the best and worst in human ingenuity by way of contributing to world economic growth on one side and by adversely affecting the global environment on the other. When viewed from environmental perspectives, the oil and gas industry is generally adjudged in the light of consumption of fossil fuels leading to environmental degradation and changes. But in recent times, it is the extraction of hydrocarbons, i.e. *upstream operation*¹ [petroleum exploration and production (E&P)], which is the cause of major concern.²

*The author is a retired Commander (Judge Advocate) from the Indian Navy.

Oil and gas extraction is both an onshore and offshore activity. The onshore oil platforms, located within a state territory, have not attracted much international attention so far. But international regulations and/or regional arrangements are required to monitor offshore installations because their activities have international ramifications. The pollution caused by offshore exploration activity affects the neighbouring states connected through the sea. The international laws governing such activity have not kept pace with the increasing offshore activity at sea. The offshore accidents witnessed by various countries such as Australia (Montara, 21 August 2009),³ the USA (Deepwater Horizon, 20 April 2010),⁴ China (Penglai 19-3, 4 June 2011)⁵ or in the North Sea (Gas Platform Elgin/Franklin, 25 March 2012)⁶ have brought this issue to the fore.

In the first half of the 20th century when offshore activity was in its infancy,⁷ the drilling was generally confined to a depth of 10 m in water. With advancements in technology, it has now become possible for offshore rigs to drill at a depth of over 2000 m. The rush for the untapped oil resource at sea is due to the fact that every state wants to attain self-sufficiency on the energy front. Presently, almost one third of the oil consumed in the world comes from offshore drilling. As the technical cost of deepwater drilling has come down significantly, more and more unapproachable areas of the sea are being explored. This surge in deep and ultra-deep offshore activity is leading to increased risk for the marine environment. How do we regulate these activities? Where is the law to govern them?

But before deliberating on these issues, we should identify various offshore platforms and the constituents of the upstream operation.

Offshore Platforms and Upstream Operation

The offshore platforms can be broadly classified into the following categories (Fig. 1):⁸

- fixed platform (FP): supported by piles driven into the seabed – depths up to 1650 ft;
- compliant tower (CT): narrow, flexible tower – operate in water depths of up to 3000 ft;
- Sea Star or floating “mini-tension leg”: suitable for smaller reservoirs – operating depths up to 3500 ft;

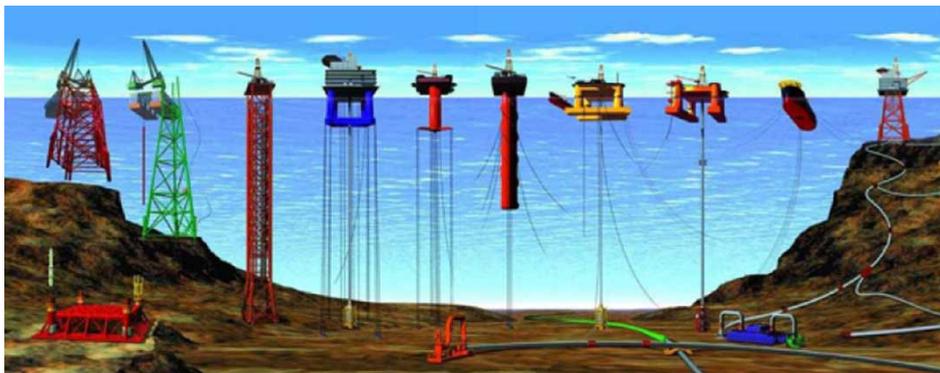


Fig. 1. Types of Offshore Oil and Gas Structures. Seen left to right. (1) and (2) conventional fixed platforms (deepest: Shell's Bullwinkle in 1991 at 412 m/1353 ft Gulf of Mexico (GOM); (3) compliant tower (deepest: ChevronTexaco's Petronius in 1998 at 534 m/1754 ft GOM); (4 and 5) vertically moored tension leg and mini-tension leg platform (deepest: ConocoPhillips' Magnolia in 2004 1425 m/4674 ft GOM); (6) spar (deepest: Dominion's Devils Tower in 2004, 1710 m/5610 ft GOM); (7) and (8) semi-submersibles (deepest: Shell's NaKika in 2003, 1920 m/6300 ft GOM); (9) floating production, storage and offloading facility (deepest: 2005, 1345 m/4429 ft, Brazil); (10) sub-sea completion and tie-back to host facility (deepest: Shell's Coulomb tie to NaKika 2004, 2307 m/7570 ft). Source: http://oceanexplorer.noaa.gov/explorations/06mexico/background/oil/media/types_600.html (accessed 19 March 2013).

- floating production system (FPS) – anchored in place and can be dynamically positioned using rotating thrusters – 6000 ft;
- tension leg platforms (TLPs): uses composite production risers (CPR)⁹ technology, held in place by vertical tendons connected to the sea floor – operating depths beyond 6000 ft;
- subsea systems (SS): connected to nearby platforms – can operate at great depths (up to 7000 ft);
- SPAR platforms/vertical floating cylinders: uses CPR technology, held in place by vertical tendons connected to the sea floor – operating depths up to 10,000 ft.

The *upstream operations* at sea generally involve the following components:¹⁰

- (1) geological and geophysical survey (including seismic survey) – to develop a model or map to search for hydrocarbons;

- (2) exploration (involving drilling an exploratory well) – to confirm the presence of hydrocarbon deposits;
- (3) development and production (involving platform placement etc.) – involves drilling wells for exploration;
- (4) abandonment/decommissioning – involve closure and removal of the rig/platform.

In a broader sense, the regulatory framework for upstream operation can be examined by clubbing the above activities into the following two categories, namely:

- (I) commissioning of the offshore rig/platform (sections 1–3)
- (II) decommissioning of the offshore rig/platform (section 4).

Commissioning of Offshore Rig/Platform

The potential magnitude of marine pollution and environmental disasters resulting from it cannot be underestimated. Although the risk of an accident during offshore operation may have been reduced due to advances in technology, one cannot be oblivious of the fact that under no circumstances can complete immunity from natural disasters be ensured. The myriad problems related to offshore activities are bound to grow in number with increased use of ultra deepwater rigs. Some of the environmentally related issues at sea include:¹¹

- noise, vibrations and physical disturbances (seismic survey, underwater explosions, construction, etc.);
- drilling waste including drilling fluids (hydrocarbon and additives, drilling cuttings and contaminated produced water);
- marine discharge (oil and other compounds) from platforms and ships, and alien invasive species;
- gas and gas pipelines;
- extreme weather conditions;
- compounded impact and conflicting uses affecting the marine ecosystems.

The legal framework for regulating offshore oil and gas activities includes both international and national legislations, with the latter occupying a dominant position.

In the latter half of the 20th century, more regulations were formed with regard to oil and gas operations. Presently the offshore activities are conducted within the jurisdictional regime of a state where the customary international law and regional arrangements oblige states to protect the environment and make them liable to pay for the damages, if any, resulting from the pollution caused by the rigs/platforms under their jurisdiction. But in the days to come when, with advances in technology, offshore activities in the ultra-deep international waters would rampantly grow, determining the liability of a state would become all the more difficult. In short, no appropriate legal mechanism exists to resolve the various issues related to offshore activities.

Law of the Sea and Offshore Platforms – UNCLOS I¹²

The Geneva Convention on the Continental Shelf, 1958, conferred sovereign rights upon the coastal states for the purpose of exploring and exploiting its natural resources in the continental shelf,¹³ provided the coastal state's sovereign rights do not affect the legal status of the superjacent waters (i.e. high seas) or the air space above those waters.¹⁴ Article 5(2) of the said Convention allows a coastal state "to construct and maintain or operate on the continental shelf installations or other devices necessary for the explorations or exploitations of its natural resources".

Articles 5(3), 5(4) and 5(6) lay down certain conditions for establishing such installations in the shelf. Article 5(6) provides that these installations may not be "established where interference may be caused to the use of recognised sea lanes essential to international navigation". The installations referred to in article 5(2) are undoubtedly those related to the exploitation and exploration of natural resources of the shelf.¹⁵

Some other provisions related to the prevention of marine pollution from offshore exploration include: (a) eschew offshore operations that cause unjustifiable interference with other marine activities including conservation efforts; (b) member states to establish 500-metre safety zones around all drilling platforms; (c) member states to undertake "all appropriate measures for the protection of the living resources of the sea from all harmful agents" in the safety zones.¹⁶

Furthermore, the Geneva Convention on the High Seas, 1958, requires every State to draw up "regulations to prevent pollution of the seas by the discharge of oil from ships or pipelines or resulting from the exploitation and exploration of the seabed and its subsoil, taking account of existing treaty provisions on the subject".¹⁷

UNCLOS-III – Artificial Islands, Installations and Structures-In General

Under UNCLOS III, jurisdiction with regard to the establishment and use of *artificial islands, installations and structures* in the exclusive economic zone (EEZ) and continental shelf is dealt with in articles 60 and 80, respectively. For *artificial islands*, the coastal state has exclusive right to construct, authorize and regulate their construction, operation and use. But in the case of *installations and structures*, the jurisdiction is not unqualified. The criteria for the exercise of such a jurisdiction are whether the installations and structures are:

- (a) for the purposes provided for in articles 56 (in the case of EEZ), 77 (in the case of continental shelf) and other economic purposes [articles 60 paragraph 1(b) and 80]; or
- (b) may interfere with the exercise of the rights of the coastal state in the EEZ and continental shelf [articles 60 paragraph 1(c) and 80].

In other words, over the artificial islands, the coastal state has exclusive rights both to construct and authorize, and regulate their construction and operation, irrespective of their uses (article 60 paragraph 1(a) and 80). On the other hand, the coastal state's exclusive right to construct installations and structures and to authorize and regulate their construction and operation is governed by the purpose of these installations and structures.

The distinction is twofold. First, it is linked with all the purposes conceivable under articles 56 and 77, over which a coastal state enjoy rights or jurisdiction in the EEZ and continental shelf, i.e. resource-oriented activities and “other activities for the economic exploitation and exploration of the zone, such as the production of energy from the water, current and winds”, marine scientific research and the preservation of the marine environment and economic purposes [article 60 paragraph 1(b) read with article 56]. Second, it is concerned with interference that such installations and structures may cause to the exercise of the rights of the coastal state in the zone and shelf [article 60 paragraph 1(c)].

The conjoint effect of these two provisions, i.e. paragraphs 1(b) and (c) of article 60 is to assert coastal states supremacy *apropos* the exploration and exploitation of resources.¹⁸ The clause “and other economic purposes” occurring in article 60 para 1(b) signifies that a coastal state's exclusive right to construct “installations and

structures” is not confined to the rights enumerated in article 56. Similarly the clause “installations and structures which may interfere with the exercise of the rights of the coastal States in the zone” [article 60 para 1(c)] acknowledges a coastal state’s supremacy of exploration and exploitation of resources over other states.

Though genesis of the provision of “artificial island and installation” in UNCLOS III is the 1958 Geneva Convention on Continental Shelf, there is a marked difference between the two.¹⁹ Most importantly UNCLOS III ignores provision of 1958 Convention, which stresses that “the exploration of the continental shelf and the exploration of its natural resources must not result in any unjustifiable interference with navigation, fishing or the conservation of the living resources of the sea nor result in any interference with fundamental oceanography or other scientific research”.²⁰ This reflects a reverse trend, whereby economic interests tend to have priority over navigational interests. Apart from this, the coastal state’s power to establish installations has been enlarged enormously under UNCLOS III.

Under the Geneva Convention on Continental Shelf, 1958, the words “artificial islands” are not mentioned.²¹ The words “installation and other devices” occurring in the 1958 Convention were changed to “installations and structures” under UNCLOS III.²² Under the 1958 Geneva Convention, the “installation and other devices” could only be constructed and operated for the purposes of exploration and exploitation of natural resources”.²³ But under UNCLOS III, the scope has been widened by including “all artificial islands and all resources and other economic offshore installations” to the coastal states exclusive jurisdiction [article 60(1)]. Although there is some restriction on the establishment of installations and structures, there is no restriction on their use. In addition, the coastal states have been conferred exclusive jurisdiction, including jurisdiction with regard to customs, fiscal, health, safety and immigration laws and regulations, over these islands, installations and structures [article 60(2)].

Under UNCLOS III, artificial islands, installations and structures do not possess any territorial sea [articles 60(8) and 259], but these could have safety zones around them [articles 60(4) and 260]. As per the Geneva Convention,²⁴ the breadth of these zones is not to exceed 500 m, “except as authorised by generally accepted international standards or as recommended by the competent organisation” [article 60(5)].

As mentioned above, the words “installations and other devices”²⁵ occurring in the 1958 Geneva Convention were changed to “installations and structures” in UNCLOS III [articles 60(1) (b), 2 etc].²⁶ These words have not been defined by UNCLOS III, but at places similar words like “platforms or other manmade structures at sea and their equipment” [articles 1(5)(b)(i) and (b)(ii)], “off shore installations and artificial islands” [article 11], “installations used for carrying out activities in the Area” [article 147(2)], “installations and devices” [article 197(3)(c) and (d)], “installations and equipment” [articles 259, 261 and 262], etc. have been used.

Though this change of terminology from “device” to “structure” may not appear meaningful at first sight, it assumes importance in the light of article 60 paragraph 1(c). According to Clingam, “any installation be it military or non-military, that falls into one of these categories [i.e., article 60(1) paragraphs (a) (b) and(c)] would be prohibited. Any installation which does not fall in those categories would not be prohibited”.²⁷

Now if the “device” is used in a narrower sense than “structure”, then it cannot be considered one of the “installations and structures”, meaning thereby that a coastal state’s jurisdiction precludes the devices under article 60 paragraph 1(b), and that interference caused by these “devices” is not covered under article 60 paragraph 1(c).²⁸ According to Treves, objects “used for the tracing of submarines (e.g. sensors) and as navigational aids” are too small to be considered a “structure” and therefore may fall in the category of “device”.²⁹

Article 60 of UNCLOS III views “artificial islands” and “installations and structures” in an identical way because in both cases, due notice with respect to their construction is required to be given and also a permanent means to give warning of their presence is to be maintained. According to Rauch, since navigational rights are also involved, the “size” of the object is a relevant issue under article 60. He further substantiated his point citing article 260, in which provision for a safety zone is allowed for “research installations” and not for “equipments”.³⁰

Considering the danger these constructions may cause, UNCLOS III adopted article 5(6) of the Geneva Convention, 1958, which prohibits the construction of islands and installations and structures if they are likely to cause any interference in the use of recognized sea lanes essential to international navigation.³¹ While proposing this provision to UNCLOS I (i.e. the Geneva Convention on the

Continental Shelf, 1958), the International Law Commission observed that the provision need to be incorporated to strike a balance between new and traditional uses.³² But the main drawback in the text of 1958 Convention and UNCLOS III is that both give too much leverage to coastal states in deciding what constitutes interference in navigation.³³

UNCLOS III incorporates a separate section entitled “Protection and Preservation of the Marine Environment” (PART XII),³⁴ which specifies that states must take measures “to prevent, reduce and control the pollution of the marine environment from any source” and “to harmonize their policies in this connection”. When viewed from the perspective of offshore operations, it requires states to “take all measures necessary to ensure that activities under their jurisdiction or control are so conducted as not to cause damage by pollution to other states and their environment, and that pollution arising from incidents or activities under their jurisdiction or control does not spread beyond the areas where they exercise sovereign rights”.³⁵

The measures taken by states to prevent, reduce and control pollution of the marine environment under PART XII should, *inter alia*, cater for “pollution from installations and devices used in exploration or exploitation of the natural resources of the seabed and subsoil, in particular measures for preventing accidents and dealing with emergencies, ensuring the safety of operations at sea, and regulating the design, construction, equipment, operation and manning of such installations or devices”.³⁶

It also provides that states shall adopt laws and regulations, which are “no less effective than international rules, standards and recommended practices and procedures”³⁷ to deal with pollution caused by their offshore activities and reiterates that states are liable, in accordance with international law, to fulfil their “international obligations concerning the protection and preservation of the marine environment”.³⁸

A legal framework for international regulations relating to pollution from offshore oil activities has been incorporated in UNCLOS III³⁹ but the same has not been explored. On the other hand, the measures undertaken under the auspices of the International Maritime Organization (IMO) have been proved insufficient to serve the need. Regional agreements have also not proved to be a viable alternative. In spite of the constraints, whatever regulatory framework for the offshore activities having

been evolved under the auspices of IMO and within the regional framework, the same may prove to be helpful in adopting the international rules on the subject.

IMO Conventions Concerning Offshore Oil and Gas Activities

The IMO, a specialized agency under Art 57 of the UN Charter, has been established “to provide machinery for cooperation among Governments in the field of governmental regulation and practices relating to technical matters of all kinds affecting shipping engaged in international trade; to encourage and facilitate the general adoption of the highest practicable standards in matters concerning maritime safety, efficiency of navigation and prevention and control of marine pollution from ships”.⁴⁰ The offshore oil and gas activities have fallen within its scope to the extent that these interfere with the safety of shipping. But a fragmented legal regime for offshore oil and gas activities based on a confusing set of rules derived from different instruments has led to a bewildering scenario.

The matter becomes complex as the scope of application of each set of rules is somewhat dependent on the definition of whether the given installation or part thereof is a permanent or a disconnectable installation, or whether it is self-propelled or non-propelled, etc. While many shipping treaties and guidelines apply to offshore installations when the definition of “ship” includes offshore platform or parts thereof [such as mobile drilling units (MODUs), floating, storage and offloading unit or vessel (FSOs), floating production storage and offloading unit or vessel (FPSOs) or floating and storage unit (FSU)], this is not always the case. IMO, however, in its instructions “Guidance for the Application of Safety, Security and Environmental Protection Provisions to FPSOs and FSUs”,⁴¹ emphasizes the distinction between non-disconnectable FPSOs and FSUs (designed to be permanently moored) and disconnectable ones, and self-propelled crafts as opposed to non-propelled crafts while operating in a location.

Some of the convention provisions, which explicitly apply to oil platforms, regardless of the type, include the following:

- International Convention for the Prevention of Pollution from Ships (MARPOL) 73/78 prohibiting discharge of household solid waste, including packaging, from offshore platforms [Annex V (Prevention of Pollution by Garbage from Ships)];

- the 1996 Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972 [London Convention (1972/1996)] applying to marine pollution to waste dumped from platforms;
- the International Convention on Oil Pollution Preparedness, Response and Co-operation (OPRC), 1990, on hydrocarbon pollution, applies to critical situations affecting the platforms;
- the International Convention on the Control of Harmful Anti-Fouling Systems on Ships, 2001 (Anti-Fouling Convention);
- the International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009 (Hong Kong Convention), applies to submersibles, floating craft, floating platforms, self-elevating platforms, FSUs and FPSOs.

After the oil spill from the Torrey Canyon, which ran aground near the Scilly Isles in 1967, the need for an international agreement on liability and compensation in the event of such a spill was felt. This led to the creation of a regime for compensation for victims of oil pollution under the auspices of the IMO. The framework for the regime was provided by the 1969 International Convention on Civil Liability for Oil Pollution Damage (1969 Civil Liability Convention) and the 1971 International Convention on the Establishment of an International Fund for Compensation for Oil Pollution (1971 Fund Convention). This led to two more instruments, known as the 1992 Civil Liability Convention and the 1992 Fund Convention.

These agreements, however, only cover the pollution caused by the transport of oil or its use as fuel by ships, and leaves out oil platforms.⁴² In 1976, the Convention on Civil Liability for Oil Pollution Damage Resulting from Exploration and Exploitation of Sea Bed Mineral Resources (CLEE Convention) was drafted in London. It set out the principles of financial limited objective liability, compulsory insurance and action against the insurer but did not provide for the creation of a fund. The convention, however, could not muster the necessary ratifications to come into force.⁴³

There are two major deficiencies, as below, in the international laws governing offshore oil and gas activities,⁴⁴ which have prompted some states to take regional initiatives to fill the gap:

- *in the upstream sector*: the absence of an international framework for the conditions under which oil exploration/exploitation is authorized and monitored;
- *in the downstream sector*: the absence of a global instrument relating damage liability and compensation.

Regional Conventions/Arrangements

In the different regions of the world, various regional conventions supplement and complement the aforementioned international conventions. These include the following:

- in the North Sea: Oslo Convention (1972); OSCOM guidelines (1991) and OSPAR Convention (1992);
- in the Mediterranean: Barcelona Convention;
- in the Persian Gulf: Kuwait Convention;
- in the Red Sea and Gulf of Aden: Jeddah Convention;
- in the Black Sea: Black Sea Convention;
- in West Africa: Abidjan Convention.

The Nordic Environmental Protection Convention (1974, Convention on the Protection of the Environment between Denmark, Finland, Norway and Sweden) provides for compensation for environmental damage resulting from the discharge of oil from offshore platforms. The Convention is, however, limited to the four states that were parties to it.⁴⁵ Similarly, under Offshore Pollution Liability Agreement (OPOL), 1974, the operating companies agreed to accept strict liability for pollution damage, limited up to US \$250,000,000 per incident. OPOL covers the escape or discharge of oil from offshore facilities within the jurisdiction state parties. It initially applied to offshore facilities within the jurisdiction of the United Kingdom of Great Britain and Northern Ireland but it was subsequently extended to Denmark, the Federal Republic of Germany, France, the Republic of Ireland, the Netherlands, Norway, the Isle of Man, the Faroe Islands and Greenland, but it excludes the Baltic and Mediterranean Seas.⁴⁶

There is no regional convention/arrangement covering the India Ocean and for that matter, the Bay of Bengal. The reasons are obvious. The region was never perceived as a potential source of oil and gas.

Comité Maritime International (CMI)⁴⁷

In 1977, the CMI drafted a Convention on Offshore Mobile Craft (known as “Rio Draft”) at a Conference held in Rio de Janeiro and the same was submitted to IMCO for consideration. In 1990, when this draft came up for consideration before the IMO Legal Committee, it was decided to ask the CMI whether, in the light of post-1977 developments, there was a need to revise the Rio Draft. The objective of the 1977 Rio draft was to clarify certain recognized principles of maritime law, which were already applicable to ships but not to the new types of craft used in the exploration and exploitation of offshore mineral resources, as these did not fall within the recognized definition of a ship.⁴⁸

With the increase in offshore activities in the post-1977 period, many new crafts came into use, which made the legal position confused. At the 1994 CMI Conference in Sydney, a revised version of the 1977 Rio Draft, called the Sydney Draft, was adopted. It resolved that the CMI should establish “a working group for the further study and development, where appropriate, of an international convention on offshore units and related matters”. Accordingly, a working group was formed. It recommended that the basic structure of the Rio Draft, which incorporated elements of other international conventions for application to offshore craft, remained, with appropriate modifications.

In spite of the Rio Draft, the IMO’s Committee of the Marine Environment felt that there was no need to adopt a legal instrument for offshore installations, but in 1995, the IMO’s Legal Committee asked the CMI to pursue an entirely new approach that would no longer distinguish between fixed and mobile platforms. The CMI entrusted this task to the Canadian Maritime Law Association (CMLA), who in March 1996 issued a “Discussion Paper”. It favoured the preparation of a global instrument for subsequent negotiation within the IMO framework by the CMI. The CMLA also produced a draft framework document in 2001 for an International Convention on Offshore activities.

However, due to the reluctance of the International Association of Drilling Contractors and the Maritime Law Association of the USA, no progress could be made in this regard. They took the position that presently there is no need for an offshore units convention and that the existing regimes of unilateral coastal state regulation and contractual allocation of risks through licensing and the commercial development process are adequate.⁴⁹

From the environmental perspective, the other important aspect relating to the offshore oil and gas is removal of decommissioned/abandoned oil and gas platforms.

Decommissioning/Abandoning/Dumping of the Offshore Rig/ Platform

The international legal regime dealing with decommissioning and abandonment of offshore facilities has matured over the last 50 years. There are three major international conventions that apply to the removal and disposal/dumping of offshore installations, namely the 1958 Geneva Convention on the Continental Shelf; 1972 London Dumping Convention and UNCLOS III. In addition to that, in 1989, the International Maritime Organisation (IMO) also issued “IMO Guidelines and Standards for the Removal of Offshore Installations and Structures on the Continental shelf and in the Exclusive Economic Zone”.

The 1958 Geneva Convention stipulates that “any installations which are abandoned or disused must be entirely removed”. The Convention, however, does not include abandoned pipelines as part of the infrastructure to be removed. Similarly, UNCLOS III provides that “any installations or structures [in the EEZ/ Continental Shelf] which are abandoned or disused shall be removed to ensure safety of navigation . . .” [article 60(3)]. The majority of offshore producers are parties to the 1958 Geneva Convention. Those countries that subsequently ratified UNCLOS III are governed by the latter Convention. All littoral states of the Indian Ocean are parties to UNCLOS III.

Regarding the removal of abandoned or disused installations, the 1958 Geneva Convention had incorporated the requirement for complete removal.⁵⁰ Under UNCLOS III, this requirement was relaxed by stating that abandoned or disused

installations (artificial islands are not included) are to be “removed to ensure safety of navigation, taking into account any generally accepted international standards established in this regard by the competent international organisation”. Furthermore, “Appropriate publicity shall be given to the depth, position and dimensions of any installations or structures not entirely removed.”⁵¹ This change of stance in relaxing the “entire removal” clause is partly linked to the prohibitive cost involved in removing these installations.⁵² But when safety of navigation is endangered, the entire removal clause would have to be made operative.

Dumping at Sea

Article 1(5) of UNCLOS III defines “Dumping” as “any deliberate disposal of wastes or other matter from vessels, aircraft, platforms or other man-made structures at sea; any deliberate disposal of vessels, aircraft, platforms or other man-made structures at sea”. But this definition does not include “placement of matter for a purpose other than the mere disposal thereof, provided that such placement is not contrary to the aims of this Convention”. Article 210 of UNCLOS III obligates the states to enact regulations and take necessary measures to prevent, reduce and control pollution of the marine environment by dumping.

Dumping as such has not been prohibited but the requirement is that “dumping is not carried out without the permission of the competent authorities of States”. The dumping activity is further regulated by the 1972 London Dumping Convention, which predates UNCLOS III. The definition of dumping in the 1972 London Dumping Convention is similar to that in UNCLOS III. However, in it the “disposal of wastes or other matter directly arising from, or related to the exploration, exploitation and associated off-shore processing of sea-bed mineral resources” is excluded. The 1972 London Dumping Convention prohibits the dumping of some substances, and does not permit the dumping of some others, subject to the issuance of permits.

The 1972 London Dumping Convention was amended by a Protocol of November 1996. With this, the definition of “Dumping” was amended to include: “Any abandonment or toppling at site of platforms or other man-made structures at sea, for the purpose of deliberate disposal” and therefore the Convention prohibits

the disposal of offshore platforms at sea, either totally or partially. Abandonment of pipelines does not constitute “dumping” under the Convention.

International Maritime Organization Standards

In 1989, the IMO adopted the “Guidelines and Standards for the Removal of Offshore Installations and Structures on the Continental Shelf and in the Exclusive Economic Zone”.⁵³ The standards require the removal of abandoned or disused offshore installations or structures except in certain specified circumstances. Removal is to be carried out as soon as reasonably practicable after abandonment of the installations or structures. Furthermore, it is to be performed in such a way as to cause no adverse effect upon navigation or the marine environment.

An “installation or structure” need not be entirely removed if the installation (excluding the deck and superstructure) weighs more than 4000 tonnes in air or is located below 100 m of water. A coastal State may determine whether an installation or a structure could be left wholly or partially in place, provided it does not cause unjustifiable interference to other users of the sea or where it will serve some purpose, such as the enhancement of a living resource. A coastal state may determine that an “installation or structure” may not be entirely removed in the following circumstances:

- if it is not technically feasible;
- if extreme cost is involved;
- if it involves an unacceptable risk to personnel;
- if it involves unacceptable risk to the marine environment.

However, from 1998 onwards the design and construction of all installations and structures have to be made in such a way as to make the entire removal feasible. This is particularly applicable to installations or structures located at:

- *approaches to or in straits used for international navigation, or*
- *routes used for international navigation through archipelagic waters, in customary deep draught sea lanes, or*
- *adjacent to, routeing systems adopted by the Organization.*

The decision to allow an “installation or structure” to remain on the seabed should be based on a case-by-case evaluation of the range of matters:

- the potential effect on the safety of surface or subsurface navigation or other uses of the sea;
- the rate of deterioration of the material and its possible effect on the marine environment;
- the potential effect on the marine environment, including living resources;
- the risk that the material will shift from its position in future;
- the cost, technical feasibility and risk of injury to personnel associated with removal;
- the reasonable justification for allowing the “installation or structure” to remain on the seabed.

Prior to giving consent for partial removal of any “installation or structure”, the coastal state is expected to ensure that remaining material shall remain and not move under the impact of waves, tides, currents, storms or other natural causes so as to cause a hazard to navigation.

The process for allowing an “installation or structure” or part thereof to remain on the seabed should include the following:

- specific official authorization identifying the conditions under which some or all of the “installation or structure” will be allowed to remain on the seabed;
- adoption of a specific plan to monitor accumulation and deterioration of material left on the seabed to ensure that there is no adverse impact on navigation, other uses of the sea or the marine environment;
- advance notice to mariners on the specific position, dimension, surveyed depth and marking of the “installation or structure”;
- advance notice to appropriate hydrographic services to allow for timely revision of nautical charts;
- notification on non-removal or partial removal to the IMO.

Where the coastal state consents to partial removal of any “installation or structure”, the following measures would have to be taken:

- the coastal State should ensure that legal title to “installations and structures” is unambiguous and that responsibility for maintenance and the financial ability to assume liability for future damages are clearly established;
- the position, surveyed depth and dimension of the material should be indicated on nautical charts and, where necessary, the remains should be properly marked with aids to navigation;
- periodic monitoring of the remains should be conducted.

Global acceptance of UNCLOS III implies that its discretionary article 60(3) and the IMO Guidelines are indicative of the fact that the strict application of article 5(5) of the 1958 Convention on the Continental Shelf has been superseded to the extent of representing customary international law. It may be argued that for the states that are only parties to the 1958 Continental Shelf Convention and not to UNCLOS-III, compliance with the full removal clause is the norm. But as time passes and the states follow article 60(3) more widely, the obligation under the 1958 Continental Shelf Convention would apply only to the extent that its provisions are compatible with those of the later treaty.⁵⁴

Under national jurisdiction, issues relating to removal of decommissioned offshore platform (oil rigs) can be viewed from two perspective, namely national legislation and the Host Government Agreement (HGA).⁵⁵ National legislation on the subject is an effective means to regulate such activities but unfortunately most countries don't have such legislations in place. The HGA invariably contains provision for the removal of decommissioned/disused offshore platform (oil rigs) but these agreements are in the nature of commercial contracts between the host country and the offshore operators, and therefore cannot be equated with statutory provisions. Non-fulfilment of obligation under such agreements does not entail any punitive action and therefore, these do not act as deterrent.

Recent Developments

At present, a fresh debate has been initiated to regulate the oil and gas offshore activities with a view to contain the menace of environmental pollution due to offshore activities. In this connection, the Russian initiative before G20 and the Indonesian Proposal to IMO are noteworthy.⁵⁶

Russian Initiative

At the G20 summit in Seoul (November 2010), the Russian President Dmitri Medvedev announced that his country would seek approval of the 2011 G20 on the adoption of a convention on pollution resulting from offshore oil activity. Earlier, he had raised this issue on World Environment Day on 5 June 2010, when he focused on the deficiencies of international law in terms of both risk prevention and the clean-up of environmental damage.⁵⁷ The Russian initiative led to the launching of a G20 Global Marine Environment Protection (GMEP) Initiative and a corresponding Working Group was created in 2010.⁵⁸

The effort led to the following declaration during the 2011 Cannes Summit:⁵⁹

We decide to take further action to protect the marine environment, in particular to prevent accidents related to offshore oil and gas exploration and development, as well as marine transportation, and to deal with their consequences. We welcome the establishment of a mechanism to share best practices and information on legal frameworks, experiences in preventing and managing accidents and disasters relating to offshore oil and gas drilling, production and maritime transportation. We ask the Global Marine Environment Protection working group, in cooperation with the OECD, the International Regulators Forum and OPEC, to report next year on progress made and to establish this mechanism in order to disseminate these best practices by mid-2012, at which point it will be reviewed. We also commit to foster dialogue with international organisations and relevant stakeholders.

The Working Group concluded that the best option was to establish a mechanism in the form of a website “plus”, a specialized website portal complemented by face-to-face activities (such as conferences, seminars and training), database and other information on offshore oil and gas activities. In the fourth meeting held in Paris in March 2012, the Group developed a mock-up website in cooperation with OECD, OPEC and IRF, and the same was to be upgraded and transformed into a fully fledged operational website.⁶⁰ According to the Russian strategic agenda for G20 in 2013, the endeavour would be to reach tangible results on “[A] fully operational GMEP website as a tool to implement the Global marine environment protection initiative”.⁶¹

Indonesian Proposal

In August 2009, an accident on the Australian Montara offshore oil platform caused significant water damage in the Timor Sea. In the absence of trans-boundary agreement on oil spill, liability and compensation left Indonesia uncompensated for the damage. In the aftermath of the accident, Indonesia made the following proposal in the 97th session of the IMO Legal Committee:⁶²

- develop an international instrument to address the question of liability and compensation in the case of trans-border pollution caused by offshore exploration and exploitation;
- consider the possibility of establishing a supplementary fund regime for the purpose of the proposed liability and compensation for oil pollution damage resulting from offshore oil exploration and exploitation activities.

Brazil had reservations about the Indonesian proposal. It submitted a formal proposal to refer the matter to the Legal Committee to determine whether Indonesia's proposal fell within the Organization's competence and was compatible with IMO's conventions.⁶³ Before the Committee, Brazil took the stand that "offshore exploration and exploitation activities" are carried out on the continental shelf of states and therefore, regulated by national law. As for oil pollution extending beyond national jurisdiction, the "matter needs to be looked at from a regional point of view, since geographical realities do differ worldwide". Brazil further argued that agreements at the "regional and bilateral levels are the most appropriate instruments to address the issue" and that creation of an international regime does not seem to be the appropriate way forward.⁶⁴

To deliberate over the issue, the Government of Indonesia held an International Conference on Liability and Compensation Regime for Transboundary Oil Damage Resulting from Offshore Exploration and Exploitation Activities in Bali, Indonesia, on 21–23 September 2011.⁶⁵ The Conference was attended by eight states⁶⁶ and representatives from the United Nations Environment Programme (UNEP). The Conference concluded that:

- the IMO is a reliable and appropriate forum to address the issue due to its characteristics, experience and expertise as a specialized agency of the UN system;

- in order to optimize the work, all similar and relevant activities in other international organizations including G20 and UNEP should be synergized.

The US and Australian Enquiries into the Macondo and Montara incidents concluded that “drilling technology for deepwater operations was noted to be some 30 years ahead of safety and environmental techniques and practices”⁶⁷ and their recommendations, *inter alia*, included the framing of tighter regulations by the coastal state in whose EEZ the drilling is to take place. The recommendations have not so far been implemented, but deep/ultradeep water drilling continues unabated with corresponding increase in the risk to the marine environment.⁶⁸ The Legal Committee (IMO), however, recognized that bilateral and regional arrangements were the most appropriate way to address the issue but it considered that there was no compelling need to develop an international convention on this subject. Accordingly, the Committee wanted further deliberations on the liability and compensation issues connected with trans-boundary pollution damage resulting from offshore oil exploration and exploitation activities.⁶⁹

Indian Ocean and Offshore Activities

Compared with other regimes of the world, offshore exploration in the Indian Ocean is a late starter. In the Bay of Bengal, it started after India and Myanmar struck oil and gas in 2005. The Bay is perceived as a potential source for hydrocarbons, and deposits of oil and gas in the Bay have already been discovered by India and Myanmar. These discoveries point to a promising exploration future for the Bay of Bengal and therefore have attracted many international oil and gas E&P companies to the region.

The northern Bay of Bengal has two major deltas: the Ganges–Brahmaputra and Irrawaddy in the northern coastline and Krishna–Godavari, Mahanadi and Mangalagiri along the Orissa–Andhra coasts. Delta regions generally contain some of the most productive sandstone reservoirs for oil and gas (cf. the Mississippi delta in the Gulf of Mexico). These deltas are potential gas- and oil-producing hydrocarbon provinces in the region.⁷⁰

As per the US Energy Information Administration report, India had 5.5 billion barrels of proved oil reserves at the end of 2012, mostly in the western part of the country and 43.8 trillion ft³ of natural gas reserves, mostly located offshore.⁷¹ In the

west coast of India, the oil production from Bombay High, an offshore oilfield located at about 160 km off the coast of Mumbai, India, started somewhere in the early 1970s. India has an estimated sedimentary area of 3.14 million km², comprising 26 sedimentary basins of these 1.35 million km² area in deep water.⁷²

With the implementation of the New Exploration Licensing Policy (NELP) in 1999, about 11% of Indian sedimentary basins were brought under exploration by 2006. It constituted about 1.38 million km² and under NELP was held by national oil companies, namely the Oil & Natural Gas Corporation Limited (ONGC), OIL India Limited (OIL) and a private/joint venture company.⁷³ The first crude oil production from deepwater block D6 in the Krishna–Godavari Basin was started in 2008 by Reliance Industries Limited (RIL) and NIKO Resources Limited. The largest natural gas discovery in the country was made in Krishna–Godavari deepwater, from where production started in 2009.⁷⁴ According to the report of the Directorate General of Hydrocarbons, there have been significant forward steps in exploring the hydrocarbon potential of the sedimentary basins of India in waters off the west coast, east coast and in the Andaman Sea.⁷⁵

As per the Daewoo International Corporation/Myanma Oil and Gas Enterprise report, Myanmar's proven reserves are estimated at 50 million barrels of oil (bbl) and 283.2 billion cubic metres (Bcm) of natural gas. It would open massive opportunities for operators, contractors and service providers to explore in the years to come. For international investors, it is going to prove to be the next exploration hotspot in the Southeast Asia region.⁷⁶

For energy-starved Bangladesh, exploration for hydrocarbon in the Bay of Bengal is a necessity. Exploration activities are gradually picking up in Bangladeshi waters.⁷⁷ Some recent discoveries have revealed that oil and/or gas potential exists in the Mannar Basin to the west, the Cauvery Basin to the north, the Bengal fan deposits to the east, and the newly identified sedimentary basins to the south of the island.⁷⁸ In October 2011, Cairn Lanka, a fully owned subsidiary of Cairn India, announced it had discovered natural gas deposits in Dorado, a Sri Lankan exploratory well located in Mannar Basin.⁷⁹

On the western front of India and in the Indian Ocean thereof, offshore oil E&P has been in progress for a long time. Since major exploration activities were localized in the gulf region, other countries of the Indian Ocean region have not felt a need to frame rules to regulate E&P-related activities in the region.

In the absence of an internationally recognized maritime boundary between India and Bangladesh, and Bangladesh and Myanmar, the exploration activity in Bay of Bengal has been adversely affected. The new discoveries, which have attracted many international E&P companies to the region, necessitate well defined maritime boundaries between the three countries. Bangladesh in effect has initiated the process of demarcating the maritime boundary as per the mandate of UNCLOS.

In October 2009, Bangladesh instituted arbitral proceedings under Annex VII of UNCLOS against India and Myanmar. Myanmar chose the International Tribunal for the Law of the Sea (ITLOS), Hamburg, as a forum to decide the case with Bangladesh (ITLOS), whereas India preferred Arbitration. By its judgment dated 14 March 2012,⁸⁰ ITLOS has delimited the maritime boundary between Bangladesh and Myanmar in the Bay of Bengal. The case between Bangladesh and India, however, is continuing before an Permanent Court Arbitration (PAC), the Hague,⁸¹ which is likely to deliver its award sometime in 2014.

With the settlement of maritime boundaries, the littoral state's efforts to explore and exploit offshore hydrocarbon reserves are bound to increase, with a consequential effect on environment. The environmentally related potential risks of such activity, which *inter alia* include oil leakage affecting coastal populations, commercial fisheries, marine and coastal tourism, coastal mangroves, migratory species and biodiversity, are going to be grave. Since pollution in the international waters is migratory in nature, every littoral state of Indian Ocean and the countries bordering the Bay of Bengal would have to plan ahead, not only to prepare responsive measures but also to observe provisions of international law (both at national and international sphere) to ensure prompt compensation, in the eventuality of any mishap.

Conclusion

In India, the existing petroleum laws and regulations are primarily enacted to regulate onshore explorations and production of oil. These legislations need to be updated to include offshore activities, but mere strengthening of laws may not be decisive in solving the problems of the region. National legislation is limited to territorial jurisdiction and applies to national waters only.

UNCLOS III broaches the issue but does not provide an effective mechanism to tackle the problem of commissioning/decommissioning of the offshore platforms.

Many countries of the Indian Ocean region (including India) are not a party to 1972 London Dumping Convention. IMO guidelines on the subject lack obligatory commitments, as these are framed keeping in view the navigational commitments rather than environmental concerns. The need is to evolve regional agreement whereby the activities related to offshore platforms in the region can be regulated effectively. Multi-lateral regional consensus will command better acceptance and will be beneficial to all concerned.

The Commissions of Enquiry examining “Montara” and “Deepwater Horizon” accidents have stated that the offshore industry is in need of better regulation, particularly in respect of safety and risk management.⁸² For obvious reasons, industry operators would prefer to be left alone to manage their operations without government intervention but creating an international instrument setting minimum standards of best practices, and orderly compensation to pollution victims, would be a welcome option.⁸³ There are two possible avenues to achieve a new convention: under UNCLOS-II or IMO.⁸⁴ In the case of UNCLOS-III, it is the article 235⁸⁵ of the Convention that creates “responsibility and liability” for states to adopt convention of such nature.

It goes without saying that there is an immediate need to establish an international liability and compensation regime. An oil spill caused by an offshore exploration or exploitation accident knows no boundaries and it might occur in any part of the world. Therefore, it has to be insured that for no fault, the citizens of neighbouring countries are not penalized by an erring neighbour. To understand this, we do not have to wait for a major mishap to occur in the region. Therefore, India needs to adopt a three-fold strategy:

- (1) legislate comprehensive Indian Petroleum Laws covering, *inter alia*, all aspects of commissioning/decommissioning of offshore platforms (oil rigs etc.);
- (2) take a lead in making littoral states of the India Ocean to agree on multi-lateral regional arrangements for dealing with problems related to offshore drilling;
- (3) aligning with countries that have already raised the issue of evolving an *international mechanism of liability and compensation regime* for the environmental damages resulting from offshore exploration activities, to adopt an international convention.

The problem envisaged and deliberated upon here is not country centric. It is *international in nature* with *regional repercussions* and therefore needs to be studied in wider perspective with *an eye on an international solution*.

Notes

1. The oil and gas industry is usually divided into three major sectors:
 - the *upstream* sector involves E&P;
 - the *midstream* sector involves transportation, storage and marketing;
 - the *downstream* sector involves refining of petroleum crude oil, etc.
2. Zhiguo Gao, "Environmental Regulation of the Oil and Gas Industries", <http://www.dundee.ac.uk/cepmlp/journal/html/vol2/article2-11.html> (accessed 2 December 2012).
3. On 21 August 2009, following the explosion of a well on the Montara Platform located in the Australian EEZ and operated by PTTEP, a Thai-owned company, oil spilled into the Timor Sea and continued leaking for about 74 days. The Australian Maritime Safety Authority (AMSA) reported a massive oil slick spread over 6000 km² of ocean, killing the marine life and affecting waters under Indonesian jurisdiction. This oil slick covered 11,183 km². Results of the scientific monitoring studies on the Montara oil spill showed its huge impact on the marine ecosystem.
4. On 20 April 2010, the Deepwater Horizon rig on the Macondo well in the Gulf of Mexico exploded, caught fire and sank, making the world's most serious oil release ever. After several failed attempts, the operator of the field, British Petroleum, regained control of the situation after 85 days. By then, 4.9 million barrels of oil had been released into the ocean.
5. In June 2011, a series of spills occurred in Bohai Bay in the Yellow Sea. The Sino-American rig operating in Penglai 19-3 oilfield leaked a large amount of oil that covered an area of 840 km² within a month. In November, the authorities admitted that the leak have polluted an area of about 6600 km² and caused damage to coastal communities whose livelihoods depend on the sea.
6. On 25 March 2012, at the Elgin Well head platform (a separate bridge-linked unit), a gas leak occurred while an operation to plug and decommission the well was on. Methane gas was released into the environment as between 2 and 23 tonnes of condensate, which formed a sheen measuring approximately 6 nautical miles (11 km; 6.9 mi) in length. The HM Coastguard declared an exclusion zone for ships [2 nautical miles (3.7 km; 2.3 mi)] and aircraft (3 mi (4.8 km)].
7. In the late 1800s, a person named Henry L. Williams was the first to venture offshore. He built a 300-foot wooden wharf into the Pacific that was the world's first offshore rig. The

- Kerr–McGee Co., however, drilled the first truly offshore oil well in 1947, located 10.5 mi off the Louisiana coast. Russell McLendon, “Offshore drilling: Low bills vs. big spills” (May 27 2010), <http://www.mnn.com/earth-matters/translating-uncle-sam/stories/offshore-drilling-low-bills-vs-big-spills> (accessed 19 March 2013).
8. Russell McLendon, “Types of offshore oil rigs”, <http://www.mnn.com/earth-matters/energy/stories/types-of-offshore-oil-rigs> (accessed 19 March 2013).
 9. Steel risers (tubing) are used to bring oil from the seabed to floating production platforms. In deepwater applications (3000–5000 ft), heavy steel risers require expensive tensioning and buoyancy systems. For ultra deep operations in water depths of 5000–13,000 ft, the size and weight of conventional steel risers becomes cost prohibitive, inhibiting the exploitation of substantial offshore domestic oil reserves. The use of lighter-weight CPRs reduces the platform weight together with floatation and tensioning requirements, and overcomes one of the greatest limiting factors in offshore oil production, i.e. increasing riser loads that floating platforms have to support in increasing water depths. See: “Composites Manufacturing Technologies: Applications in Automotive, Petroleum, and Civil Infrastructure Industries”, <http://www.atp.nist.gov/eao/grc04-863/chapt4.htm> (accessed 19 March 2013).
 10. Note 1 ante, and E&P in the Marine Environment, <http://www.world-petroleum.org/index.php?/Environment/exploration-a-production-in-the-marine-environment.html> (accessed 19 March 2013).
 11. Youna Lyons, “Offshore Oil and Gas in the SCS and the Protection of the Marine Environment – Part 2: Legal and Governance Framework”, p. 3, http://cil.nus.edu.sg/wp/wp-content/uploads/2010/10/OG_SCS_CIL-Part206oct2011-1.pdf (accessed 19 March 2013)
 12. The First United Nations Conference on the Law of the Sea (UNCLOS I) held from 24 February–29 April 1958. UNCLOS I adopted four conventions and an optional protocol, which are commonly known as the 1958 Geneva Conventions: The Convention on the Territorial Sea and the Contiguous Zone (CTS); The Convention on the High Seas (CHS); The Convention on Fishing and Conservation of the Living Resources of the High Seas (CFCLR); The Convention on the Continental Shelf (CCS); and the Optional Protocol of Signature concerning the Compulsory Settlement of Disputes (OPSD).
 13. Article 2(1) UNCLOS I (Continental Shelf).
 14. Article 3. Ibid.
 15. Nikos Papadakis, *The International Legal Regime of Artificial Islands* (Leyden: Sijthoff, 1977), p. 67.
 16. Art 5, Convention on Continental Shelf, Geneva 1958.
 17. Art 24, Convention on the High Seas, Geneva 1958.
 18. Rex J. Zedalis, “Military Installations Structures & Devices on the Continental Shelf-A Response”, *American Journal of International Law*, 75: 927 and 928.

19. David Attard, *The Exclusive Economic Zone in International Law* (Oxford: Clarendon Press, 1987), p. 88.
20. Article 5(1) Convention on Continental Shelf, Geneva 1958.
21. See Articles 5(2) of Convention on Continental Shelf, Geneva 1958 and 60 of UNCLOS III.
22. *Ibid.*
23. Article 5(2), UNCLOS III.
24. Article 5(3), Convention on Continental Shelf, Geneva 1958.
25. Article 5(2), *ibid.*
26. Jens Evensen Group introduced this change during the 1975 Geneva Session. See Tullio Treves, "Military Installations on the Sea Bed", *American Journal of International Law*, 74, note 192 at p. 841 (1980).
27. T.A. Clingam, in *Law of the Sea – Neglected Issues. Proceeding of the 12th Annual Conference of the Law of the Sea Institute*, ed. John King Gamble, The Hague (1979), p. 418.
28. Tullio Treves, p. 841.
29. *Ibid.*
30. Since these are very small devices, they cannot impede or endanger navigation, hence no safety zone is allowed around them. Elmar Rauch, "Military Uses of the Oceans", *German Yearbook on International Law*, 28: 255 and 256 (1985).
31. Article 60(7). See Attard, note 19, p. 91.
32. *ILC Year Book* (Vol. II), 1956, p. 299.
33. Jean Dominique Wahiche, "Artificial Structures & Traditional Uses of the Sea-the Field of Conflict", *Marine Policy (UK)*, 7(1) (1983): 37 and 39.
34. Part XII, Protection and Preservation of the Marine Environment, UNCLOS III.
35. Art 194(2), *ibid.*
36. Art 194(3) (c), *ibid.*
37. Art 208(3), *ibid.*
38. Art 235, *ibid.*
39. Art 235(3), *ibid.*, and Justice Steven Rares, "An International Convention on Off-Shore Hydrocarbon Leaks?", *2011 Biennial Mini Conference of the Maritime Law Association of Australia and New Zealand (NSW Branch)*; Lilianfels, Katoomba 11 March 2011, <http://www.fedcourt.gov.au/publications/admiralty-papers/20110311> (accessed 19 March 2013).
40. Article 1(a), IMO Convention.
41. IMO Doc: MSC-MEPC.2/Circ.9, dated 25 May 2010.
42. Lucien Chabason, Offshore oil exploitation: a new frontier for international environmental law, Working Papers N°11/2011. Iddri, 2011. p. 9, <http://www.iddri.org/Publications/Offshore-oil-exploitation-a-new-frontier-for-international-environmental-law> (accessed 21 March 2013).

43. Richard Shaw, "Regulation of Offshore Activity – Pollution Liability and Other Aspects". Comite Maritime International Beijing International Conference 2012, www.cmi2012beijing.org/dct/attach/Y2xiOmNsYjpwZGY6Mjg5NDY= (accessed 21 March 2013)
44. Lucien Chabason, *op. cit.*
45. Para 10, IM Doc. LEG 98-13.
46. IMO Doc: LEG 99/13/2, Annex, p. 1, dated 2 March 2012.
47. According to Article 1 of the CMI Constitution: "...It is a not-for-profit international organization established in Antwerp in 1897, the object of which is to contribute by all appropriate means and activities to the unification of maritime law in all its aspects.
To this end it shall promote the establishment of national associations of maritime law and shall co-operate with other international organizations."
48. Richard Shaw, *op. cit.*
49. *CMI News Letter*, NO. 1 – January/April 2004.
50. Article 5(5), Convention on Continental Shelf, Geneva 1958.
51. Art. 60(3) UNCLOS III. At the eleventh session (1982), UK introduced this revised para (3). See United Nations Convention on the Law of the Sea 1982, A commentary, Nordquist M.H. Editor, Volume II, p. 583.
52. Attard, note 19, p. 92.
53. Guidelines and Standards for the Removal of Offshore Installations and Structures on the Continental Shelf and in the Exclusive Economic Zone, IMO, 19 Oct 1989, http://www.imo.org/Newsroom/contents.asp?doc_id=628&topic_id=227 (accessed 22 March 2013).
54. M.N. Tsimplis, "Scrapping of Vessels and Off-Shore Installations: Regulation and Liability", p. 7, <http://core.kmi.open.ac.uk/display/23123> (accessed 22 March 2013).
55. A legal agreement between a foreign investor and a local or host government governing the rights and obligations of the foreign investor and the host government concerning the development, construction and operation of a project by the foreign investor.
56. Lucien Chabason, note 42 ante.
57. Russian initiative on global marine environment protection, http://www.postzambia.com/post-read_article.php?articleId=13985 (accessed 22 March 2013).
58. "The initiative was first approved at the G20 Toronto Summit in June 2010; initially referred to as GMEP Expert Sub-Group, at the French G20 Presidency proposal it was transformed into GMEP Working Group". Note 1 of G20 Global Marine Environment Protection (GMEP), Progress Report on Best Practices Sharing Mechanism (June 2012) available at www.hse.ru/data/2013/01/21/1305665435/Marine_Environmental_Protection.pdf (accessed 22 March 2013).
59. "Protecting Marine Environment (Para 58), Cannes Summit Final Declaration", 4 November 2011, <http://www.g20.utoronto.ca/2011/2011-cannes-declaration-111104-en.html> (accessed 22 March 2013).

60. Progress Report, note 58 ante.
61. Para. V. “Energy Sustainability, The Russian Presidency of the G20: Outline” (December 2012), p. 16, <http://www.g20.org/load/781110753> (accessed 22 March 2013).
62. IMO Doc: LEG 97/14/1, 10 September 2010.
63. Eighteen delegations including India supported the proposal of sending this question back to the LEG for a review of its legal aspects. [Para 6, p. 2, IMO Doc. LEG_99-13-xx (06 Jan 2012)]
64. Statement by Brazil: Annex 7 to LEG 98/14 (18 April 2011).
65. IMO Doc: LEG 99/13/2, dated 02 March 2012; “Marine Environment Protection (GMEP), Progress Report on Best Practices Sharing Mechanism (June 2012)”, www.hse.ru/data/2013/01/21/1305665435/Marine_Environmental_Protection.pdf (accessed 22 March 2013).
66. Eight States: Australia, Egypt, Indonesia, Malaysia, Norway, Thailand, Singapore and the USA.
67. Piper Alderman and Andrew Price, “The outcomes from the Montara and Macondo oil spill incidents” (Australia, USA, 7 June 2011, <http://www.lexology.com/library/detail.aspx?g=a0a26f82-aa66-4a4c-ac01-c7cdf962f22> (accessed 20 March 2013).
68. Richard Shaw, note 43 ante.
69. *CMI Newsletter* No. 1 (January–April 2012).
70. Ananda Gunatilaka, “Hydrocarbon Deposits in the Indian Ocean around Sri Lanka – An Overview”, www.slaas.lk/HYDROCARBON%20DEPOSITS%20IN%20THE%20INDIAN%20OCEAN%20AROUND%20SRI%20LANKA%201.pdf (accessed 20 March 2013).
71. “EIA Report - Country India”, <http://www.eia.gov/countries/country-data.cfm?fips=IN> (accessed 29 March 2013).
72. Ministry of Petroleum & Natural Gas, Annual Report 2007–08.
73. *Ibid.*
74. Ministry of Petroleum & Natural Gas, Annual Report 2009–10.
75. DGH Annual Report 2011–12, p. 8.
76. “Hydrocarbon Potential of the Eastern Bengal Fan System in Offshore Northwest Myanmar”, www.searchanddiscovery.com/abstracts/pdf/2006/intl_perth/abstracts/ndx_yang_02.pdf (accessed 29 March 2013).
77. Australian oil and energy firm Santos has found commercially viable reserves of natural gas in the Bay of Bengal in one of three wells drilled at Sangu off Chittagong port: 15 February 2012 (Reuters), “Australia’s Santos finds new gas in Bay of Bengal”, <http://www.reuters.com/article/2012/02/15/santos-bangladesh-idUSL4E8DF3ET20120215> (accessed 28 March 2013).
78. “Maritime Security Concerns in the Indian Ocean: Sri Lanka’s Perception of Overcoming Challenges – Adm. R.C. Wijegunaratne”, www.galledialogue.com/assets/pdf/rear_admiral_rc_wijegunaratne.pdf (accessed 29 March 2013).

79. Ananda Gunatilaka, op.cit. and “Great potential for natural gas in Mannar Basin – Cairn official”, http://www.priu.gov.lk/news_update/Current_Affairs/ca201302/20130201great_potential_natural_gas_mannar_basin.htm (accessed 20 March 2013).
80. Judgment available at www.itlos.org/fileadmin/itlos/documents/cases/case_no_16/1-C16_Judgment_14_02_2012.pdf (accessed 20 March 2013).
81. Bangladesh v. India, Permanent Court of Arbitration, http://www.pca-cpa.org/showpage.asp?pag_id=1376 (accessed 28 March 2013).
82. Richard Shaw, note 43 ante.
83. Ibid.
84. Justice Steven Rares, note 39 ante.
85. Article 235-Responsibility and liability:
 1. States are responsible for the fulfilment of their international obligations concerning the protection and preservation of the marine environment. They shall be liable in accordance with international law.
 2. States shall ensure that recourse is available in accordance with their legal systems for prompt and adequate compensation or other relief in respect of damage caused by pollution of the marine environment by natural or juridical persons under their jurisdiction.
 3. With the objective of assuring prompt and adequate compensation in respect of all damage caused by pollution of the marine environment, States shall cooperate in the implementation of existing international law and the further development of international law relating to responsibility and liability for assessment of and compensation for damage and the settlement of related disputes, as well as, where appropriate, development of criteria and procedures for adequate payment.