

THE GROWTH IN ENERGY ACTIVITIES IN THE SOUTH CHINA SEA – ARE WE TRULY PREPARED?

Yoppy Tan
Oil Spill Response Limited
Loyang Offshore Supply Base, 25 Loyang Crescent
Mail Box No. 5105, Block 503 TOPS Avenue 3
Singapore 50898

ABSTRACT 287566:

Stretching from Singapore and the Strait of Malacca chokepoint in the southwest to the Strait of Taiwan in the northeast, the South China Sea is one of the most important energy trade routes in the world. Almost a third of global crude oil and over half of global liquefied natural gas (LNG) passes through the South China Sea each year. Coupled with the significant economy growth from China, that is the world's largest oil importer, protecting the flow of oil becomes a prime consideration of the South East and East Asia governments. All of these factors make the South China Sea to hold one of the highest potential for oil spill, be it by quantity of oil or frequency of energy activities.

In the region, our industry faces increasing political challenge due to the disputed territorial waters and hence if an incident affecting multiple countries such as an oil spill occurs, the response may be chaotic if not adequately prepared for. The duty is on industry to work with regional governmental groups to promote joined-up response that is sufficiently robust and flexible to deal with both marine and well-control incidents.

Other factors that could pose a major challenge are the understanding of response tool kits and prioritization given to national environmental laws and regulations which will vary amongst the affected administrations. Has there been sufficient investigation into the range of national laws which could help/hinder inter-regional approach? What about each of the area contingency plan along the South China Sea? Is there sufficient data on the crude oil characteristics in this region and the availability of Stockpile of equipment along this stretch of the trade route?

This paper provides an overview of the oil industry's response to the growing energy activities in the South China Sea using case studies to illustrate the situations that are still occurring in practice.

INTRODUCTION:

Driven by the energy demand from the developing nations such as Brunei Darussalam, Cambodia, China, Indonesia, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam, the amount of shipping along the South China Sea in 2011 took the highest number ever recorded in the history (i.e. 15 million bbl/d, or about one-third of all seaborne oil). Yet not all the South East and East Asia countries adopt the same strategy in responding to oil spills, which mostly dependent on government-led preparedness and in some degrees, by industry equipment pools. Only few countries in the region place the preparedness and response onus on industry with government oversight (e.g. Singapore and Malaysia). This manuscript hope to answer the following questions: how to ensure that there is integration during response between the countries? What does the industry aware about the equipment stockpile available to respond? What obstacles to respond efficiently for major spills? Are there solutions for countries to have a joint up response mechanism? What are recommended approaches for these countries along the South China Sea? How should the industry organize to ensure optimum response capabilities? Is government control and direction of response to a major incident expected? If government control is expected, are existing national response systems optimally designed to accommodate that control?



Figure 1: Major crude oil trade flows in the South China Sea (million barrels per day) – 2011 (source: Energy Information Administration)

In the effort to steward resources for preparedness and response, the International Petroleum Industry Environmental Conservation Association (IPIECA) and International Maritime Organisation (IMO) initiated the step to bring regulators and industry experts together via a programme called Global Initiative (GI) to help countries to implement the International Convention on Oil Pollution Preparedness, Response and Co-operation, 1990 (OPRC Convention). The intention is for the GI is to spur discussions between government and industry in the effort to enhance existing response capabilities and for development of new response capabilities.

This manuscript addresses the current response capability in responding to the ever increasing energy demand in the region (i.e. South East Asia and East Asia). First, a summary of spill cases is presented to document the international response challenges. Secondly, countries that adopt government-led and industry-led preparedness and response regimes are explained. Thirdly, the role of a Tier 2 and Tier 3 oil spill response organisations (OSROs) are discussed. Lastly, recommendations on preparedness steps necessary to be taken to avoid ineffective trans-boundary response applicable for the regions are made.

CASE STUDIES:

The below case studies had been carefully selected to represent the different aspect of international response challenges that deemed to be crucial to be addressed.

Case Study on Equipment Deployment

One of the major oil companies organized an oil spill response exercise involving their worldwide response team in one of the countries in the region in 2007. The exercise took six months to be organised and executed. Similar application for a permit to conduct an over flight during the exercise, simulating an aerial dispersant spraying operation, took four months. The approval timings are hopefully not representative for applications required in a real incident. A surprise came one day prior to the exercise; all the equipment transported to the site for the exercise from aboard was sealed by the local customs. The exercise Incident Command Manager was advised that the equipment could not be deployed due to incongruity in the documentation. The exercise went on without the equipment deployment.

Case Study on Dispersant Application

The dispersant use policy in one of the ASEAN country is loosely written in its National Oil Spill Contingency Plan (NOSCOP). Mechanical containment and recovery is the preferred response to an offshore spill but if Net Environmental Benefit Analysis (NEBA) indicated that using dispersants will provide a net environment benefit then it can be considered for implementation. The issue was that the approvals for all the listed dispersants in the national schedule had lapsed. No updated list was available.

As part of the commitment to the government, a major international oil company was preparing to implement a seismic, exploration and drilling programme that encompassed four exploration wells in their leased area in the country. The Coast Guard (CG) enacted regulations that were quite prescriptive in terms of oil spill equipment needed in such operations. The company must be able to handle a Tier 1 spill which included stocking up on dispersants, based

on previous spill experiences, only some particular brand of dispersant fulfilled their requirements.

The issue with the particular brand is that it is currently not on the national plan product schedule while the approval for the particular brand has lapsed two years ago. The only recourse then was to have the particular brand accredited and approved before the drilling program starts. This had put the company in a tight position as all arrangements had been made and finalised for the drilling to begin.

Case study on Nationalism

OSRL also had experienced government agencies refusing oil spill response services and invitation to trans-boundary oil spill response exercise due to the political dimension. Polite reason ranged from national security to inconvenience of getting ministerial approvals. One country was impacted by oil from an unknown source. The incident had occurred for a few months with hundreds of kilometers of beach line impacted by oil from an unknown source. There were government to government calls for assistance during the initial stages of the incident. OSRL had offered the services of a team of Responders carry out a site assessment and provide clean up advice and training. The offer was courteously declined. The reason was that the cleaning had been taken care of by the local resources.

COUNTRIES' RESPONSE ARRANGEMENT:

The below table highlights the Countries that shared the high volume of shipping traffic along the South China Sea and their adoption of either Government-led or Industry-led response arrangement for Tier 2 and 3. The table also highlights their adoption on Civil Liability Convention Fund 1992 (CLC/FUND92) and the International Convention on Oil Pollution Preparedness, Response and Co-operation (OPRC) developed in 1990.

Table 1: Countries response arrangement for Tier 2 and 3

Countries	Government-led	Industry-led	Tier 2 Oil Spill Response Resources	CLC/FUND92	OPRC 90
Brunei Darussalam	X	X	Marine Department with support from Shell	X	
Cambodia	X	X	Department of Transport with support from Shell and Total	X	
China	X		Marine Safety Authority	X	X
Indonesia	X		Ministry of Transportation with support from SKKMIGAS (Oil & Gas Regulator)	X	
Malaysia		X	Marine Department with support from	X	X

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			PIMMAG (Industry funded cooperation)		
Myanmar	X		Department of Marine Administration		
Philippines	X		Philippine Coast Guard	X	
Singapore		X	Maritime and Port Authority with support from OSRL (Industry funded cooperation)	X	X
Thailand		X	Marine Department with support from IESG (Industry Environmental Group)		X
Vietnam	X	X	Maritime Administration with support from PetroVietnam	X	

As shown on the table above, in general, the response arrangement and resources along the South China Sea countries are led by the National Authorities. Up to now, very few countries have built their own Tier 2 stockpiles. Reliance is often placed on the Oil Industry which on its side is generally more focused on Tier 1 capability.

When trying to identify what is crucial in the functioning of an efficient response arrangement, the main ideas are typically the location of the equipment and the logistics. These by themselves are insufficient to fulfill all necessary requirements to ensure the existence of an effective response. The criteria of such response capability have been mentioned in numerous occasions without naming them and they are usually known as the six elements of preparedness: Legislation, Contingency Planning, Equipment, Training, Exercises and Forces for implementation.

Legislation Challenges

Legislation is a big item as described in the table above for the South China Sea route. The OPRC 90 and the compensation conventions CLC/FUND92 are the foundation of such legal requirements which allows a Country to operate in the six elements of preparedness. In fact, a State that has ratified the OPRC must follow a set of compulsory measures which represents the minimum legal requirements to improve preparedness and compensation. Unfortunately, this is still not well implemented in the region, as only four out of ten countries of concern have ratified the OPRC90.

An extremely relevant legislative aspect concerns the use of dispersants application. This is particularly a concern for the region as most of the crude oils produced in South East Asia and East Asia are light and hence suitable for dispersion. However, there may be a lack of

understanding on the effects and use of dispersants mostly driven by wrong messages concerning their toxicity and their potential to make lasting damage especially after the heightened attention by the media on the Macondo. Some countries are reluctant in using them whereas others would apply it as the last option in the response toolbox.

It is significantly crucial to have a well defined regulation by the policy maker and non-ambiguous guidelines/procedures regarding their use. Most of the countries in the region have an approved list of dispersants but methodology on applying the dispersant during response is often another separate set of approval protocols. Pre-agreement of dispersant use in defined zone on defined oils need to be systematically developed and integrated in the national oil spill contingency plans. The experience shows that Government agencies responsible for giving authorisation often work on a case by case basis. When the response must be timely, a case by case approach would result in missing an opportunity to minimise shoreline impact and subsequent larger clean-up efforts.

Logistics Challenges

Having a well defined guideline on oil spill response tool box application is one thing, providing a seamless movement of men and equipment across national boundaries is another.

The experience shows that the bulk of any response effort is mainly about logistics and subsequent time. Delays in responding to spill events would potentially result in a damaging effect on all concerned parties. The primary obstacle to the trans-boundary movement of oil spill resources is the Customs and Immigration agencies as well as the associated fiscal policies and insurance requirements of each country. They normally require prolonged approval processes for unusual permit and clearance requirements for bringing resources into a country.

Although some countries have developed a set of regional agreements (e.g. ASEAN OSRAP, ASCOPE OSCP, Brunei Bay OSCP, etc), the catch is in the detail of such agreements. Most agreements have not addressed the critical details of procedures and means to import equipment to the impacted country. Some agreements have not outlined the immigration and customs requirement and the point of contact of each country's lead agency as well as the necessary document to expedite process. Without a clear understanding of the process, the response effort may grind to a halt as responders are not be able to operate in the country without proper documentation.

Some of the root cause of the trans-boundary movement issues is identified to be the national sovereignty and bureaucracy. Most countries place national integrity as the priority and subsequently enforce strict control over their borders. It is sometimes difficult to bypass this restriction even in the event of an emergency. In most cases, bureaucratic border control authorities may indirectly cause disruption in the communication between the lead agencies of the neighborhood countries.

Therefore, it is critical to create opportunities for the Government lead agencies and other relevant government agencies to come together to run periodic exercises so everyone will be on the same page when comes to response situation.

THE ROLE OF TIER 2 AND TIER 3 OIL SPILL RESPONSE ORGANISATIONS (OSROs) IN THE REGION:

In most of the National Oil Spill Contingency Plans (NOSCOPs) in the region, the tiered response concepts is generally characterised by a volume and in many cases not taking account other parameters. The classifications of small, medium or large spills are usually driven by the available resources onsite.

The other parameters that should be taken into account when categorizing the tiered response level are as follows:

- Category of Oil
- Weather
- Impact on business operations
- Proximity to the operations
- Proximity to socio-economic environment
- Resources available locally
- Potential to escalate to credible response

The other misconception comes from the fact that Tier 3 oil spill response organisations (OSROs) are able to cover all aspects of a response in capacity, including Tier 1 and 2. An effective response is comprised of the combination and the addition of all resources in number and in type. The equipment and the logistics involved in a Tier 3 response are often different from what is available locally (e.g. aerial dispersant spraying, fire booms, sub-sea well intervention kits, etc).

To understand the interaction of the Tier 2 and 3 OSROs in the region, it is good to begin with the understanding on three categories of response capability factors as described below.

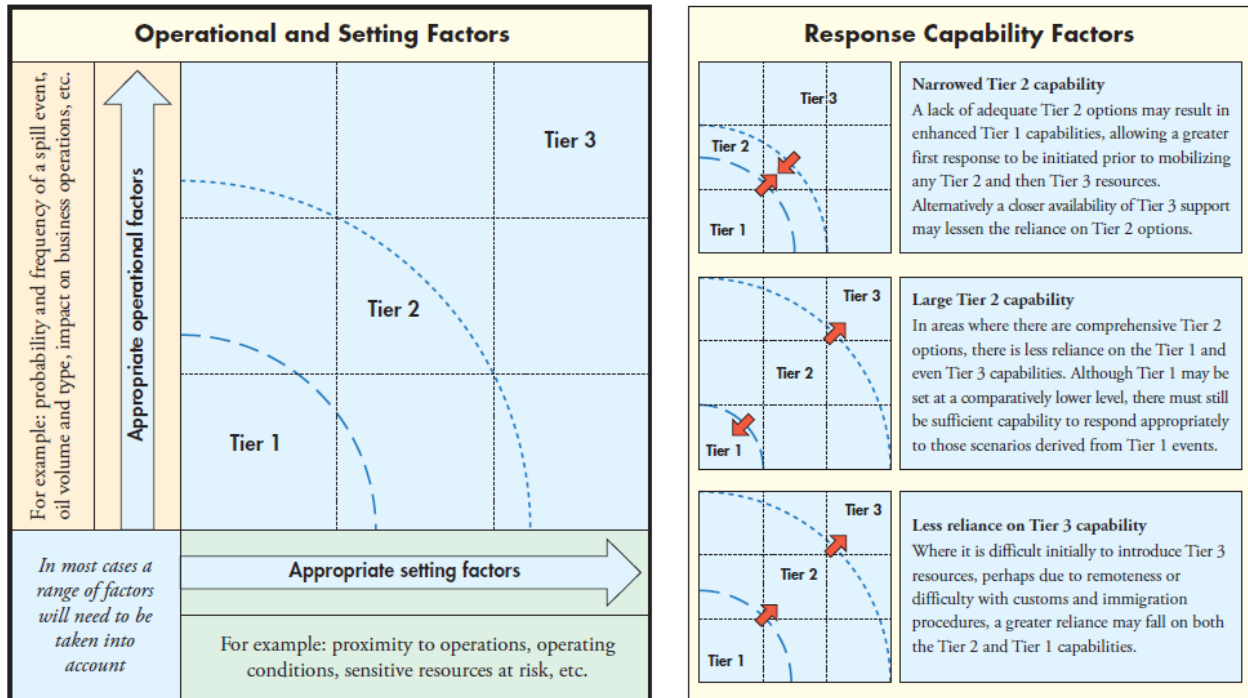


Figure 2: Response Capability Categories (source: IPIECA)

Narrowed Tier 2 capability

This describes a situation when a Tier 1 capability is stretched beyond the minimum standard. It means that the response within that region relies on robust Tier 1 and Tier 3 arrangements. A usual case is for remote offshore operations where local dispersant stockpile is kept onsite and for out of control situations, a back-up is provided by a Tier 3 aerial support that can be rapidly deployed. In such situation, Tier 2 response is very restricted and normally beyond reach.

Large Tier 2 capability

This describes a large available Tier 2 resources and hence strong reliance on the national resources. The capability of the Tier 2 has been set up to support efficiently a limited Tier 1 at local level and also compensate the lack of prompt Tier 3 assistance (e.g. deployment of external resources are restricted by distance, difficult access, difficult logistics, political reasons, etc).

Less reliance on Tier 3 Capability

This describes situation somewhat similar to the second category but heavier emphasis at the interface between Tier 1 and Tier 2. This model particularly suits regions with large scale operations that have been classified as higher risk in terms of spill probability and severity. A usual case is where a region has very large terminals or offshore operations.

Countries' matrix on reliance on Tier 3 Capability

The below is a subjective assessment of the author after working for OSRL in the Asia Pacific region for more than 6 years. It is highly recommended that a next study to include a quantitative measure to confirm the assessment below.

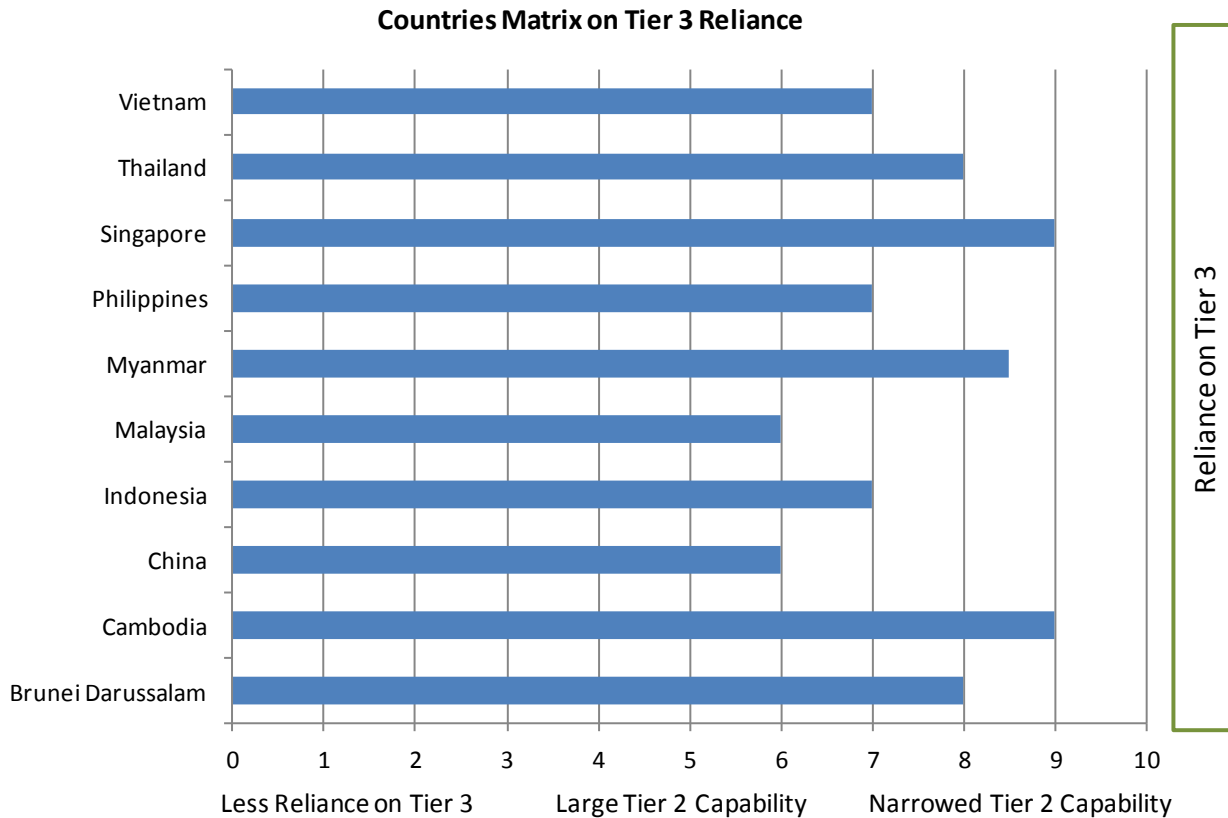


Figure 3: Countries' Matrix on Tier 3 Reliance

The assessment above shows that most countries are more reliant on Tier 3 due to its narrowed Tier 2 capability. Others have larger Tier 2 capability due to the initiative of the industry to form such OSRO locally and hence may rely less on Tier 3 resources. This perhaps is well reflected for the region where external assistance is frequently uneasy due to too fragile assistance and operational agreements.

PREVENTION STEPS TO AVOID INEFFECTIVE TRANSBOUNDARY RESPONSE:

The risk of conflict in the South China Sea is noteworthy. China, Taiwan, Vietnam, Malaysia, Brunei and the Philippines have competing territorial and jurisdictional claims, particularly over rights to exploit the region's possibly extensive reserves of oil and gas. Given the growing importance of the South China Sea route, the following preparedness initiatives are deemed critical to ensure effective response will be in place in the event of emergency.

Contingencies

The energy operator needs to identify the potential spill incidents and timeline that triggers trans-boundary response. Once the scenarios are identified, the engagement with potential impacted Country should begin. This engagement however should be dealt sensitively and a good media is through a technical forum. Other important tools to be drawn are the existing regional agreements. They are for example:

- **The ASEAN Oil Spill Response Plan (ASEAN OSRAP)**
This is a South East Asia Oil Spill Response Plan. It is a Memorandum of Understanding (MoU) on oil spill response cooperation which was signed by six countries (i.e. Brunei Darussalam, Indonesia, Malaysia, Philippines, Singapore and Thailand) in 1994. The objective of the MoU is to provide a co-operative plan for mutual assistance from Member states and organisations in the event of a major oil spill incidents which exceeds the response capability of the national government.
- **ASCOPE Oil Spill Contingency Plan**
The ASEAN Council on Petroleum (ASCOPE), made up of national petroleum corporations of ASEAN countries, is considering forming an ASCOPE oil spill contingency plan to provide equipment and manpower to member countries. The proposed plan will complement the ASEAN-OSRAP.
- **NOWPAP MERRAC**
The action plan for the protection, management and development of the marine and coastal environment of the northwest pacific region (NOWPAP) was adopted in 1994 as a part of the regional seas programme of the United Nations Environment Programme (UNEP). NOWPAP has four regional activity centres situated in China, Japan, Korea and Russia.

Lead agencies – point of contact

The lead agency is the appointed government body that needs to be informed when a major incident occurs. The Industry needs to identify the point of contact (POC) within the lead agency. Once the POC is identified, communication with the person should be maintained pro-actively especially on the issue of Government-Government arrangement.

Promoting the Global Initiative project

The GI is a programme under which the Government bodies and the Industry and other partners, are working together to encourage and facilitate the development and implementation of national and regional oil spill contingency plans and increase the ratification of oil spill related international conventions. The GI also brings together the International Oil Pollution Compensation (IOPC) funds, the International Tanker Owners Pollution Federation (ITOPF), Government, local industry, donor agencies and Non-Governmental Organisations (NGOs) to a common platform where the key players can exchange facts, explain their responsibilities, contributions, expectations and ideas as the trigger to advancing national preparedness for and response to the threat of oil pollution.

The IMO provide the inter-governmental liaison, whereas IPIECA facilitate industry involvement. The governments, local industry, donor agencies and NGOs provide the regional and local input, which allows the development of a focused work programme for implementation.

On the 19th of March 2013, the GI for South East Asia was launched in Jakarta, Indonesia. This project will be carried for at least the next two years with a series of engagement programme and targets. This project is funded by the IMO and also the members of IPIECA (i.e. Chevron, ExxonMobil, Pertamina and Shell).

CONCLUSION:

The growing demand of energy is unlikely to decrease but rather on the increasing trend. The experience shows that the political hurdles are likely to remain when it comes to welcoming international assistance. Tightly controlled response arrangement by the regulators will also remain in the region. The rise of Tier 2 OSROs will continue and hence the cooperation between Tier 2 and Tier 3 OSROs will be critical to the success of joint response operations. Existing regional arrangements should be the continuous focus by both the Regulators and the Industry as these will be the tools drawn in when major spill occur causing trans-boundary effect. Last but not least, the promotion of the international conventions should remain the key focus by the industry.

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