

LEGACIES & LEARNINGS: A CASE STUDY OF OIL SPILLS IN THE INDIAN OCEAN REGION

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Oil spills cause severe distress to marine and coastal ecosystems and impair the livelihoods and health of people who are dependent on these ecosystems. These impacts have been studied and documented for decades, which has led to more effective management of oil spill disasters in recent decades (See Figure 1). However, the sharp rise in the scale of maritime trade and the evolution of ships and carriers has meant that even a single major oil spill incident can lead to severe short-term and long-term impacts. The nature of the impact on the marine ecosystems depends on a wide range of factors such as the quantity of oil spilt, type of oils, clean-up mechanisms, climate and weather conditions, location of spills, and biological composition of the environment, which includes both floral and faunal sensitivity. Apart from its environmental impacts the oil spill incidents, especially within the territorial waters of states, challenge the socio-economic and socio-ecological resilience of communities who are directly impacted by them. They also expose the lacunae in both the capacity and capability of governments, especially in the developing countries and small island states, who find themselves ineffective at containing the negative externalities of such incidents.

History of Oil Spills

The annual rate of an average number of spills above 7 tonnes in the 2010s was 6.3, which is a sharp 65 per cent drop from the average in the previous decade (See Figure 1). The key reasons behind this sharp drop are the stricter regulations and improvements made in the safety standards in the shipping industry. Another positive development has been the total volume of oil spilt at sea which has come down to 164,000 tonnes in the last decade, which is almost comparable to single year oil spillages in the previous decades. The International Tanker Owners Pollution Federation (ITOPF) notes that, *“In the 1990s there were 358 spills of 7 tonnes and over, resulting in 1,134,000 tonnes of oil lost; 73% of this amount was spilt in just 10 incidents... In the 2010s there were 63 spills of 7 tonnes and over, resulting in 164,000 tonnes of oil lost; 91% of this amount was spilt in just 10 incidents. One incident was responsible for about 70% of the quantity of oil spilt.”*¹

¹ “Oil Tanker Spill Statistics 2020” ITOPF, https://www.itopf.org/fileadmin/uploads/itopf/data/Documents/Company_Lit/Oil_Spill_Stats_publication_2020.pdf

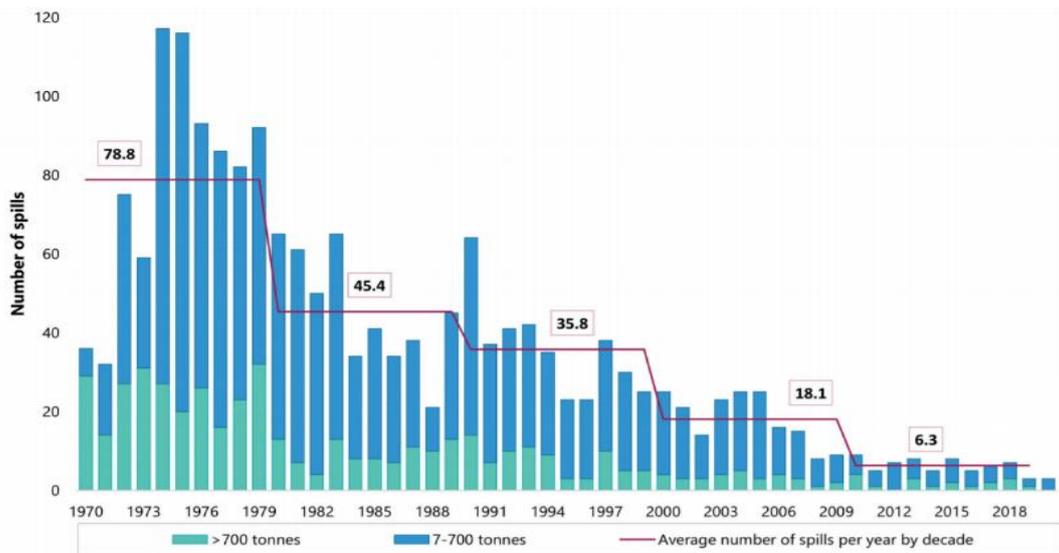


Figure 1: Number of medium and large spills (>7 tonnes) from 1970-2020

Source: Oil Tanker Spill Statistics 2020, ITOPIF.

However, this statistic only provides half a picture because it excludes the less than 7 tonnes category of oil spills which account for more than 80 per cent of all oil spills. There is lesser clarity on the nature and damage of smaller oil spills due to lack of reliable data. The major causes behind the larger oil spills include allisions/ collisions, groundings, hull failures, equipment failures, fires and explosions. Apart from these causes, there are “other” causes that involves human error and heavy weather damage and “Unknown” causes where reliable data is not available. In the past decade alone, when the reporting improved considerably, allisions/collisions were the most common cause of oil spills, accounting for nearly 44 per cent of all medium (7-700 tonnes) as well as large spills (Above 700 tonnes). This trend could be attributed to the rise in vessel traffic and maritime trade across the world.

Case Study: MV Wakashio

On July 25, 2020, the Panama-flagged bulk carrier MV Wakashio, bound for Brazil, ran aground off the coast of Mauritius, leaking nearly 1000 metric tons of fuel into the coral reefs and wetlands inside a marine protected area. The bulk carrier, of the dimension of around 300 m length and 50 m is carrying low-sulphur fuel oil (3894 metric tonnes), diesel (207 metric tonnes) and lubricant oil (90 metric tonnes) for use onboard. This was major accident raised several questions regarding national and regional state contingency planning, shipping sector and carries severe short term and long-term ecological implications. The Mauritian Ocean Territory floor has over 600 ship wreckages, retired ships, and war victims, that includes the steel-hulled Dalblair shipwreck of 1902 which struck on the reefs at Pointe D’Esny, the same site where the grounding of MV Wakashio took place in 2020.

In response to the accident, the Government of Mauritius activated its national oil spill contingency plan and two weeks later, as the ship began to break down, it declared a state of environmental

emergency. A number of countries including India, France and Japan, as well as from international bodies, like the IMO and OCHA, the United Nations Development Program (UNDP) Mauritius and the ITOPF mobilised support in form of equipment, finance and specialist teams to mitigate the tragedy. An estimated 3,000 tonnes of fuel were successfully removed from the MV Wakashio before it broke in two parts, on 15 August 2020.

The causes behind the incident have raised a number of controversial opinions, including the use of alcohol and bad weather theories. Casualty investigations, which are mandatory under MARPOL and SOLAS conventions, fall under the ambit of the flag State, which in this case was Panama. Lack of safety awareness has been listed as the main cause behind the incident in an inquiry by the owner company. The inquiry further suggested better training of staff and more effective oversight mechanisms including banning of private cell phones during work hours and setting up of speed communication systems as a way forward. A new article published by the *Forbes magazine* shed light on the incident through the use of satellite assessments. It claimed that MV Wakashio has been off its charted route much before it reached the Mauritian waters and this unusual behaviour remained unnoticed.²

Over the past three decades, the government of Mauritius has been a key beneficiary of capacity building assistance to prevent oil spills, which includes two Western Indian Ocean Island Oil Spill Contingency Plan and the GEF-World Bank funded Western Indian Ocean Marine Highway Development and Coastal and Marine Contamination Prevention Project (2007-2012). Yet, as the tragedy unfolded on August 7, 2020, the volunteers from local communities, ignoring the government order to leave the clean-up operation to officials and other potential risks including fines, began actively participating in the clean-up process. This local response indicates that the government planning on the matter, which seemed robust on paper, failed when it came of implementation. The public response also reflected the building mistrust, especially after the narrowly averted tragedy in 2016, when MV Benita crashed in Mauritian waters along the coast to the south.

The Wakashio accident remains an ongoing investigation and its environmental impacts have thrown up a complex challenge to those who are running the clean-up operations. There have been serious concerns regarding the tampering allegations with the oil fingerprinting process, which is critical for conservationists to mitigate the impacts on marine life. The decision to sink a part of the ship in a primary whale nursing ground, apart from its legal validity, received a lot of criticism as it is likely to lead to heavy metal contamination. The location of the oil spill itself was in the middle of marine protected areas is a major cause of concern. The Pointe D'Esny Wetlands are a Ramsar site which are directly affected by the spill. The nearby Blue Bay Marine Park, also a Ramsar site, is home to coral reefs, mangroves and sea grass meadows. The spill location is also close to Ile aux Aigrettes Island, which is another natural reserve of importance, home to the last remaining ebony forests, Mauritan fodies and pink pigeons.

Oil can be retained within the marine ecosystems and in the sediments of the intertidal zone for decades, severely affecting the complex ecosystems such as the mangroves. The spill will leave a

² Nishan Degnarain, "Latest Satellite Analysis Reveals New Theory For Deadly Wakashio Oil Spill In Mauritius" Forbes, 19 October, 2020, <https://www.forbes.com/sites/nishandegnarain/2020/10/19/latest-satellite-analysis-reveals-new-theory-for-deadly-wakashio-oil-spill-in-mauritius/?sh=347465704ab1>

longer-term impact on the fishing grounds in the area, thus affecting the livelihoods of local community. In the aftermath of the accident, 36 km of the shoreline was declared off limits for fishing or tourism activities. While the recreational activities returned to normal in the latter half of 2020, the health of the fishing grounds and mangroves remain uncertain.

Case Study: X-Press Pearl (2021)

The 2021 built container ship X-Press Pearl, sailing under the Singaporean flag, carrying 1,486 containers containing 25 tonnes of nitric acid, caught fire at the Colombo harbour on 20th May 2021, ten hours after it had docked at the Sri Lankan port. On 25 May, an explosion was reported onboard the ship, leading to debris, including plastic nurdles, crashing onto the shoreline. The owners of the newly built vessel offered apologies for the incident while defending the actions and decisions made by the crew. Both the Sri Lankan Navy and Indian coast guard were the first authorities to respond to the event with necessary equipment including oil containment booms and dispersants. The incident gained public attention as a case of misdeclarations and non-compliance with safety standards on board the vessel. The issue of fire has been a major cause of oil spills in the past decade, and sources of these fires are also changing. *“In 2019, the National Cargo Bureau conducted more than 32,000 dangerous dry and tank goods inspections in the U.S. finding that nearly eight percent were non-compliant due to poor stowage/securing, misdeclared cargo, or other issues.”*³ The fire hazards are also a consequence of the sharply increasing size of the ships to meet the demands of trade and efficiency. The SOLAS “Safety of Life at Sea” convention was adopted in 1974 is a key instrument that deals with safety and standards of construction and operations of ships. Both Singapore and Sri Lanka are a signatory to the Convention, but the flag state is bound by the convention to secure and comply with the requirements.

Following the accident, the Marine Environment Protection Authority (MEPA), which is the apex body responsible for the prevention and control of marine pollution in Sri Lanka, instituted a lawsuit against the X-Press owners. The government also instituted an inter-ministerial steering committee and five sub-committees under the guidance of the Ministry of Justice which will look into, “legal action, compensation claims, environmental impacts, fisheries impacts and economic damages.”⁴ Sri Lanka has seen an alarming rise in number and frequency distress incidents in recent years (See Table 1). *“Capsizing of vessels and vessels ran aground in 2019 marked alarming inclination of 366.6% and 500% compared to year 2018 and all such incidents were related to the Sri Lankan fishing vessels”*⁵ In the past two decades, Sri Lanka has faced a number of maritime disasters which has put its ambitions to enhance shipping connectivity and developing maritime hubs into jeopardy.

³ “X-Press Pearl Slowly Settles to the Bottom” *The Maritime Executive*, 3 June, 2021 <https://www.maritime-executive.com/article/x-press-pearl-slowly-settles-to-the-bottom>

⁴ “Ravaging trail left by X-Press Pearl: Part 2” *Daily FT*, 14 September 2021 <https://www.ft.lk/opinion/Ravaging-trail-left-by-X-Press-Pearl-Part-2/14-723009>

⁵ M. Jayatilaka, “Safety of Life at Sea: Current Status of Sri Lanka” *Defence and Strategic Studies Sessions* (2020) <http://ir.kdu.ac.lk/bitstream/handle/345/2800/pdfresizer.com-pdf-split%20%282%29.pdf?sequence=1&isAllowed=y>

Vessel/year	Damages
MV Melishka (1999)	It was carrying 16,500 mt fertiliser and 200 mt of heavy fuel oil before it ran aground in Sri Lankan waters
MV Amanat (2006)	The vessel developed engine issues and sank 11 kms off coast, leading to a hazardous oil-spill of 25 metric tons.
MT Granba (2009)	The vessel faced with a leak which led to its eventual sinking and its cargo of 6,250 tonnes of sulphuric acid.
MT New Diamond (2020)	It was carrying 270,000 tonnes of oil. It caught fire east of Sri Lanka but one of the biggest potential oil spills in recent history was averted through coordinated action over ten weeks.
MV Xpress Pearl (2021)	The ship's cargo included 25 tonnes of nitric acid, 348 tonnes of oil and billions small plastic pellets known as nurdles which washed up on the beaches.

Table 1: Recent maritime disasters in Sri Lanka

Source: Daily Ft (2021) <https://www.ft.lk/columns/Maritime-conventions-disasters-and-hubs-Sri-Lanka-s-decisive-hour-is-here/4-718947>

Findings & Recommendations

The two case studies in this article highlighted the nature of the oil spill challenge for the littoral states of the Indian Ocean Region which is home to a rich floral and faunal biodiversity. It also highlighted the complexity of the maritime domain that is liminal, interconnected and multijurisdictional. These recent cases exposed some of these challenges ranging from operational capacity to legal interventions and liabilities, and socio-economic impacts on local populations. There are several steps taken up by regional actors which are laudable but there is scope for more coordinated and comprehensive steps that will ensure that the challenges of oil spills and marine pollution are dealt with effectively.

1. The MV Wakashio incident led to a coordinated effort by different actors who have invested heavily in the Western Indian Ocean regional maritime security architecture. IMO's efforts towards capacity building in the region has included training courses, equipment procurement and table-top exercises. However, these actors were still found wanting when it came to averting the tragedy in the real world. An important step for the states in the IOR is to develop a more robust maritime domain awareness to create networks of information sharing, joint oil spill responses, and conservation of marine resources. Given the nature of this crisis, national contingency plans must be complemented with a regional oil spill contingency plan to enhance the cleaning up mechanisms in countries that lack adequate capacity. These oil spill incidents also made clear that national plans have to be constantly updated to meet with shifting nature of the oil and shipping sector, the changing biochemistry of oceans due to climate change and the rising scale of maritime trade.
2. The impact of oil spills of marine ecosystems is varied and complex. States must invest in evidence-based analysis of these impacts to understand the long term and short impacts on

socio-economic and ecological systems. This will prove critical in climatisation of national policies which is an important first step towards developing environmentally conscious contingency planning.

3. States must consider declaring the fragile ecological zones in the Indian Ocean region as *Particularly Sensitive Sea Area* (PSSA) under the International Maritime Organisation (IMO) rules, which the ships can avoid on their route. It will make sailing close to the coast safer through stricter adherence to MARPOL regulations and help in the preservation of biodiversity hotspots.
4. States in the IOR are signatories to important IMO conventions, but as the cases showed there was a requirement for them to update and ratify all necessary conventions, for legal action to become effective (See Table 3). A good case, for example, is the issue of typology of ships and vessels that is subject to different legal conventions. The two International Oil Pollution Compensation Funds— (International Convention on Civil Liability for Oil Pollution Damage (CLC) and the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage (FUND) and the supplementary fund, which were established in 1992 as main vehicles of compensation for oil spills only apply to oil tankers. In the case of MV Wakashio, which was a bulk carrier, the IOPC-FUND regime does not apply, which prevents Mauritius from putting any claims, despite being a signatory to the regime. None of the states in the South Asian region is signatories to the Supplementary Fund. The IOPC Fund would have, *“provided liability and compensation of up to 203 million SDR (approx. 286 million USD) for this incident (also covers reinstatement of the environment). The 2003 Supplementary Fund Protocol provides even higher liability and compensation, up to a maximum of 750 million SDR (around 1.05 billion USD) per incident, but has not been ratified by Mauritius.”*⁶ The convention that covers the MV Wakashio incident is the International Convention on Civil Liability for Bunker Oil Pollution Damage, 2001 (Bunker Convention) but the amount of liability is much lower than the IOPC-FUND regime. All three parties, Mauritius, Japan and Panama are signatories to the convention. However, in the wider IOR region, particularly South Asia, India is the only country which has ratified the convention (See Table 2).

⁶ “Mauritius oil spill highlights importance of adopting latest international legal instruments in the field” UNCTAD, 14 August 2020, <https://unctad.org/news/mauritius-oil-spill-highlights-importance-adopting-latest-international-legal-instruments>

States	Prevention & Safety (MARPOL)					Spill Response		Compensation						
	73/78	III	IV	V	VI	OPRC	OPRC-HNS	CLC '69	CLC '76	CLC '92	Fund '92	Supp Fund	HNS*	Bunker
India														
Sri Lanka														
Maldives														
Mauritius														
Bangladesh														
Pakistan														

Table 2: Major IMO Conventions of Marine Pollution and Compensations

- The case of X-Press Pearl also raised a key issue of ‘Places of Refuge’.⁷ The three-month-old vessel, before catching fire at the anchorage in Colombo, sought refuge and offloading in two ports, Hamad in Qatar and Hazira in India. The request was denied much like in the cases of Erika (1999) and Prestige (2001) tankers, which were also denied access to ports or refuge and ended up in major oil spill catastrophes. Efforts to prevent environmental disasters, particularly devastating oil spills from tankers, have incorporate multiple strategies, including vessel safety mandates, traffic control measures, artificial intelligence, and state inspection of vessels. While the preventive measures are critical, the case like X-Press Pearl shows that the dilemma of providing refuge will continue to remain a vexing one.
- Finally, the absence of shipping industry from the Paris Agreement is clearly a non-feasible long-term proposition. It is important that shipping sector embraces the net-zero targets and clean energy and technological alternatives in a systematic manner.

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⁷ Sam Chambers, “X-Press Pearl was not allowed to offload leaking box in India and Qatar prior to Sri Lanka call” *Splash247*, May 26, 2021 <https://splash247.com/x-press-pearl-was-denied-entry-in-india-and-qatar-before-catching-fire-off-colombo/>

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