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Government/Industry Cooperation at Regional Level

The Global Initiative South East Asia Project

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GI SEA プロジェクト・コンサルタント

Introduction

In 2006, the IPIECA Oil Spill Working Group initiated a study with the view to better understand the oil spill risks in the East Asian region. Such a study would help to better understand the real risks for this region and determine the need and the structure of a GI programme that might be implemented in partnership with the IMO in the future.

In March 2007, a joint IMO/IPIECA regional workshop was conducted in Perth, Australia named “*Oil spill preparedness and response in the East Asian Seas Region - Developing a strategy for strengthening capability*”. A study report was subsequently produced for the IPIECA OSWG in July 2007 named “*An Oil Spill Preparedness and Response Study in the East Asian Seas Region for the Development of a GI East Asia*” resulting in a list of 11 recommendations. Following the approval of the OSWG, several major companies sponsored the development of an Industry action plan for the South East Asia region (known as Phase 1), which was completed in November 2008. The paper and presentation presented for the PAJ Workshop 2009 summarize the work that was conducted during this period for this project.

Background on Global Initiative (GI)

The IMO/IPIECA Global Initiative (GI) is a partnership between the International Maritime Organization (IMO) and the International Petroleum Industry Environment Conservation Association (IPIECA) to strengthen global oil spill preparedness and response capability and to promote ratification and implementation of the relevant international conventions.

The mission of the GI is to strengthen the national oil spill response capability through the establishment of local partnerships between the oil industries and the national authorities in charge of oil spill preparedness and response.

The GI aims to improve and sustain the capability of developing countries to protect their marine and coastal resources at risk from a maritime oil spill incident. The high-level partnership between IPIECA and IMO enables relevant actors to be brought together at a national and regional level in pursuit of this aim: the IMO provides access to governments; IPIECA brings local industry to the table. GI aims are achieved through:

- Support for the national and regional implementation of the following International Conventions:
 - OPRC90,
 - CLC92,
 - FUND92,
 - Bunkers Conventions; and
 - The Supplementary Fund Protocol;
- Regional Agreements on oil spill preparedness, response and co-operation (NOWPAP, ASEAN OSRAP, etc.)
- Organisation of workshops and training sessions related to contingency planning, sensitivity mapping (among others) and delivered jointly by IMO and industry with support at the national and regional levels.

GI Regional Models

The Global Initiative operates with a new focus on regional activities and a continued emphasis on finding better and more effective ways for the partners to work together to ensure sustained results. The Initiative now encompasses focal points for the Mediterranean Sea, Caspian & Black Seas and WACAF regions, each with a designated project manager, to help build local capacity, interest and political will for the development and implementation of effective contingency plans.

Looking to the future, there are plans to develop similar projects for the Northwest Pacific Action Plan (NOWPAP) and South East Asian (ASEAN) regions. It is hoped that the regionalisation of the Global Initiative will drive progress at a faster rate and deliver more effective and sustainable contingency plans to these priority regions.



Figure 1: GI Regions

- | | |
|--|---|
| 1 <i>Mediterranean (MOIG)</i> | 2 <i>Caspian Sea, Black Sea and Central Eurasia (GI OSPRI)</i> |
| 3 <i>West and Central Africa (GI WACAF)</i> | 4 <i>Latin America/Caribbean</i> |
| 5 <i>South East Asia Seas</i> | 6 <i>North West Pacific</i> |

The GI South East Asia Project

The study area covers nine countries namely: Brunei Darussalam, Cambodia, Indonesia, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam.

Several oil company members of IPIECA sponsored a 'phase 1' study which entails the definition of the basis for an action plan for the region.

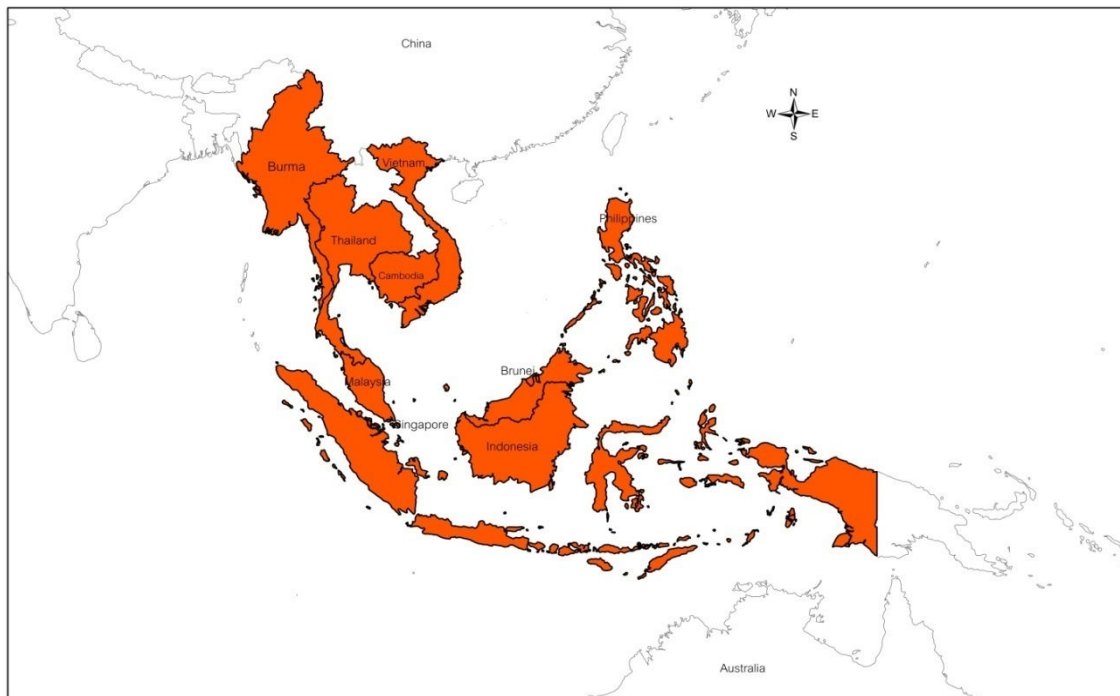


Figure 2: Geographic Scope of the GI SEA Region (identical to the ASEAN-OSRAP Region)

The so defined region also corresponds to the one of the East Asian Seas from the UNEP Regional Seas Programme and of the ASEAN (without Laos).

Risk Profile for the East Asia Region

The South East Asia and Northwest Pacific regions have had numerous oil spills for the past 30 years. As a matter of fact, the Asian shipping lanes of these regions are some of the most used worldwide, accounting for the transport of about 26% of the total seaborne crude oil trade (source LMIU, 2006). This large percentage is partly due to the large imports of countries such as Japan, South Korea and China added to the regional transport of crude oil produced within the region itself (mostly in Indonesia, Malaysia, Brunei, Thailand and Vietnam).

Many actions have been taken at global level to improve safety and to reduce the number of spill incidents. In the mean time, the transport of oil products has continuously increased both in volume and in number of ships used and with the development of technology, numerous oil fields are getting exploited in deeper waters.

According to the Review of Maritime Transport 2008 published by the United Nations Conference on Trade and Development (UNCTAD), the share of tanker trade in the total world

seaborne trade amounted to 33.4%. World shipments of tanker cargoes reached 2.68 billion tonnes, of which more than two thirds were crude oil. During the same year, crude oil seaborne shipments increased by an estimated 3.5%, to reach 1.86 billion tonnes.

Major unloading areas are located in developed regions, including Europe (528.4 million tonnes loaded), North America (534.4 million tonnes) and Japan (211.5 million tonnes). Major unloading developing regions included Southern and Eastern Asia, with 424.8 million tonnes and South-Eastern Asia, with 95.8 million tonnes, reflecting growing energy requirements in developing Asia, and an evolving intraregional South–South trade.

Statistics on the Malacca straits and recent data on volumes of oil and petroleum products confirm this trend for the region. Details are available in previous studies made especially for the project and are not developed in this paper. The latest Maritime transport statistics from UNCTAD are provided in Annex II for reference.

Data on maritime transport are good to draw patterns and conclusions as long as they are combined with historical data on oil spills from ships. Data from ITOPF on tanker incidents are very useful to support the assessment. ITOPF staff attended about 45 spills below 700 tonnes and 15 spills over 700 tonnes for the period 1996-2005 only in South East Asia and Northwest Pacific. The most interesting observation is that figures for the two previous decades (e.g. 1976-1985 and 1986-1995) are very similar, thus strongly suggesting that there has been no significant decrease in the oil spills from shipping in this region over 30 years. This is even more striking when considering that this represents the number of spills attended from tankers only.

The risk of oil spills is indeed not solely related to tankers incidents but also to other types of ships that use heavy fuel oils for their propulsion. The same statistics on maritime transport show that traffic from container, general cargo and dry bulk ships is also in constant development and come to add to the risk.

Finally, the increase in exploration and production activities offshore from oil companies in the South East Asia region is also to be taken into account. With production volumes increasing, more storage is required (there are not less than 23 FPSOs in operation in the South East Asian Seas) and marine loading operations become consequently more frequent.

The Six Elements of Preparedness

Similar to other successful GI programmes, The GI SEA objectives are based on strengthening the Six Elements of Preparedness. These elements list the requirements to achieve a comprehensive national response system in accordance with international guidelines. The six elements have been defined as being fundamental in achieving a minimum level of preparedness. Each of them is indisputably required and needs to be well considered but the ultimate goal is to have all of them combined and working well together.

The Six Elements of Preparedness are detailed below with typical objectives:

1. Legislation:

Objective: To promote the ratification of OPRC 90, CLC 92 and Fund 92 Convention. This is also extended to the Bunkers Convention and the Supplementary Fund Protocol.

2. Contingency planning:

Objective: To promote the development of national oil spill contingency plans including crisis management systems, sensitivity maps, risk assessments with modelling and predictions. Dispersant policies and strategy is also a part of contingency planning.

3. Equipment:

Objective: To have the appropriate kind and amount of oil spill response resources corresponding to the level of risk and type of threat. This comprises equipment study or review to assist with the process of promoting an effective response.

4. Training & 5. Exercises:

Objective: To ensure that training and exercises are developed by Governments and Industry in each country on an annual basis. It is also one of the objectives to raise awareness and gain commitment from designated authorities to increase training and exercises at an appropriate level and promote both quality and frequency.

6. Forces for Implementation:

Objective: To promote exchange and mutual assistance and cooperation in oil spill response. This element of preparedness is the one that aims to ensure that implementation of all the other elements is enforced and any kinds of obstacles are realistically identified and minimized.

SUMMARY OF TOOLS AND RECOMMENDATIONS DEVELOPED FOR THE BASIS OF AN ACTION PLAN

Evaluation of Relative Oil Pollution Risk

A model matrix has been proposed in order to identify locations that are more at risk of oil spills than others and which would justify giving priority for activities aiming at increasing the six elements of preparedness.

Table 1: Matrix for relative risk evaluation

Criteria Number	Type of Risk	Weighting Low	Weighting Medium	Weighting High
C1	Oil Production Risk	1	2	3
C2	Arriving / Departing Ship Risk	1	2	3
C3	Passing Ship Risk	1	2	3
C4	Neighbouring Countries Risk	1	2	3
C5	General Level of Preparedness	2	4	6
C6	Cooperation Potential	1	2	3
	Indicative Total Risk	$\sum_{i=1}^6 R_i$ <p>With R_i being the risk factor for each of the criteria defined in this table</p>		

Budget Estimation and Funding Model

The level of budget that would be required to implement a certain number of activities as well as a funding model were also identified. Given that consultation between the stakeholders is still in progress, detailed information on the budget is not provided; however, the methodology proposed for sharing contributions is shared below:

Working from a defined budget, the contributions would be established by a formula that would take into account the production level (offshore risk), the shipping activities (shipping risk) and the downstream activities (handling risk in terminals). Each of these would have an attributed coefficient as illustrated in the table below:

Table 2: Contribution Factors by Type of Activity

Production				Oil terminals / Refining	Shipping	Total Coefficient
Band 4	Band 3	Band 2	Band 1	0.25	0.25	0.25 to 1.50
0.25	0.50	0.75	1.00			

The formula proposed for determining the contribution of each participant is explained below:

Once fixed, the total budget is shared as defined by the equation below:

$$\text{Total Budget} = \sum_i N_i C_i E$$

With:

$$\begin{aligned} E &= \text{elemental contribution} & i &= \text{number of participants} \\ N_i &= \text{number of participants having the same contribution factor } C_i \\ C_i &= \text{contribution factor (varies between 0.25 to 1.5 as defined in table 2)} \end{aligned}$$

In order to determine the contribution of a particular participant, the elemental contribution needs to be calculated first:

$$E = \frac{\text{Total Budget}}{\sum_i N_i C_i}$$

The contribution of a particular participant can then easily be calculated by using:

$$\text{Contribution of Participant } p = C_p E$$

This model proposed has the advantage of taking into account the different risks (offshore production, shipping activity and downstream operations). It is the first of its kind which promotes a fair distribution of contributions between potential members which are encouraged to join.

In addition to the above, it was also proposed to introduce **an Associate Membership** that would be open to pure shipping companies and Oil Companies that are not members of IPIECA. Their level of contribution would be capped at a certain level that would be determined subsequently. This would allow other concerned companies to also enjoy the benefits from GI activities and gain more diverse participation in the future.

For information, there are more than 40 companies having oil handling operations upstream and downstream in South East Asia (excluding shipping companies).

Contact Database

A contact database of the key stakeholders was created for future use. It includes contacts from representatives of Industry, ASEAN-OSRAP Focal Points, ASEAN MTWH Focal Points, IMO,

ASCOPE and PEMSEA. This database is a good starting point to know who the players are and will need to be consolidated and updated in the future.

Advanced Country Profiles

Based on the model of the country profiles that were developed for the Global Initiative Project in West and Central Africa (GI WACAF) and available on the website in question, advanced country profiles were also compiled for the South East Asia Region. Essential information such as contacts, legislation, contingency planning, sensitivity mapping, agreements, training, exercises and national resources are available in these profiles. In addition, information on offshore production, shipping and refinery have also been included and special maps done by GIS were produced to visualize oil related activities. A sample of upstream and downstream maps is provided below:

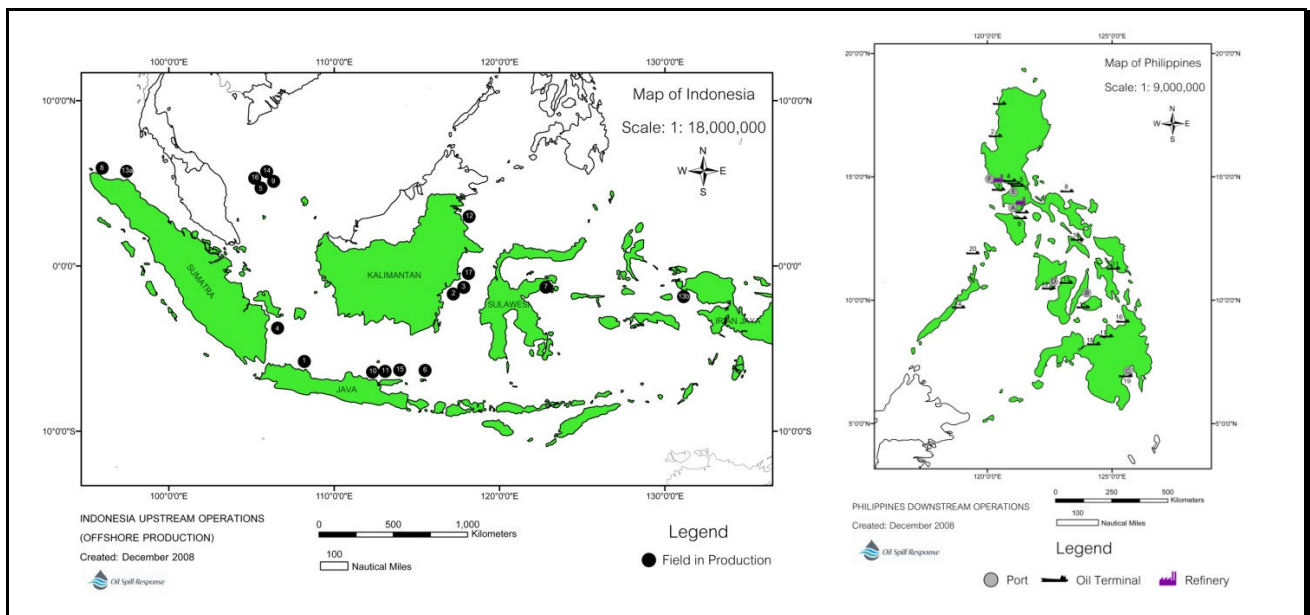


Figure 3: Sample of Maps of Upstream and Downstream Operations in Indonesia and the Philippines

Stakeholder Mapping

One of the essential steps for a possible establishment of a GI SEA programme is the definition of the organisation and interaction between all the stakeholders involved. The stakeholders shown in figure below are not formally part of a GI programme but are all recognized to be key players in the region. Future work will be to determine the most suitable form of participation, integration and relationship between all these stakeholders and the shape a potential GI SEA programme should take.

In addition to the Stakeholder mapping, there are other supporting organizations worth mentioning that can play a role in the funding, networking and delivery of GI Activities. They are listed below:

- Funding Agencies (e.g. ADB, Nippon Maritime Center (JAMS), DANIDA, ...)
- Specialized UN centres (COBSEA)

- Sources of expertise for delivery (IMO approved Consultants, ITOPF, NOAA, *Oil Spill Response*, PAJ)

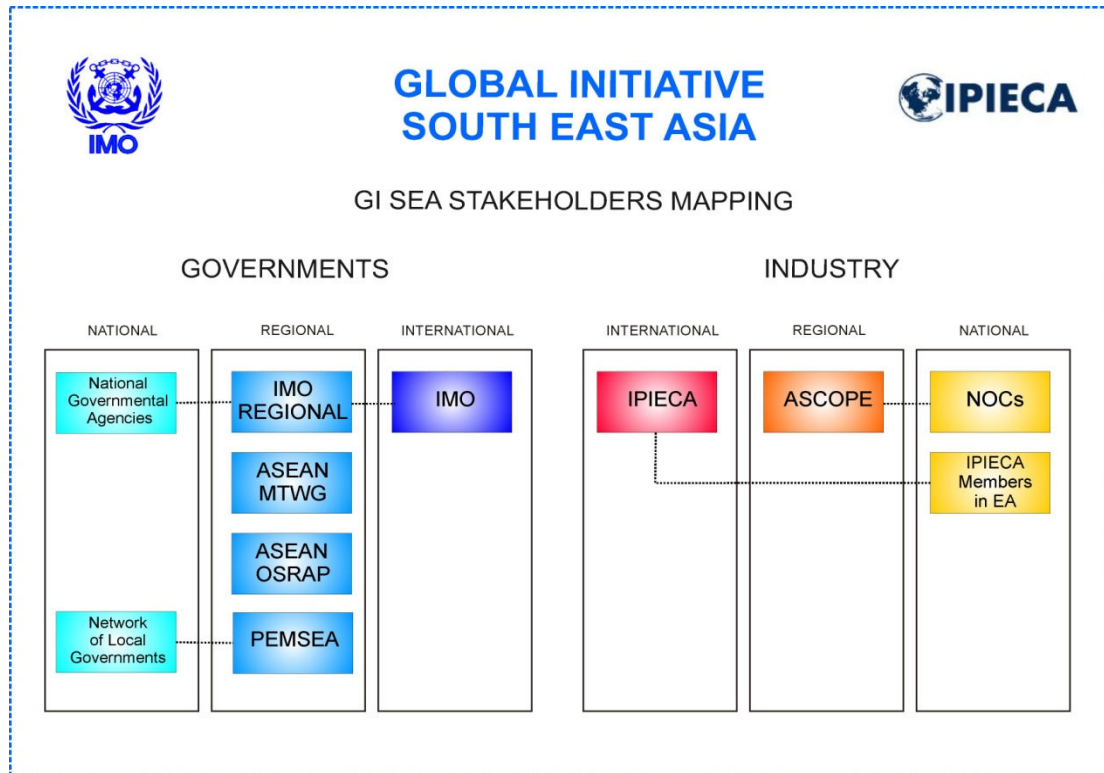


Figure 4: Stakeholder Mapping at International, Regional and National Levels in the South East Asia Region

Notes:

- IMO has a regional office in Manila, Philippines and a coordinator in charge of regional activities (including ITCP)
- PEMSEA has also been mapped for its direct link and established network at local level known as the PNLG (PEMSEA Network of Local Governments)
- The ASEAN Maritime Transport Working Group (MTWG) is an official working group under ASEAN, the OSRAP is not (yet) but may become part of the former
- ASCOPE has a direct link to 10 NOCs in the region. IPIECA has 12 members in the region (including 2 that are also members of ASCOPE).

Developments and Conclusions

The preparatory work has been done for the past three years, the engagement with regional key stakeholders and the collection of information were essential steps before attempting to build a GI Action Plan for South East Asia. Models and tools have also been made available albeit they might require some adjustments. The next steps will consist in the consultation of the IMO and IPIECA with regional groups such as the ASEAN OSRAP and the NOCs to define any possible way forward for a Phase 2 Programme to implement the recommendations from Phase 1. This is planned to take place in 2009 in the form of an ASEAN OSRAP Meeting and during a special IMO/IPIECA/Oil Spill Response workshop at the EAS Congress in Manila.

Annex I - List of Acronyms and Abbreviations

ADB	Asian Development Bank
ASCOPE	ASEAN Council on Petroleum
ASEAN	Association of South East Asian Nations
CLC92	Civil Liability Convention 1992
COBSEA	Coordinating Body for the Seas of East Asia
DANIDA	Danish International Development Agency
FUND92	Fund Convention 1992
GI	Global Initiative
GI SEA	Global Initiative South East Asia
GI WACAF	Global Initiative West and Central Africa
IMO	International Maritime Organization
IPIECA	International Petroleum Industry Environmental Conservation Association
IOPCF	International Oil Pollution Fund
JAMS	Japan Association for Marine Safety
LMIU	Lloyd's Marine Intelligence Unit
MTWG	Maritime Transport Working Group (of ASEAN)
NOCs	National Oil Companies
OPRC	International Convention on Oil Pollution Preparedness, Response and Cooperation 1990
OSRAP	Oil Spill Response Action Plan
OSWG	Oil Spill Working Group
PAJ	Petroleum Association of Japan
PEMSEA	Partnership in Environmental Management for the Seas of East Asia

Annex II - Tables and Figures

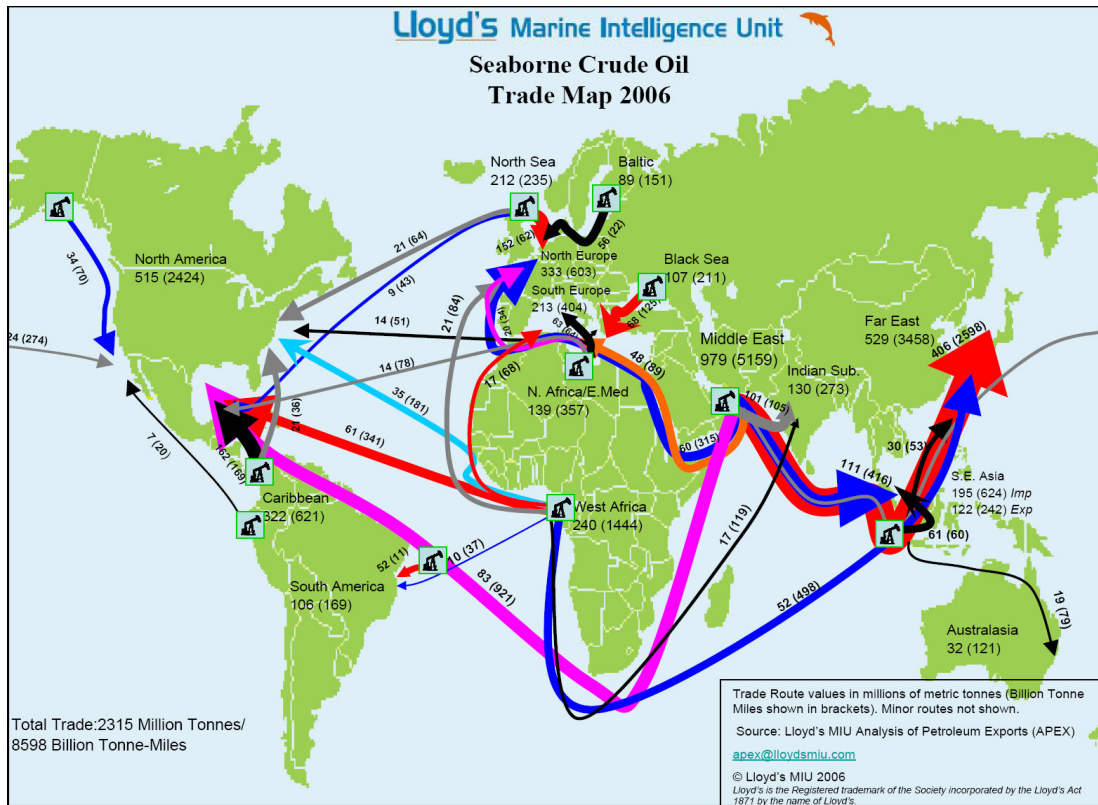


Figure 5: Seaborne Crude Oil Trade Map 2006 (Source, LMIU)

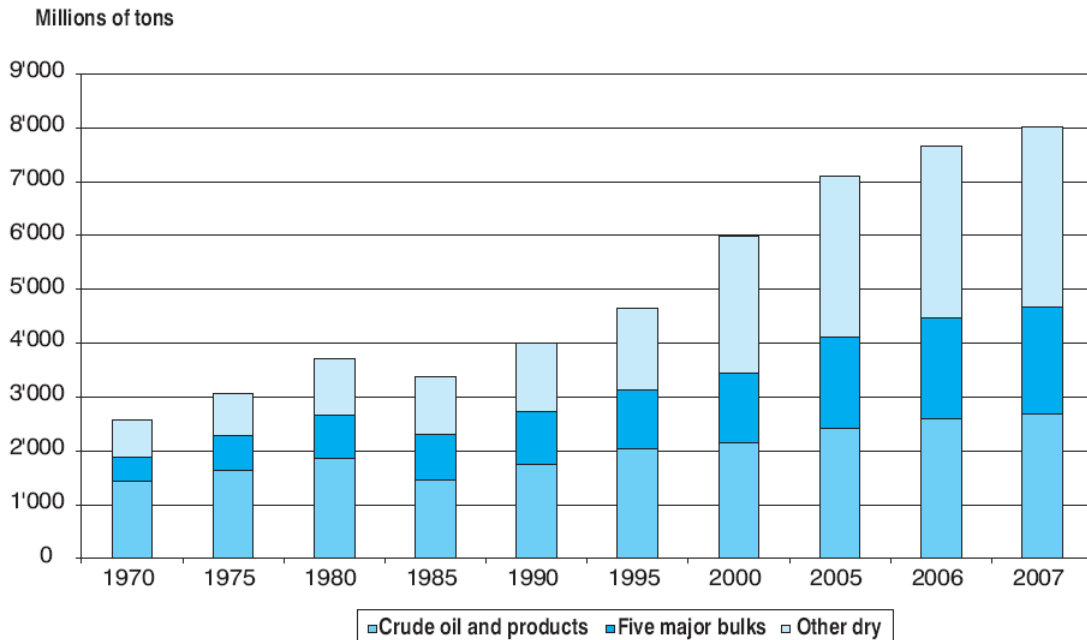


Figure 6: International Seaborne Trade for Selected Years (Source UNCTAD)

Country group	Year	Goods loaded				Goods unloaded			
		Total	Crude	Products	Dry cargo	Total	Crude	Products	Dry cargo
Millions of tons									
World	2006	7 652	1 802	792	5 057	7 761	1 929	839	4 993
	2007	8 023	1 866	815	5 341	8 032	1 963	839	5 230
Asia	2006	2 897	801	251	1 845	2 846	537	235	2 074
	2007	3 052	819	257	1 976	2 982	558	229	2 194
Percentage share									
World	2006	100.0	23.6	10.3	66.1	100.0	24.9	10.8	64.3
	2007	100.0	23.3	10.1	66.6	100.0	24.4	10.4	65.4
Asia	2006	37.9	44.4	31.7	36.5	36.7	27.8	28.0	41.5
	2007	38.0	43.9	31.6	37.0	37.1	28.4	27.3	41.9

Figure 7: World seaborne trade in 2006/2007, by type of cargo and country group (source UNCTAD)

Year	Oil			Iron ore	Coal	Grain ^a	Five main dry bulks ^b	Other dry cargoes	World total
	Crude	Products	Crude plus products						
1970	5 597	890	6 487	1 093	481	475	2 049	2 118	10 654
1980	8 385	1 020	9 405	1 613	952	1 087	3 652	3 720	16 777
1990	6 261	1 560	7 821	1 978	1 849	1 073	5 259	4 041	17 121
2000	8 180	2 085	10 265	2 545	2 509	1 244	6 638	6 790	23 693
2001	8 074	2 105	10 179	2 575	2 552	1 322	6 782	6 930	23 891
2002	7 848	2 050	9 898	2 731	2 549	1 241	6 879	7 395	24 172
2003	8 390	2 190	10 580	3 035	2 810	1 273	7 464	7 810	25 854
2004	8 795	2 305	11 100	3 444	2 960	1 350	8 139	8 335	27 574
2005	9 239	2 510	11 749	3 918	3 113	1 686	9 119	8 730	29 598
2006	9 495	2 635	12 130	4 192	3 540	1 822	9 976	9 341	31 447
2007	9 685	2 755	12 440	4 790	3 750	1 857	10 827	9 665	32 932

Figure 8: World seaborne trade, selected years in billions of tonne-miles (Source UNCTAD)

Area ^a	Year	Goods loaded			Total goods loaded	Goods unloaded			Total goods unloaded
		Oil		Dry cargo		Oil		Dry cargo	
		Crude	Products ^b			Crude	Products ^b		
Japan and Israel Code 3	2006	0.0	11.7	152.4	164.1	210.5	55.8	582.5	848.7
	2007	0.0	11.9	165.4	177.3	220.9	55.0	590.5	866.4
Subtotal: Developed economies	2006	135.2	364.6	2 121.3	2 621.1	294.3	509.3	2 370.4	4 174.0
	2007	136.1	371.4	2 164.5	2 672.0	302.1	507.1	2 453.6	4 262.8
Economies in transition Codes 5.1 and 5.2	2006	115.0	47.3	95.3	257.6	5.6	2.7	46.3	54.6
	2007	128.5	50.6	104.6	283.7	6.3	2.6	48.7	57.6
Subtotal Developing Africa	2006	475.1	59.7	245.6	780.4	42.8	34.4	255.3	332.5
	2007	508.3	63.0	263.2	834.5	44.5	38.3	283.5	366.3
Subtotal Developing America	2006	271.5	69.8	748.0	1 089.3	49.4	50.6	241.0	341.0
	2007	270.7	72.5	830.6	1 173.8	52.1	55.0	244.0	351.1
South-Eastern Asia Code 8.4	2006	64.2	62.5	667.0	793.7	95.2	94.9	329.7	519.8
	2007	64.2	62.7	715.2	842.1	95.8	89.5	364.0	549.3
Subtotal Developing Asia	2006	801.2	250.8	1 845.0	2 897.0	537.2	235.0	2 074.0	2 846.2
	2007	818.5	257.1	1 976.1	3 051.7	558.2	229.0	2 194.3	2 981.5
Developing Oceania Code 9	2006	4.3	0.1	2.2	6.6	0.0	6.5	5.8	12.3
	2007	4.3	0.1	2.4	6.8	0.0	6.7	6.2	12.9
Subtotal: Developing economies and territories	2006	1 552.1	380.4	2 840.8	4 773.3	629.4	326.5	2 576.1	3 532.0
	2007	1 601.8	392.7	3 072.3	5 066.8	654.8	329.0	2 728.0	3 711.8
World total	2006	1 802.3	792.3	5 057.4	7 652.0	929.3	838.5	4 992.8	7 760.6
	2007	1 866.4	814.7	5 341.4	8 022.5	963.2	838.7	5 230.3	8 032.2

Figure 9: World seaborne trade by country groups in millions of tonnes (source UNCTAD)

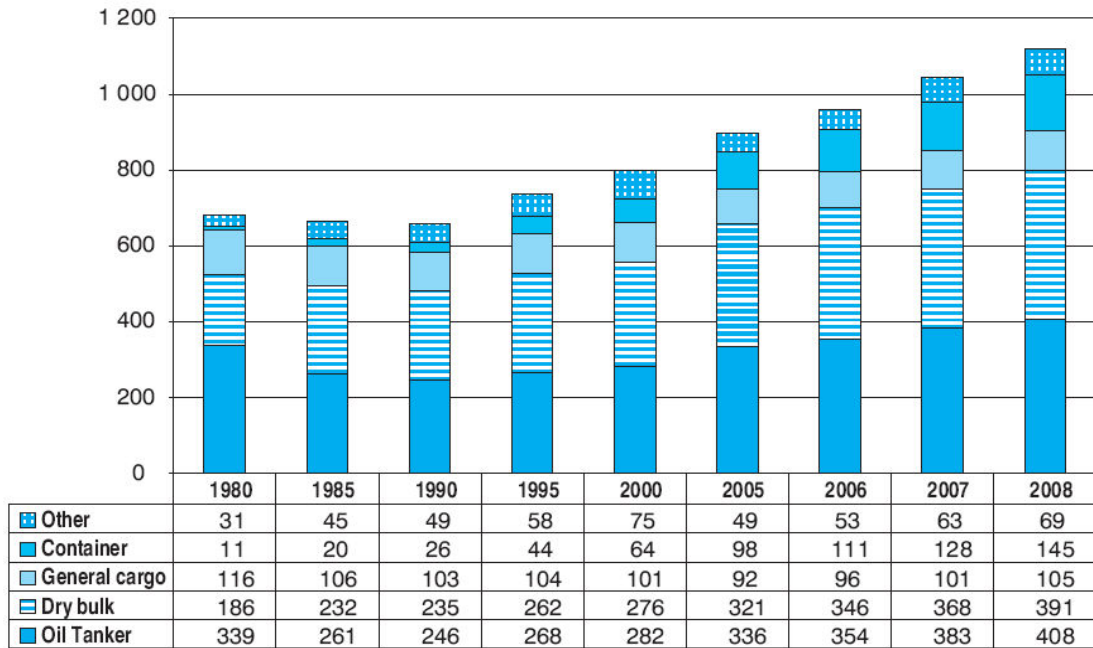


Figure 10: World fleet by principal vessel types, selected years in millions of DWT (Source UNCTAD)

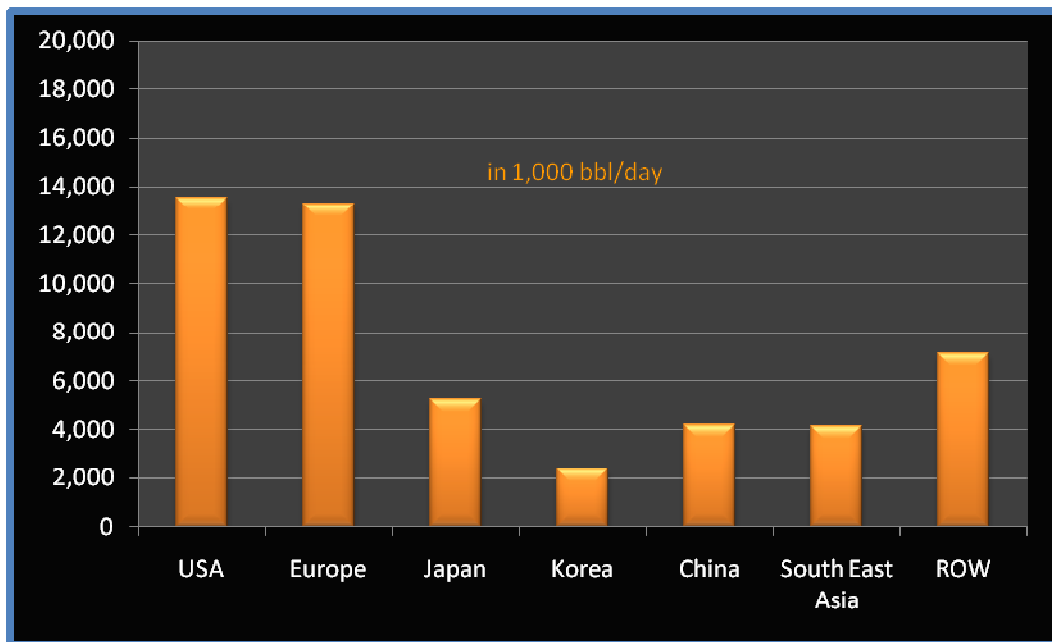


Figure 11: Oil Imports for Selected Countries
(Computation of 2005 figures from IPE2007 and CIA Factbook)

Annex III – References and Further Reading

More information on the GI can be found on the IPIECA Website (IMO/IPIECA GI Brochure, GI Newsletter) at http://www.ipieca.org/activities/oilspill/oil_gi.php

The Global Initiative for West and Central Africa Website <http://www.giwacaf.org/>

UNCTAD - *Review of Maritime Transport 2008*

Lisa Woolgar, ITOPF – *Assessing the Increasing Risk of Marine Oil Pollution Spills in China (2008)*

Central Intelligence Agency – *The World Factbook*
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Energy Information Administration – *Country Analysis Briefs*
<http://www.eia.doe.gov/emeu/cabs/contents.html>

PennWell International Petroleum Encyclopaedia 2007

Lloyd's MIU Analysis of Petroleum Exports (APEX) 2006