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**A STUDY ON THE EFFECTS OF OIL SPILL ON THE MARINE  
ENVIRONMENT WITH SPECIFIC REFERENCE TO THE WAKASHIO OIL  
SPILL**

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**ABSTRACT**

Contamination of the sea due to petroleum oil spill is a major environmental concern which possesses a great threat to both terrestrial and aquatic habitat. This article has its main focus on the marine environmental pollution caused due to oil spills in the international perspective. Oil in the sea, whether from spills or consistent discharge is a major environmental problem. The spill of fuel oils such as gasoline and diesel do not remain longer in the sea and evaporate quickly, the spill of heavy oils such as crude oil, bitumen, bunker oil which seem black and dense, tend to stay and spread in the sea for months and even years, until they're removed. When organisms come in contact with these heavy oils that are split in the sea, they encounter various deadly consequences. Major issues of oil spills receive serious public attention due to its impact on marine wildlife, especially seabirds, fish, turtles and shoreline animals. Such an impact is said to be over only when the aquatic conditions get back to normal after a complete recovery. But the determination of both effects and recovery are difficult in a dynamic marine environment. Therefore, the aim of this article is to discuss the significance of such oil spills on the marine environment by using the Wakashio Oil Spill, 2020 caused by the Japanese Oil Vessel that had an alarming impact on Mauritius. The literature available shows that this disaster has been assessed for its damage caused but its impact on the Indian Ocean and further the consequences faced by Japan would be the content of this article. This would be incomplete without analysing the legal aspect in this regard. Thus, the last part of the article enlists the existing legal structure for marine oil spills which consists of the International Conventions i.e. UN conventions and those on Civil liability for oil pollution damage. In addition to these, conventions on oil pollution casualties and maritime claims also hold considerable importance. The effectiveness of the role of the Japanese disaster control agencies' in mitigating these happenings would also be highlighted which form the conclusive part of this article.

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**KEYWORDS:** - Marine oil spill, Wakashio Oil Spill, economic impact, geopolitical concerns, maritime law, legal overview

### **“OIL” - A BRIEF OVERVIEW**

The crude oil and the products extracted from it which are used worldwide today, are nothing but the liquid remains of plants and animals. These are also known as “fossil fuels” since they are formed over millions of years ago from the dead remains of the prehistoric organisms, converting into a mixture of hydrocarbons. Overtime, sedimentary layers of sand, silt and rock covered these remains, producing immense heat and pressure, transforming them into the substance we recognise today as “crude oil.” It is a naturally occurring, non-renewable fuel.

### **FORMATION OF OIL:**

The formation of crude oil begins by the deposition of dead remains on the ocean floor. These consist of the remains of plants and animals which are known as “zooplanktons” and “phytoplanktons” respectively.

After their sinkage, they get mixed with the clay-like particles such as sand, mud and rock which are either already present or enter into the ocean through various water streams, creating an organic composition.

The process of oil formation requires the absence of air which is known as an “anoxic environment.” This is due to the fact that, once the mixture of remains get exposed to oxygen, they originate bacteria and begin to decompose without being transformed into oil. As a result, the formed organic composition is further deeply buried by more sedimentary layers, thereby creating an “organic shale.” This prevents the remains from interacting with the atmosphere. Due to increasing pressure and temperature, the organic composition is gradually converted into waxy matter known as “kerogen.”

The kerogen then undergoes a process called “catagenesis” wherein it breaks down into hydrocarbon chains due to thermal degradation. The varying degrees of heat and pressure determine which type of hydrocarbon fuel is formed. The temperature between 90°C and 160°C converts the kerogen into oil.

After the formation of oil, it penetrates into the surrounding rocks and gets trapped through the tiny pores present on them. These are known as “reservoir rocks.” The oil remains trapped there until they get extracted by drilling.

### **AN INTRODUCTION TO OIL SPILL**

Oil spill refers to the discharge of hydrocarbon fuels such as petroleum oil into the ocean due to accidents faced by tankers, barges and other oil carrying systems, leakage in the pipelines or during extraction and storage processes. Oil spills may also take place during natural disasters. Apart from major oil spills, oil also enters the sea when small amounts are being released consistently during extraction, natural seeps, pipeline leakage, production discharges and so on, thus resulting in a chronic exposure of organisms to chemicals present in oil.

### **CLASSES OF OIL SPILL:**

Oil is differentiated under various categories depending on its properties such as viscosity, volatility and toxicity. Viscosity measures the oil’s resistance to movement and flow. Volatility determines the rate at which oil evaporates into the air and toxicity refers to the concentration of poison in the oil. These factors play a dominant role in determining how serious an oil spill is and how long it takes for the recovery to happen.

#### **Class A Oil:**

This class includes oils such as crude oil, jet fuel and gasoline. It comprises the most toxic set of oils which are light in density and subject to rapid spreading in the water. Once these oils get mixed with water or soil, they leave long lasting impacts, as the components present in them can easily affect the nervous system of aquatic organisms. However, these oils are highly volatile and take significantly less time to disperse from the water.

#### **Class B Oil:**

This class is categorised as “non-sticky oils” and includes kerosene, heating oil and other low quality crude oils. They are relatively less toxic in nature when compared to Class A, but they are persistent and take longer time to disperse. They also possess high combusting properties.

**Class C Oil:**

Class C is identified as thick and heavy oils which do not disperse easily and create a sticky film on the surface of the water. While they are not significantly toxic in nature, they are responsible for affecting the marine wildlife, especially the birds and fur bearing animals. Some variants of crude oil, Bunker B and Bunker C oils fall under this class.

**Class D Oil:**

These are non-fluid oils which are the least toxic. But while burning, they harden up into solid substances making it impossible to clean. They neither get evaporated nor dissolved. They remain in the place for a long time affecting the environment.

**Non-petroleum Oils:**

Synthetic oils and oils derived from plants or animal fats fall under this category. They reduce the oxygen level in the water rapidly, suffocating the aquatic plants and animals. If these oils get spilled, they affect the ecosystem and possess great challenges for recovery.

**CONSEQUENCES OF OIL SPILL AS A MARINE POLLUTION:****Effects on wildlife:**

Contamination of the sea due to oil spill is a major environmental concern which possesses a great threat to both terrestrial and aquatic organisms. This exposure can affect them internally through inhalation as well as externally through their skin and other body parts. While the spill of fuel oils such as gasoline and diesel do not remain longer in the sea and evaporate quickly, the spill of heavy oils such as crude oil, bitumen, bunker oil which seem black and dense, tend to stay and spread in the sea for months and even years, until they're removed. When organisms come in contact with these heavy oils that are discharged in the sea, they encounter various deadly consequences. For instance, when the feathers of the seabirds are absorbed by oil, it potentially reduces their insulating ability and also makes it difficult for them to fly. Oil spill can harm the skin or fur of marine mammals such as otters, thereby causing hypothermia. The eggs and larvae of various fishes get destroyed when exposed to oil spill leading to the destruction of the marine community. Reptiles such as turtles, snails, crabs and other shoreline animals suffer when oil gets washed ashore.

**Effects on environment:**

When oil is spilled, it floats on the surface of the ocean which disrupts the sunlight from entering into the water and also reduces the oxygen levels. Oil gets absorbed by the mud particles present in the ocean which in turn gets deposited in the underground water table and in the areas of vegetation, thereby affecting the growth and existence of aquatic plants and shrubs. The breeding place, shelter and habitat of certain organisms get disturbed as well and result in their migration. The impact of the oil spill does not just end here. It even leads to affecting human beings. When fishes contaminated by oil spill are consumed by humans, it affects their health greatly. Therefore, the impact of an oil spill can ripple through the food chain, disrupting the growth, survival and reproduction of various organisms.

**Effects on economy:**

Oil spills primarily impact the fishing industry as the ocean being the only source of seafood gets polluted. It creates a suspension of catching and selling fish to prevent the consumption of contaminated food. Oil stagnation on the seashore causes a downfall in the travel and tourism sector due to the closure of beaches, boating activities and marine transportation. Moreover, the cost incurred to remove the oil is enormous leading to short-term as well as long-term impacts on the economy.

**RECOVERY OF OIL SPILL:**

After the occurrence of an oil spill, the immediate focus is shifted on its containment and recovery in order to minimise the damages and prevent the spill from causing further consequences.

**Physical measures:**

The most common method is using “booms” which are floating barriers used to control the oil from spreading rapidly. It prevents the shorelines from being contaminated by oil. “Skimmers” are another device that collects the spilled oil from the water’s surface. The efficient functioning of this device depends on the weather and tides of the sea. “Sorbents” are materials that absorb the oil molecules. They are useful in removing the final leftover amounts of oil or in the places which cannot be accessed by the skimmers.

**Chemical measures:**

Spraying of “dispersants” is another step to deal with the untreated oil. Dispersants are chemical substances that break down the oil particles into tiny droplets which get diluted in water overtime. It also makes the oil consumable for the microbes present in water. These dispersants are carried in and sprayed using boats or planes. Their effectiveness depends on the weather condition and is also influenced by how dense the oil is.

**Biological measures:**

Biological agents include nutrients, enzymes and microorganisms which aids the process of biodegradation. The microorganisms such as bacteria, fungi and yeasts facilitate the breakage of oil into simpler compounds and derive nutrients from them. It is a slow process that occurs in nature. However, “bioremediation” can be utilised to speed up this process. Bioremediation refers to the incorporation of materials such as fertilisers and microorganisms that increase the digestion and disintegration tendency of oil and speeds up the biodegradation process. Bioremediation is used after a major amount of oil is extracted first from the ocean.

**Thermal measures:**

“In situ burning” is a controlled process whereby the oil is ignited and burnt on the surface of the water. This method converts the spilled oil into gas which is then evaporated into the atmosphere. But it is also subjected to risks of fire and fumes and leaves some impacts on the atmospheric environment. The adoption of this method is dependent on the thickness of the oil, speed of the wind and evaporation. When utilised properly, this technique can reduce significant amounts of oil from the ocean surface.

**THE MV WAKASHIO OIL SPILL, 2020**

The MV Wakashio Oil Spill occurred when the Japanese-controlled bulk carrier Wakashio ran aground on a coral reef on 25th July, 2020, at around 16:00 UTC. The ship began to leak fuel oil in the following weeks, and broke apart in mid-August of 2020. It was reported that although a significant amount of oil had been pumped out, an estimated amount of 1000 tonnes of oil spilled into the ocean. This was called by some scientists as the worst

environmental disaster ever in Mauritius. Two weeks after the incident, the Mauritian Government declared the incident a national emergency.

### **FACTS OF THE OIL SPILL:**

**THE SHIP:** MV Wakashio, a large capesize bulk carrier

- **Built by:** Universal Shipbuilding Corporation of Tsu, Japan
- **Owned by:** Okiyo Maritime Corp.(an associate company of Nagashiki Shipping Co. Ltd)
- **Operator:** Mitsui O.S.K. Lines
- **Departure from:** Lianyungang, China on 4th July, 2020
- **Scheduled destination:** Tubarão, Brazil on 13th August, 2020
- **Onboard Cargo (during the spill):** NIL
- **Onboard Crew (during the spill):** 20

### **THE INCIDENT:**

The concerned oil spill would be understood in two phases with the first phase describing the actual oil spill while the second phase explains the aftermath of the incident.

#### **PHASE-1**

Wakashio ran aground on a coral reef on 25th July, 2020, but there was no immediate oil spill. The immediate response was by the Mauritian authorities who began to take control in order to minimise the effects of any plausible oil spill. Oil began to leak from 6th August, 2020 and by 10th August, 2020, about 1,000 metric tonnes of fuel had been spilt, with estimates of the remaining oil onboard, ranging from 2,500 to 3,000 metric tonnes. The environmentally sensitive areas of the coast were isolated.

#### **PHASE-2**

This phase mainly comprised the steps taken by the authorities to conduct a cleanup of the ocean and minimise the ensuing negative effects of the oil spill. The Prime Minister of Mauritius, Pravind Kumar Jugnauth declared a "state of environmental emergency" and requested help from the international community in order to cope with the entire disaster. The first country to act as the responder was India (on 11th August 2020). The Indian Oil



Mauritius Ltd., (IOML) began evacuating the oil from the damaged vessel through the IOML Tresta Star.<sup>4</sup> In addition to this, it had also arranged for 30 tonnes of technical equipment to tackle the situation of oil spill, which further encompassed a team of 10 Indian coast guards who were specialists in containing oil spills.<sup>5</sup> The international support received from the other countries included France, which had sent military, personnel and civilian equipment from its overseas territory of Réunion.<sup>6</sup> Further, it also included the Japan P&I, the insurer of *Wakashio*, who in August 2020, appointed two companies namely, “Polyeco SA” and “Le Floch Dépollution” for the clean-up operations in the south east of Mauritius.<sup>7</sup>

On 15th December 2020, Polyeco SA announced that they completed the clean-up of 21 kilometres (13 mi) of shorelines.<sup>8</sup> A media tour was organised by Japan P&I Club on 14th January 2021, following the clean-up operations in the south east of Mauritius. The operations mobilised a total of 370 people over a period of 5 months. Some 1,300 cubic metres (46,000 cu ft) of liquid waste was pumped and treated at the Virgin Oil Ltd., and Eco Fuel Ltd., oil refineries, while 7,900 cubic metres (280,000 cu ft) of solid waste was extracted from the shorelines.<sup>9</sup>

### **IMPACTS OF THE MV WAKASHIO OIL SPILL**

The impact caused by this concerned oil spill has to be analysed in a two-fold manner, i.e., the environmental impact on Japan (which has already been widely brought to light as revealed through the available literature) and more importantly, the other significant impacts in the economic light that unravelled after the said oil spill affecting both Japan and India. The focus of the article would be the latter part - Economic impact on Japan which includes an inevitable discussion about the impact of the oil spill on the Indian Ocean.

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<sup>4</sup> Mohan, Geeta (13 August 2020). "India assists Mauritius in evacuating oil from a breached Japanese vessel". *India Today*.

<sup>5</sup> PTI (16 August 2020). "India sends assistance to Mauritius to help deal with the oil spill". *The Times of India*.

<sup>6</sup> "Oil spill threatens ecological disaster as Mauritius declares emergency". *Reuters*. 8 August 2020.

<sup>7</sup> MV Wakashio : Travaux de nettoyage achevés à Pointe d'Esny". *gis.govmu.org*.

<sup>8</sup> Edouard, Olivier (15 December 2020). "Post-Wakashio : Polyeco complète le nettoyage de 21 km de littoral". *Le Mauricien* (in French).

<sup>9</sup> "MV Wakashio : Travaux de nettoyage achevés à Pointe d'Esny". *gis.govmu.org*

**ECONOMIC IMPACT ON JAPAN:****Fishing in Mauritius:**

There is a significant amount of activity by Japanese vessels operating from Mauritius around Madagascar and off the coast of Mozambique. Similarly, there is a lot of activity around the Maldives and the edges of the Southern Ocean, from fishing operations launched from Mauritius. Japanese fleet activity can be seen extending all the way across to West Africa and around Seychelles. The fishing operations significantly expanded in Mauritius in the past two years. This has been sharply criticised by many NGOs and neighbouring countries who have argued that the Indian Ocean is being fished beyond its sustainability limits.

Thus, as a growing concern after the Wakashio oil spill, it has been brought to light that the fishing operations by Japan have been negatively impacted with the damage the spill has caused to marine life in the ocean.

**Japan and the International Whaling Convention:**

- When looking at the pattern of fishing, it is important to note that in 2019 Japan opted out of the international whaling agreement, and has publicly declared its intention to begin commercial whaling.
- The waters around Mauritius contain some of the Southern Ocean's most important whale nursing grounds.
- The sight of over 50 dead whales and dolphins washed up on the island's shores following the Wakashio oil spill has been an economic setback to Japan.

**Japan's need for a military base in the Indian Ocean:**

This is relevant for Mauritius as the intensity of the oil spill has compelled Mauritius to avail international support for the cleanup process. This is a major impact which gives rise to the geopolitical concerns in the light of the Wakashio oil spill.

- The rising tensions of Japan and India with China created a stronger need for militarising the Indian Ocean. Thus, India and Japan have been engaging in a series of joint military and navy exercises and agreements across the Indian Ocean.

- The joint military exercises, a three-day affair called JIMEX, a naval partnership between Indian and Japanese military forces which took place in the Indian Ocean a month after the Wakashio oil spill proves as evidence to this speculation. The growing militarization of the Indian Ocean has been opposed by most of the island nations in the region.
- Thus, the Wakashio oil spill has provided unexpected areas for economic facilitation by Japan in this regard.

## **UNDERLYING IMPACT ON THE INDIAN OCEAN**

### **A brief overview of the environmental impact on the Indian Ocean:**

1. The grounding of the ship happened at an area which was listed under the Ramsar convention on wetlands of international importance and near the marine park of Blue Bay.<sup>10</sup> This had an alarming impact on the area of the Indian Ocean which forms a major part of the tourism sector of Mauritius. This was adverse in nature as tourism plays a major role in the economy of Mauritius, accounting for about US\$1.51 billion in spending in 2019, and is centred around marine scenery and animals that were likely to be endangered by the oil spill.<sup>11</sup>
2. In the United Nations Conference on Trade and Development it was stated that “the spill risks bringing devastating consequences for the economy, food security, health and tourism industry.”<sup>12</sup>
3. Ecotoxicologist Christopher Goodchild from Oklahoma State University stated that the spill had caused an infiltration of the mangroves thus the oily substance that can bind to organic matter or dirt begins to settle in and removing that toxic sediment alone would pose a real challenge.<sup>13</sup> Flakes of the damaged anti-fouling coating on the hull can also poison the marine fauna and flora on the reef and surroundings in a similar fashion to what occurred on the Great Barrier Reef.<sup>14</sup> The News Agency Company, Reuters, quoted unnamed scientists who stated that the spill was likely the

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<sup>10</sup>"Mauritius facing environmental crisis as shipwreck leaks oil". The Guardian. 7 August 2020.

<sup>11</sup>"Oil spill threatens ecological disaster as Mauritius declares emergency". Reuters. 8 August 2020

<sup>12</sup> Asariotis, Regina & Prenti, Anila (14 August 2020). "Mauritius oil spill highlights importance of adopting latest international legal instruments in the field". UNCTAD Transport and Trade Facilitation Newsletter. United Nations Conference on Trade and Development.

<sup>13</sup> "Counting the environmental cost of the Mauritius oil spill". Reuters. 13 August 2020.

<sup>14</sup> "Ship's hull paint killing coral". The Sydney Morning Herald. 13 April 2020.

worst environmental incident in the history of Mauritius, with effects possibly lingering for decades.

4. SAR-Synthetic Aperture Radar(satellite image captured on the radar) image acquired facilitated an understanding of its influence on the drift of the MV Wakashio spill which caused a significant impact on the Indian Ocean:
  - The area of the spill spreading gradually reduced and eventually became nil by 15 September. Due to the reason that the spill occurred in the shelf region, which is about 25 km, the influence of surface currents was minimal. However, the predominant wind and wave-induced Stokes drift together played a primary role in drifting the spill towards the northwest, the SEM coast that is located between Pointe d'Esny and Ile aux Cerfs Leisure Island in the Indian Ocean.
  - The additional influence of tide helped to carry the spill to the shore and even back to the sea. Thus, wind and wave-induced Stokes drift and tides played a major role in the transportation of the MV Wakashio oil spill along the SEM coastal region.

#### **Other impacts on the Indian Ocean:**

The oil spill wreaked havoc environmentally but apart from that it had its own set of economic and diplomatic effects on both Japan and India. Here, the Indian perspective is discussed:

- The Wakashio grounding and the way the oil spill response has been handled has revealed that Japan and India have a significant interest in safeguarding the Indian Ocean from its environmental degradation in order to facilitate diplomatic concerns.
- India had been attempting to build a \$550 million military base in the Indian Ocean.
- India had initially approached Seychelles to build an airstrip and naval jetty. Amid protests by islanders and parliamentarians in Seychelles in 2018, the agreement was scrapped.
- Further Maldives was also approached by India for building a Helicopter base. However, this attempt was in vain as the Maldivian authorities were not keen on constructing a military base on the Maldives.

- After the withdrawal of both Seychelles and Maldives, Mauritius was a strategic place for India to secure such a base, thus backed by efforts to develop such a base in Mauritius.
- The large costs associated with the construction of a military base, and India's weak economic situation that was exacerbated with Covid-19, the funding of such a construction raised concerns regarding the impact of the oil spill on India. Thus there were speculations that the oil spill had a wider impact to it in the geopolitical sense where it was considerable to state that India and Japan entered into a mutual agreement for building of such a base that would grant access to the base and financial aid respectively to both the nations. This speculation was further entrusted due to the Japan-India Military Base Agreement entered into by the countries.

In conclusion it can be stated that the Wakashio oil spill unleashed adverse economic impacts on the marine environment surrounding Japan and India in addition to the loss to marine life in the Indian Ocean.

### **INTERNATIONAL LAWS GOVERNING OIL SPILL**

The International Maritime Organisation was established in 1948 and it became a specialised agency of the United Nations in the year 1959. It creates regulatory frameworks for the functioning of shipping industries. It is significant to acknowledge that 80% of global trade is facilitated through international shipping. IMO ensures safe, secure, efficient, cost effective, energy efficient, environmentally sound shipment throughout the world. It aims at achieving a sustainable global maritime transport system. The conventions relating to international maritime law are as follows:

1. **The United Nations Convention on the Law of the Sea**, states rules governing oceans and resources of international waters. It enshrines that problems of oceans are interlinked and should be viewed as a whole. This convention entered into force on 16 November 1994. This was ratified by Japan on 20th June 1996 and Mauritius on 4th November 1994.

Part XII talks about PROTECTION AND PRESERVATION OF THE MARINE ENVIRONMENT where it states the obligation to protect and preserve the marine environment.

Article 194(1) states that States shall individually or jointly take appropriate and all measures necessary to prevent, reduce and control pollution of the marine environment from any source, in accordance with their capabilities, and they shall endeavour to harmonise their policies in this connection.

Art 194(3) states that all measures taken in accordance with Part XII shall ensure to deal with all sources of pollution of the marine environment. And those measures should extent to minimise to the fullest pollution from vessels, for preventing accidents and dealing with emergencies, ensuring the safety of operations at sea, preventing intentional and unintentional discharges, and regulating the design, construction, equipment, operation and manning of vessels.

2. **International Convention on Civil Liability for Oil Pollution Damage**, as its very name suggests, mentions the liability of the owner of the ship for damages caused by the oil spill. According to the classification of the ship, the owner is liable to compensate in terms of Special Drawing Rights (SDR) as used by the International Monetary Fund (IMF)

This Convention applies to all seagoing vessels carrying oil in bulk as cargo, but mandates only ships carrying more than 2,000 tons of oil, to maintain insurance in respect of oil pollution damage.

From 16 May 1998, Parties who ratified the 1992 Protocol ceased to be Parties to the 1969 Convention due to a mechanism for compulsory denunciation of the "old" regime established in the 1992 Protocol.

Japan denounced the new amended convention on 15th May 1998. But Mauritius gave its accession 05th July 1995. The International Convention on Civil Liability for Oil Pollution Damage and the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, together substantiate a comprehensive liability and compensation scheme app in respect to pollution damage as a resultant of discharge of oil from oil tankers

The amended compensation set in 1992 are as follows:

- ❖ For a ship not exceeding 5,000 gross tonnages, liability is limited to 4.51 million SDR (US\$5.78 million)

- ❖ For a ship 5,000 to 140,000 gross tonnage: liability is limited to 4.51 million SDR plus 631 SDR for each additional gross tonne over 5,000
- ❖ For a ship over 140,000 gross tonnages: liability is limited to 89.77 million SDR<sup>15</sup>

3. **International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties**<sup>16</sup>, 1969 empowers a coastal state to take the required measures to prevent, mitigate or eliminate danger to its coastline from oil pollution or any threat relating to maritime casualty. As of 2016, 89 states have ratified this convention.

Japan ratified the convention on 6th May 1975. Mauritius ratified the convention and protocol of 1969 and 1973 respectively. The International Maritime Organization (IMO) is in charge of it.

The convention affirms the right of coastal states to take such measures on the high seas as may be necessary to prevent, mitigate, or eliminate danger in order to protect its interest from the resulting pollution on its coastline. But this affirmation has its own limitations. If the concerned state has acted beyond such limitation, it is liable to pay the compensation for any damage as a result of its measures taken beyond restraint imposed.

The coastal State is entitled to proceed to consult with independent experts whose names shall be chosen from a list which is to be maintained by the Organization before any measure is taken.

4. **Convention on Limitation of Liability for Maritime Claims** (International Maritime Organization, 1974) states about limiting the liability of shipowners and salvors in case of loss of life or personal injury on ships This convention came into force on 13th May 2004. It is notable that 54 states have ratified this convention.

The International Convention Relating to the Limitation of the Liability of Owners of Seagoing Ships, 1968 was replaced with the above convention.

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[https://www.imo.org/en/About/Conventions/Pages/International-Convention-on-Civil-Liability-for-Oil-Pollution-Damage-\(CLC\).aspx](https://www.imo.org/en/About/Conventions/Pages/International-Convention-on-Civil-Liability-for-Oil-Pollution-Damage-(CLC).aspx)

<sup>16</sup>

<https://www.imo.org/en/About/Conventions/Pages/International-Convention-Relating-to-Intervention-on-the-High-Seas-in-Cases-of-Oil-Pollution-Casualties.aspx>

This convention applies to claims to loss of life, personal injury and damage to property. Various slabs of compensation in terms of Special Drawing Rights.

The amended 1996 Protocol(Present), raised the limits are raised as follows:

- The liability limit for claims for loss of life or personal injury on ships not exceeding 2,000 gross tonnage is 3.02 million SDR (up from 2 million SDR).
- For each ton from 2,001 to 30,000 tons, 1,208 SDR (up from 800 SDR)
- For each ton from 30,001 to 70,000 tons, 906 SDR (up from 600 SDR)
- For each ton in excess of 70,000, 604 SDR (up from 400 SDR)

#### **Major Organs of Japan involved in case of maritime disaster:**

Japan has framed the contingency plan for a maximum spill of 810,000 tonnes at its most important three seas namely Tokyo Bay, Ise Bay and Seto Inland Sea.

1. The Maritime Disaster Prevention Centre(MDPC) was established with an intention to respond to oil spills and is funded jointly by government and industry.
2. The Japan Coast Guard (JCG) is the lead government agency in Japan for salvage and spill response but looks to the tanker owner to undertake clean-up operations.

The JCG and MDPC jointly works in case of any major oil spill and immediately contacts the owner of the ship and takes the required steps to curtail further oil spill. Tripartite councils including government, local and private sector representatives have been formed and established at ports & harbours and will function together in case of any contingency. The Ports & Harbours Department of the Ministry of Transport is responsible for coordinating all the councils.

#### **RECOMMENDATIONS:**

1. It is pertinent to note that the maxim *Ut res magis valeat quam pereat* is applied in maritime law internationally. Having laws alone are not significant but they should be made operable in contingencies like these so as to enable the protection of marine environment.



2. As the above essay mentions the international conventions concerned with Maritime Law with respect to Oil spill, it is pertinent to note that there are various laws governing the same. However, it is significant to observe that having functional and applicable(as a whole) law is superior to having numerous laws which are less operational. In the Instant case, the International Convention on Civil Liability for Oil Pollution Damage was ratified by Mauritius but was denounced by Japan. In such a scenario, it is difficult to hold the owner of the ship liable and hence will result in cumbersome legal procedure.

It is suggested that the International Maritime Organisation which is a specialised agency under the United Nations work towards codifying the Maritime Law as a whole which covers various aspects such as marine pollution, oil spill, marine insurance, etc.

3. Bringing all nations together with regards to the marine environment is the need of the hour. The theme of G20 Summit 2023, 'One Earth, One Family, One Future' may be referred to understand how interconnectedness of all life and environment on Earth is significant to promote environmental peace and balance among all nations. It is to be noted that rather than nations focusing only on protecting seas and oceans under their jurisdiction, they may offer to extend their aid to other countries during any catastrophe.
4. The motive of Interdependent but independent nations in respect of maritime laws has to be encouraged among nations by the United Nations. It should invigorate nations to ratify its convention and should take suggestions and implications from marine laws of various countries. For instance, Japan has established the Japan Coast Guard(JCG) exclusively for marine protection which acts quickly in case of any oil spill. The Convention framed must ensure that it is in a state where most of the countries would give its acceptance to ratify. Though being a tedious process, the civilised states of the globe should be together and solve together.
5. Though the consultation of experts is provided in the convention practical implementation should be made possible. In case of any contingency, expert persons should be notified at the earliest so that they can brainstorm their ideas and come up with ingenious solutions. It is the matter of nature and environment in case of oil leak, hence immediate measures have to be taken in order to save marine organisms.

6. Anticipation of events and planning will always enable better handling of a situation. The International conventions should make it mandatory for countries who enter into agreements/contracts regarding the cargo ships. In case of any contingency like oil leak, collision, fire, etc the necessary course of action to be taken by the people on board, owner of the vessel, the concerned govt or any other authority concerned should be laid down for effective handling of the calamity.
7. The concept of Marine insurance should be wide enough to cover oil spills which has to be affirmed by several countries.
8. Better facilitated surveillance of Cargo ships should be developed. The protocol to be followed in case of oil spill should be instructed to the authorised people on board. And they should be given pragmatic priming.

### **CONCLUSION:**

This study covers the ambit of ecological disturbance occurring in the event of oil spill. The Wakashio Oil spill has caused a commotion in the Indian Ocean which has severely affected the marine environment. The environmental concern relating to oil spill has been substantiated and fruitful recommendations have been suggested. International Shipping usually binds more than one country, in such circumstances it is imperative to make sure that the nations involved are in quintessential co-operation.

Incidents like these do not only hamper the environment but also result in havoc economically. International Trade is disrupted to a considerable degree. Usually, ecological commotion will have a domino effect on various aspects such as economy, species' habitat, international trade, biological disruption, etc. The various international conventions vis-a-vis marine protection have been overviewed.

Usually, the owner of the ship is held liable in cases of cargo accidents. In the Wakashio oil spill, Nagashiki Shipping Co., Ltd. (or its parent company), is the ship owner, hence compensation will be demanded from them. The final amount anticipated will be dependent on the decision of the domestic trial in Mauritius, if LLMC 1976 or LLMC 1996 are applied to this case, as Mauritius has ratified 1976 version and Japan has ratified 1996 version for which a maximum compensation of about 1.9 billion yen (LLMC 1976) or about 6.9 billion yen (LLMC 1996) will be imposed. The Japanese government expressed its intentions to

dispatch the Japan Disaster Relief Team for this accident<sup>17</sup>. Japan is highly dependent on maritime transportation as it is a maritime nation. It has taken into cognizance its requirement to strengthen safety and security of maritime transportation through international cooperation.

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<sup>17</sup>Press release from Ministry of Foreign Affairs, Japan, “Telephone Talk between Foreign Minister MOTEGI Toshimitsu and Mauritian Prime Minister Pravind Jugnauth,” September 7, 2020, [https://www.mofa.go.jp/press/release/press1e\\_000155.html](https://www.mofa.go.jp/press/release/press1e_000155.html) (Accessed on September 14, 2020)