REGIONAL AND GLOBAL RESPONSES TO MARITIME DISASTERS: CHALLENGES AND WAY FORWARD

INTRODUCTION

The world has witnessed a surge in the incidences of maritime disasters over the years covering maritime transport mishaps, oil spills and act of terrorism. Maritime disasters have occurred through the ages because of the complex environment in which ships operate. It has been said that seagoing is ninety-nine percent serene and one-percent terror. Conditions can change at a moment's notice. The aftermaths of maritime disasters invariably affect human fatalities, property losses, environmental degradation and, above all, painful memories. Calamities have posed formidable challenges to mankind since earliest days. The absence of a fully implemented safety culture is still an issue which governments and shipping companies need to address with additional rigour. In particular, this includes the vital need for all concerned to understand the relationship between '**unsafe acts'** and '**serious incidents'** that may cause loss of life or serious damage to property and the environment. The importance of changing behaviour and avoiding negative attitudes or complacency towards safety and environmental protection is also underlined. Accidents and unintended pollution incidents do not just happen – they are caused, usually by more than one factor coming together at a particular place and time. The quest to neutralize the threat led to evolution of **practices**, varying in content but common in outlook where in total reliance was placed on response.

GLOBAL STATISTIC

With more than 90% of global trade estimated are transported by sea, the safety of international **shipping and routes** is critical to the health of the global economy. Based on Lloyd's List Intelligence Casualty particularly on reported shipping losses of over 100 gross tonnage from 2002 till end of 2013 (Figure 1), the evidence confirms that the majority of maritime accidents and disaster are related with older vessels, density of shipping and lack of flag states control. By far the most common accident is that, the **ship founders** which represent nearly **50%** of all losses reported in Figure 1.

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Grand Total
Collision (involving vessels)	19	20	12	26	23	17	11	13	10	3	5	1	**160**
Contact (e.g. harbour wall)	2	2	3	5	2	2	1	1			2		**20**
Foundered (sunk, submerged)	48	63	75	57	64	70	75	61	65	43	55	69	**745**
Fire/explosion	35	21	20	16	19	17	16	14	11	7	12	11	**199**
Hull damage (holed, cracks, etc.)	22	12	5	8	4	11	4	7	4	3	5		**85**
Missing/overdue			1	3	1	1			1				**7**
Machinery damage/failure	16	13	9	8	11	14	8	6	4	6	12	2	**109**
Piracy			1	1		1		1	2				**6**
Wrecked/stranded (aground)	22	35	25	24	29	35	34	23	22	27	25	11	**312**
Miscellaneous	9	8	1	3	1	2	1	2	2		1		**30**
Grand Total	**173**	**174**	**152**	**151**	**154**	**170**	**150**	**128**	**121**	**89**	**117**	**94**	**1,673**

Figure 1. Source: Lloyd's List Intelligence Casualty Statistics on reported shipping losses (of over 100 gross tons).

This statistic also identified 1,673 losses worldwide over this period, an average of 139 per year.

South China, Indo China, Southeast Asia, East Mediterranean and Black Sea, Japan, Korea and Nort China are the top list areas. (Figure 2).

S. China, Indo China, Indonesia & Philippines	296
East Mediterranean & Black Sea	215
Japan, Korea and North China	207
British Isles, N. Sea, Eng. Channel, Bay of Biscay	135
Arabian Gulf and approaches	96
West African coast	82
West Mediterranean	73
West Indies	51
East African Coast	51
Bay of Bengal	50
Others	417
Total Losses by Region	**1,673**

Figure 2. Source: Lloyd's List Intelligence Casualty.

Maritime disaster still occurs quite regularly and the need to address and re-assess the related underlying issues remains if future incidents are going to be avoided or reduced. Even small scale accidents in very sensitive environments, like the Straits of Malacca, Singapore Straits, Great Barrier Reef, can have profound environmental consequences. In the event of collision, if the cargo transports hazardous substances, it could cause a release of hazardous materials, posing a public health

and marine pollution threat. Climate change predictions are likely to exacerbate the causes of foundering as a result of storm surge, wave climates and extreme weather events.

CHALLENGES

Shipping Industry:

Tackling the associated underlying causes of maritime disasters and reducing the frequency of such incidents is a great challenge. This is particularly pertinent not only during a time of economic downturn when there might be a temptation for owners and operators to cut corners but also as the global fleet size is predicted to increase significantly over coming decades. Southeast Asia, where the majority of the incidences occur, includes important Sea Lane of Communication (SLOC) and the Coral Triangle. These areas are particularly congested waters, rich in biodiversity and therefore, especially vulnerable to the impacts of shipping accidents.

There is a need for the shipping industry to promote greater responsibility and registration with better flags, particularly by promoting those flag registries that make the effort to significantly clean up their act. In a long run, this would enhance business efficacy and improves the reputation of responsible flag states. The underlying issues that need to be addressed for the future safety of shipping includes but not limited to:

a. Poor monitoring and enforcement of regulation.
b. Increasing ship sizes.
c. Cargo handling and stowage.
d. Human error encompassing the issue of over-dependence on technology, lack of skilled workforce, non-standardized training, complacency, reduced crewing numbers and crew fatigue.
e. Poor Navigational Marks.

SLOC Safety and Security:

On the other hand, there is a dire need for the international shipping community to contribute to the maintenance of safety of the Sea Lane of Communication (SLOC). Malaysia along with other littoral states for instance, take the comprehensive and functional management of Straits of Malacca and Singapore Straits very seriously to ensure these waterway continues to play its important role as a secured SLOC, provider of natural resources for the prosperity of the littoral states and a mega biodiversity region. Indeed, traffic density in the Straits of Malacca has significantly increased over the years. It is projected that by the year 2020, the annual maritime traffic in the straits would go up as high as 141,000. Heavy shipping activities would pose greater challenges in maintaining safety and security of the straits. For instance, the number of ship and boat accidents in the Straits of Malacca and Singapore between the years of 2001-2007 was as high as 236 cases. Out of these incidents, six were major oil spills as depicted below:

Year	Name of Vessel	Spillage (Barrels)
1975	MT Showa Maru	54,000
1976	Diego Silang	34,000
1992	MT Nagasaki Spirit	100,000
1997	MT Evoikos	175,000
1999	Sun Vista	14,000
2000	MT Natuna Sea	49,000

Figure 3: List of Maritime Accidents in the Straits of Malacca and Singapore between the years of 1975-2000, (Source: www.marine.gov.my).

These calamities had badly affected the marine environment of the Straits. As a result, the whole west coast of Peninsular Malaysia from Johor to Selangor was exposed to the threat of the oil pollution. This oil slick posed hazards not only to the marine environment but also to the mangrove swamps and jungles, fish and prawn farms in coastal areas and the beach resorts along the south-western coast of Peninsular Malaysia. Due to heavy shipping activities, it was also recorded that coral reef development in the Malacca Straits is amongst the lowest in this region. Mangrove ecosystem along the Straits of Malacca, especially in the south-western corner of Johor is being threatened by constant soil erosion as a result of high navigational density plying the waterway.

Besides oil spill, shipping activities discharge other types of harmful and unwarranted wastes through expulsion of marine debris, disposal of sewage, spills of hazardous and noxious chemicals and substances, noise emissions and air pollution. This is what the Straits of Malacca and Singapore have to face everyday. This condition is further aggravated by the fact that the straits States' powers to impose environmental protection measures in these waterways are limited by application of accepted international regulations. For example, Malaysian authorities cannot simply suspend the transit passage of the vessel unless it has caused major damage to the marine environment. In addition, if the vessel does not call at any of the Malaysian ports, there is nothing Malaysia could do to prevent the passage or to arrest the captain of the ship except only to lodge a formal complaint to the flag states. If Malaysia, on the other hand, chooses to prevent the passage of the ship, this would open up opportunities for the flag states to take Malaysia to compulsory dispute settlement instead. This illustration clearly shows that the Law of the Sea Convention has limit the prescriptive powers of straits states, as far as regulating maritime traffic and protection of marine environment are concerned. Hence, with the constant increase of shipping traffic each year, the current available environmental protection regime may not be sufficient to protect the marine environment of these shipping lanes. Besides, with more vessels plying the straits, the question of safety and environmental concerns will become more acute for the littoral states.

Despite having co-operations and enforcement measures that led towards a decrease on piracy/sea robbery incidents, this doesn't mean that the problems of maritime security in the Straits of Malacca and Singapore have ended. Indeed, the Malacca Straits Patrol (MSP) maritime security initiative is a proven model. Security is not a static issue, as maritime security threats evolve each day. If appropriate safety policies, laws, regulations and co-operations are not implemented, it would be difficult to enhance the security in the straits and therefore, these waterways will always be exposed to any potential maritime disaster at sea. Therefore, the MSP is always exploring creative and innovative strategies to be ever ready to address future threats in an ever changing maritime security landscape.

WAY FORWARD – WHAT'S NEXT?

As the global fleet continues to expand rapidly and begins to operate routinely in more risky areas the probability of accidents and likely severity of impacts will again increase unless **precautionary measures** are put in place to address identifiable risk factors. As part of the rationalization around safety and environment, all states should be openly encouraged and supported to become party to and implement IMO conventions and regulations. Future focus on the area of flag state responsibility in being party to relevant agreements is a key recommendation.

Flag States:

It is importance to revisit the issue of which states can offer nationality to ships as this has implications with regard to jurisdiction and control of the ships. The absence of performance standards and eligibility criteria for flag states control, calls into question, the wisdom of the international community in allowing some vessel registries to continue to operate. Additionally there is also a need to highlight irresponsible and badly performing flags in order to motivate them to significantly increase their standards. If they don't reach a minimum acceptable standard of safety over a given period of time then their practices should be scrutinized publicly with an expected loss of business for the flag state's vessel registry.

SLOC Safety and Security:

A broad-based international support for a co-operative mechanism which would ensure the safety of SLOC whilst protecting the interest of the littoral States must also continue to evolve. For instance, the creation of "three-legged" processes for the Straits of Malacca, comprising of co-operative forum, projects aimed at enhancing safety of navigation and protection of the environment, and an aids to navigation fund. The compliance to routeing system comprising of Traffic Separation Schemes (TSS), deep water routes and rules for vessels navigating through the Straits was first endorsed by IMO in 1977. In May 1998, in order to adjust to changing

circumstances due to increased traffic and size, speed and types of vessels using the Straits, the Maritime Safety Committee of IMO further amended the Rules as precautionary measures where mariners must navigate with particular caution. IMO also further endorsed a mandatory ship reporting system (STRAITREP) in compliance with SOLAS regulation.

This mechanism is a finest example where the littoral States and the users meet and deliberate on issues relating to the safety of the Straits. Years of engagement, have resulted in the acceptance of a Co-operative Mechanism which allows dialogue between all parties concerned and provide for actual financial, material, technical and in-kind contributions to be made to a set of projects and an aids to navigation fund. This Co-operative Mechanism model is the first example of the realisation of the spirits of 'Burden Sharing' contained in Article 43 of the Law of the Sea Convention and is a landmark achievement in international maritime co-operation.

The security of the main SLOC cannot be tackled by any single country alone. The littoral states, user states and international community also need to work together to address all maritime security issues for all legitimate users.

CONCLUSION

It is generally accepted that most maritime disasters and accidents are preventable and only usually occur following unsafe actions or a failure to follow established procedures. In view of the above challenges mentioned earlier, it is necessary to focus more on Flag State responsibilities. Every flag states must have the capability and the willingness to exercise effective control with respect to safety and prevention of marine pollution over vessels that are registered under their flag. On the other hand, it is also incumbent upon Coastal States to provide necessary infrastructure in enhancing safety of navigation in all maritime areas under their jurisdiction.

Both flag states and coastal states too, play a significant part in enforcing all international regulations and safety standards on seafarers and shipping companies.

Therefore, the adoption of IMO regulations and its mandatory enforcement represent a most important step towards establishing a culture of self regulation in shipping.

The application of a safety culture is the ultimate agenda in avoiding potential maritime disaster at sea. It goes beyond compliance with externally imposed rules. Self regulation requires every individuals, shipping companies, both at sea and ashore, to be responsible for every action taken to improve safety, rather than seeing such measures as being imposed from outside. The crew or even passengers will be less likely to be the victims of accidents, and safety culture is a means of maximising the financial benefit and cost savings that may be derived from proper compliance. It is important to note that investment in safety produces financial savings and is thus not a cost.

It is obviously in the interest of ship owners, seafarers and the community at large that the transportation of people and goods by ships should be made as safe as possible, and that accidents such as foundering, stranding, or collision should be kept to a minimum.