

Enforcing Ship-Based Marine Pollution for Cleaner Sea in the Strait of Malacca

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Abstract

The Strait of Malacca is most susceptible to ship-based marine pollution such as oil and grease due to the heavy volume of shipping in the Strait. By nature, oil is toxic to marine life, especially the *polycyclic aromatic hydrocarbons* (PAHs), one of the main components in crude oil that is very difficult to clean up, and could remain for years in the sediment and marine environment. Marine species that are constantly exposed to PAHs can exhibit developmental problems and are more susceptible to diseases. The number of ships passing through the Strait in 2000 was 55,957 and increased to 62,621 ships 5 years later. In 2007, the traffic volume increased to 70,718 ships. During the five-year period from 2000 to 2005, there were 144 cases of oil spills into the sea. One hundred eight cases were due to illegal discharge of dirty oil. However, only 32 ships were charged and subsequently, 14 ships were found guilty. This paper analyses the challenges faced by the Malaysian maritime enforcement agencies in enforcing the Environmental Quality Act 1974 in the Strait of Malacca. Some of these challenges relate to the maritime enforcement agencies' short-comings, nature of the Strait's users and the legal processes to bring offenders to court. Based on the analyses, it was revealed that the responsible agencies are inadequately equipped and trained to deal with the illegal discharge of dirty oil into the sea. In order to overcome these weaknesses, several new initiatives are suggested.

Keywords: law enforcement; maritime enforcement agencies; ship-based marine pollution.

1. Introduction

The fisheries sector is the main provider of fish as a source of food and protein in Malaysia. Its industries contribute about 1,381,424 metric tonnes valued at RM 6.298 billion or 1.0 percent of Malaysia's GDP in 2007. In the same year, the sector provides employment to 99,6177 fishermen of which 40,831 fishermen are found in the coastal states along the Strait of Malacca. These fishermen landed 692,985 metric tonnes of fishes valued at RM 2.263 billion. In the same year, a total of 70,718 ships passed through the Straits. Crude oil and chemical tankers constitute the largest number of transiting vessels in the Strait. By 2010, with a total of more than 75,000 ships expected to pass through the Straits, the number of cases of ships discharging dirty oil into the sea illegally is expected to increase. Dirty oil discharged illegally by these ships is one of the sources of marine pollution that threaten the fisheries industries in the Strait of Malacca.

According to the data released by the Department of Environment (DOE), in the last 5 years from 2000 to 2005, 108 of 144 cases of oil spills into the sea were due to illegal discharge of dirty oil by ships. In 2005, a total of 16 cases of ships discharging dirty oil illegally were detected during day-time. Of the 144 cases, only 32 ships were charged and 14 found guilty. The fines

imposed by the courts ranged from RM 10,000.00 to RM 25,000.00 except for three cases in which one ship was fined RM 100,000.00 and the other two ships were fined RM 120,000.00 each.

The objective of this study is the low effectiveness of law enforcement against ships discharging dirty oil into the sea. Towards this objective, analysis is focused on the difficulties faced by the maritime enforcement agencies in the detention of offenders, collection of samples and bringing the offenders to court.

2. Marine Pollution and the Protection of Marine Life

Marine pollution is generated by land, atmospheric and sea sources. Land-based pollution sources include industrial, domestic and agricultural wastes carried downstream into the sea. These are the greatest sources of marine pollution. Most of the sea-based pollution is due to oil or ballast water discharged from ships (either intentionally or accidentally due to collision or grounding). Other sources include shipping traffic, port operations and off-shore oil and gas exploration and production rigs. Oil and grease, suspended solids and *Escherichia Coli* (*E. coli*) were identified in the 1995 and 1996 Environmental Quality Reports of Malaysia as main contaminants of the coastal environment.

Industrial activities involving heavy metals, such as mercury and lead or cadmium also cause pollution of coastal areas. By nature, oil is toxic to marine life, especially the *polycyclic aromatic hydrocarbons* (PAHs), the main component in crude oil. PAHs are very difficult to clean up and could remain for years in the sediment and marine environments. Marine species that are constantly exposed to PAHs can exhibit developmental problems and are susceptible to diseases. The Strait of Malacca is susceptible to ship-based marine pollution due to the very heavy volume of shipping.

The protection of the marine environment is the subject of several international conventions such as the United Nations Convention on the Law of the Sea 1982, the Protocol of 1978 relating to the International Convention for the Prevention of Pollution from Ships 1973 or commonly referred to as MARPOL 73/78, the International Convention on Oil Pollution Preparedness, Response and Cooperation (OPRC) 1990, the International Convention on Civil Liability for Oil Pollution Damage 1992 (the 1992 CLC) and the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage 1992 (the 1992 Fund Convention). The signatories of these International Conventions, to which Malaysia is a party, are required to take measures to minimize marine pollution.

The DOE is the lead agency to deal with all forms of pollution at sea such as oil spills either from ships, oil platforms and terminals or other sources as provided under the Environmental Quality Act, 1974 (Act 127) as amended by Act A953, Environmental Quality (Amendment) Act of 1996. The Act together with other Acts such as the Exclusive Economic Zone Act, 1984 (Act 311), the Merchants' Shipping Ordinance, 1952 (Act 70) and the Merchant Shipping (Oil Pollution) Act, 1994 (Act 515) are to protect and preserve the environment within Malaysia's territorial waters and the Exclusive Economic Zone. Under Sections 27 and 29 of the Environmental Quality Act, the DOE has delegated this power to the Marine Department, Fisheries Department, Royal Malaysian Navy (RMN), the Marine Operations Force of the Royal Malaysian Police and the Royal Malaysian Customs Department in order to enforce this Act within Malaysia's waters. The Malaysian Maritime Enforcement Agency (MMEA) which was established in May 2004 with the enactment of the MMEA's Act 2004 (Act 633) is the principal government agency tasked with maintaining law and order and coordinating search and rescue operations in the Malaysian Maritime Zone and on the high seas. The Act provides the MMEA to enforce all federal laws at sea including the Environmental Quality

Act 1974 (EQA 1974) namely to control and prevent marine pollution.

3. Challenges to Effective Enforcement of Ship-Based Marine Pollution

Section 27 of the EQA 1974 strongly prohibits vessels from discharging or spilling oil or mixtures containing oil into Malaysian waters in contravention of the acceptable conditions specified by the Minister of the Environment for the emission, discharge or deposit of environmentally hazardous substances, pollutants or wastes. Section 29 of the Act prohibits unlicensed discharge of environmentally hazardous substances, pollutants or wastes into Malaysian waters. Any person who violates either Section 27 or 29 shall be liable to the payment of a fine not exceeding RM 500,000.00 or to imprisonment of up to five years, or both. Section 10 of the Exclusive Economic Zones Act, 1984 states that if any oil, oil containing mixture or pollutant is discharged or escaped in the EEZ from a vessel, land-based source, installation, device or aircraft through the atmosphere, or through dumping, those responsible for or in charge of the source are considered to be guilty of an offence and shall be liable to a fine of up to RM 1,000,000.00.

Under both the Environmental and the Exclusive Economic Zones Acts, the Director General of the DOE is empowered to detain any vessel from which the oil, mixture containing oil or pollutant escaped or was discharged where Malaysia's coastline or any segment or element of the environment or related interest is damaged or threatened to be damaged as a result of such discharge.

Enforcement of ship-based marine pollution at sea is no easy task and it requires cooperation of various government agencies. It involves the detection of dirty oil at sea during the day and night all year round, the collection of the dirty oil samples from the sea, detaining the suspected ship that has discharged the dirty oil, the collection of dirty oil samples from the detained ship, carrying out laboratory analysis of the samples and bringing the offenders to court in Malaysia, if there are sufficient evidences that the ship has committed an offence under the EQA 1974, the Exclusive Economic Zone (EEZ) Act, 1984, the Merchants' Shipping Ordinance, 1952 and the Merchant Shipping (Oil Pollution) Act, 1994

There are several factors that could contribute to ineffective enforcement. First and foremost, the DOE is given the responsibility, but without the assets to carry out the enforcement. It has to rely on other agencies delegated to enforce the EQA 1974 at sea. However, the agencies delegated with the power have

their own tasks to perform and most of them lack the manpower and assets to perform even their own tasks. Hence, to them, enforcement of the EQA is not a priority task and will only be performed on an opportunity basis. For example, the Malaysian Maritime Enforcement Agency (MMEA) has only about 14 vessels allocated for its bases in the Strait of Malacca, an area of about 26,534 square nautical miles. Under normal circumstances, assuming that normal ships' maintenance procedures are observed for "old" vessels, a maritime agency has about 50 percent of its assets available to carry out operations at sea at any one time of the year. Hence, the MMEA may not have more than 7 vessels to perform law enforcement in the Strait of Malacca. Taking into account the total area to be monitored, it is unlikely that MMEA will be able to assist other agencies in performing this task.

Second, there are many agencies responsible to enforce various laws in the maritime areas. For instance, the Fishery Department is responsible to enforce the Fisheries Act 1985, the Royal Customs and Excise Department is responsible to enforce the Custom Act 1967, the Marine Department is to enforce the Merchant Shipping Ordinance 1952, and the Royal Malaysian Navy is to enforce the Fisheries Act 1985, the EEZ Act 1984 and the Environmental Quality Act 1986. The Marine Operation Force of the Royal Malaysian Police has the power to enforce 19 Acts while the MMEA has the power to enforce all law and order under any federal law. Since their establishment, these agencies are managed by sector and function independently of one another. Under this system, each agency is established to enforce law and regulations related to its establishment, develops its own organization, manpower and training structures, acquires facilities and assets to meet its own requirements, operate on independent budget and financial system, and establishes its own working culture independent of other organizations. This system is not consistent with modern management techniques which emphasize effectiveness and efficient use of resources and avoid duplication of efforts. The establishment of the MMEA is to overcome all the problems and become the only authority on law enforcement at sea. However, as the powers given to all the other agencies are still in force, the MMEA is now seen as just another maritime law enforcement agency. These agencies are continuously given extra budget to purchase new equipment and develop new capability. In 2008, the Marine Operations Force planned to spend about RM 800 million to upgrade its force. The expenditure includes the formation of the Marine Combat Unit (UNGERIN) to conduct anti-piracy and counter-terrorist operations in the waters surrounding Malaysia and the purchase of

250 boats costing RM 300 million. The MMEA and the Royal Malaysian Police (Air Wing) were also given additional budget to purchase helicopters and fixed wing aircraft for maritime surveillance, a task expertly performed by the Royal Malaysian Air Force in the last 50 years.

Third, three of the maritime enforcement agencies responsible to enforce marine pollution control operate fixed wing aircraft designed for maritime patrol. The Royal Malaysian Air Force operates 4 Beech 200 Super King Air specially equipped maritime surveillance aircraft and 7 CN 235 transport aircraft that are adaptable for maritime surveillance. The Air Wing of the Royal Malaysian Police operates 9 Cessna and 5 Pilatus PC 6 fixed-wing aircraft. Unfortunately, none of these aircrafts have the capability to detect oil slick floating in the sea during the night or on rainy days. As for the Bombardier 415 MP multi-purpose amphibious aircraft acquired by the MMEA, it has the capability to detect oil slick at sea during day and night and to land on the water to collect dirty oil samples. However, the aircraft is believed to have two major drawbacks. First, it can only land on the water safely under good weather condition. Hence, its operations may be affected during the Northwest Monsoon season in the Strait of Malacca (April - September annually) known for its many thunderstorms during which winds can be quite gusty. Second, the aircraft may be able to take dirty oil samples, but it could not stop the suspected ship that has spilled oil into the sea. It still has to rely on the availability of ships to support the aircraft functions.

Fourth, the processes involved in apprehending a vessel suspected of discharging dirty oil into the sea illegally are cumbersome. Once a suspected vessel is detected, the polluted sea water sample in vicinity of the suspected vessel has to be taken immediately and the suspected vessel, sometimes even bigger than two-football fields in size, has to be apprehended and brought to the nearest port for further investigation. Several oil samples are to be taken from the various parts of the suspected ship. These oil samples together with the polluted sea water sample taken from the sea are to be sent for analysis to prove that these oil samples come from the same ship. There are several problems related to this process. The most important is that the polluted sea water sample has to be taken immediately for analysis by the Department of Chemistry. Any delay would have make the sample worthless. In most cases, detection of suspected illegal discharge of oil from ship is made by surveillance aircraft. Under the present system, the report will be made by the pilot of the aircraft on return to base. On receipt of the report, the Department of Environment in Putrajaya will make arrangement for its officers to go to the scene or make

a request to the National Maritime Enforcement and Coordination Centre (NMECC) in Lumut, Perak to request any of the maritime enforcement agencies to send a vessel to collect the polluted sea water sample and apprehend the suspected ship. Should there be no ship available in vicinity of the area, further delay of taking the sample would render the pollutant to disappear and allow the suspected ship to move out of the scene. Even if a ship is coincidentally available to collect the sample, it is still problematic because the ship would have many difficulties to apprehend the suspected ship. The worst scenario would be that the ship directed to take the sample has no trained personnel, no proper facilities onboard or could only arrive at the scene after day-light hours.

Fifth, time and space are always the major constraints for both merchant ships and oil tankers scheduling. A day delay means additional cost to ships' operations. The normal time taken to bring a large ship to port and take the necessary oil samples (depending on where the ship is detained) may take days. The lost days are unacceptable to the ship owners especially if the ship has not been proven to have violated the law. Given these circumstances, law enforcement officers may prefer not to take the risk by detaining a ship suspected of having discharged dirty oil into the sea unless other evidences are available.

It is understood that the problems have been there for a long time but solutions are not readily available. Certain developed countries have faced similar problems. The United States and Japan, for example, have overcome the problems by dedicating their Coastguards as truly the sole agency responsible for matters related maritime law enforcement. As for Australia, it has no coastguard. In lieu, the Australian Maritime Safety Agency is responsible for maritime safety, marine environment protection and maritime and aviation search and rescue. However, policing of maritime areas are carried out by various agencies such as Australian Customs, Federal and State Police, Defence Force, Immigration and Fisheries. Despite their advances in marine technology, these countries are still grappling with various difficulties in providing continuous maritime surveillance and evidence gathering at reasonable costs.

4. Conclusion

Major obstacles to enforcement of ship-based marine pollution laws in the Straits of Malacca include the presence of multiple agencies responsible for maritime law enforcement, the limited capabilities of these agencies to perform their tasks and the challenges faced by these agencies in collecting contaminated

samples from the sea and apprehension of the suspected offending vessels.

In like manner, the MMEA should truly be made the lead agency for maritime law enforcement as provided by the MMEA Act 2004. Under section 3 (2) of the Act, it is clearly stated that the MMEA is to be employed for the maintenance of law and order, the preservation of peace, safety and security, the prevention and detection of crime, the apprehension and prosecution of offenders and the collection of security intelligence. As for the powers of the MMEA, Section 6 (1) of the Act stipulates that MMEA shall enforce law and order under any federal law. To avoid duplication and ensure efficiency, the MMEA Act 2004 should supersede all other laws related to maritime enforcement by other maritime enforcement agencies prior to the establishment of the MMEA. The related agencies should focus on policy matters and leave the maritime enforcement to the MMEA except in special areas such as port and internal waters. In other words, the DOE will be responsible for environmental matters on land only and the Marine Department will be responsible for marine related policies such as shipping, safety and marine environmental protection.

To overcome shipboard sampling difficulties, a newer approach to shipboard dirty oil profiling based on the Tokyo Memorandum of Understanding on Port State Control may be examined. The protocol demands volunteer cooperation from participating countries to create shipboard dirty oil data base on their registered ships. The process may be slow at the beginning but, once the system is in place, it would be rewarding, convenient and effective in combating ship-based marine pollution in the Strait of Malacca.

References

- Abdul Ghafur Hamid, Malaysia's Commitment Under International Conventions and the Need for a Harmonized Legal Regime Regulating Marine Pollution, *Malayan Law Journal* (Lexis - Nexis) 2007; 6: 124-48.
- An Official of the Department of Chemistry, Petaling Jaya, the Department requires a few days to analyse the contents of a sample.
- Assessment of National Marine Pollution Legislation in East Asia (December 1997). 2008; URL: <http://d130148.u37.wsiph2.com/publications/governance/06Assessment-National-Marine-Pollution-Legislation-EAS.pdf>. 112.
- Discussions by the author with officials of the Malaysian Maritime Enforcement Agency's Southern Region, Johor Bahru on 29 January 2009
- Elite Unit the spearhead of marine security, the *New Straits Times* 18 June 2009; 20.

- Kasmin S. Efficiency Measurement of Malaysia's Maritime Enforcement Agency, Penerbit UKM, Bangi. 2009; 46-52.
- Law of Malaysia (Act 127) Environmental Quality Act 1974, Section 27.
- Law of Malaysia (Act 311) the Exclusive Economic Zone Act 1984 Section 10.
- Malaysian Maritime Enforcement Agency 2008; URL: <http://www.mmea.gov.my/hocgmy/mmea.htm>.
- MMEA Website 2009; URL: http://www.mmea.gov.my/index.php?option=com_content&view=category&id=75&Itemid=86&lang=ms.
- MMEA purchased two Bombardier 415 MP multi-purpose amphibious aircraft. The aircraft was delivered in September 2008. Earlier in the same year, the MMEA took delivery of two Dauphin heli-copters. URL: <http://www.mmea.gov.my/mmeaBI/page.php?filename=output.php&option=view&newsid=89>(10 August 2008).
- RM 800 m boost for Marine Police, the New Straits Times 20 April 2009; 12.
- Sutarji bin Kasmin, Enforcing the Laws for Cleaner Seas, the New Straits Times 2007; 18.
- The Marine Department of Malaysia's Statistic on Shipping Traffic in the Strait of Malacca (1999 - 2007) (http://www.marine.gov.my/service/statistik/BKP/total_report_07.pdf) (accessed 25 June 2009)
- The Royal Malaysian Air Force's current service aircraft. 2008; URL: <http://www.xairforces.com/airforces.asp?id=49>.
- The Royal Malaysian Police's Air Wing. 2008; URL: http://en.wikipedia.org/wiki/Royal_Malaysian_Police_Air_Wing_Unit.
- Weather and Tides in the Straits of Malacca. 2008; URL: <http://www.lighthouseetc.com.sg/weather&tides.htm>.

Received 19 September 2009

Accepted 5 October 2009

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