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**MARITIME SHIPPING IN NORTHEAST ASIA:
LAW OF THE SEAS, SEA LANES, AND SECURITY**

INTRODUCTION

by Michael Stankiewicz

One of the consequences of Asia's tremendous economic growth in the past 20 years has been the Asian economies' increased dependence on maritime shipping and trade. This is especially true of shipping that passes through the narrow straits, often described as "choke points," of Southeast Asia.¹ Security of the sea lines of communication (SLOCs) through these straits has become more complex because of the jurisdictional ambiguities surrounding the implementation of the 1994 United Nations Convention on the Law of the Sea (UNCLOS). These ambiguities raise the specter of regional jurisdictional claims threatening the security of shipping, as evidenced by the 1996 Taiwan Straits crisis.² Environmental dangers related to increased shipping traffic in the choke points of Asia also can become a source of contention between nations, as observed when evidence of dumping of low-level nuclear waste in Asian seas has emerged.

Maritime Shipping in Northeast Asia: Law of the Sea, Sea Lanes, and Security examines the strategic implications of the increasing volume of maritime shipping and trade in the sea lanes of Asia, including the legal implications of UNCLOS implementation and threats to the security of the major SLOCs that are the lifeline of the Northeast Asian economies.³

As recently as seven years ago, any discussion of SLOC security centered upon maintaining freedom of navigation under the constant threat of the Soviet navy. In the Cold War, the greatest threat to the disruption of maritime trade for the world's fastest-growing economies, especially through the choke points of Asia, was a conflict involving the Soviet and American Pacific fleets. With the end of the Cold War, concepts of maritime security have fundamentally changed from military threats to non-military threats. The probability of military threats to sea lanes is extremely low, as discussed in the enclosed papers by Dr. Stanley Weeks and Prof. Lee Seo-Hang. But while the military threat to Asian SLOCs has diminished, countries' reliance upon them has increased.

Asia's vulnerability to disruptions in SLOCs is exemplified by its increasing dependence upon Middle Eastern oil which must traverse through Southeast Asian choke points to fuel its manufacturing-heavy economies (see IGCC Policy Papers 3537 for a closer analysis of the strategic implications of Asia's growing reliance upon Middle Eastern energy resources). In his paper, "Developments in Asian Maritime Trade," Stephen Meyrick documents Asia's increasing demand for maritime shipping and analyzes why this dependence has evolved. With most of the largest economies in Asia sharing maritime borders, shipping traffic through the region's waters has grown from 120 ships per day traversing the Straits of Malacca in 1982 to 274 ships per day in 1993.

The trade dependency of Asia's growth economies is well established, but Meyrick notes that two trade-related factors caused increased demand for maritime shipping in Asia. The first is Asia's shift to manufacturing-dominant economies. Two of the three categories of shipping liquid bulk and general cargo have witnessed a tremendous increase in demand in the last 15 years, attributed to the surging demand for crude oil imports that manufacturing-heavy economies require; the latter to the growth of container shipping, which is dominated by manufactured goods. The second factor is the recent trend to greater intra-Asian trade (relative to trade with Europe and North America), resulting in more shipping in the littoral waters of Southeast Asia and the South China Sea, as opposed to the high seas of trans-Pacific trade. As a result, Singapore has become the region's fastest-growing shipping hub. The implications, according to Meyrick, are mostly economic. More investment, not only in ships but more importantly in port facilities, will be required at the cost of more than US\$10 billion per year for the next five years.

Maritime Shipping in Northeast Asia then examines how UNCLOS implementation and the establishment of 200 nautical mile Exclusive Economic Zones (EEZs) are leading to controversial relations among the maritime neighbors in Asia. Dr. Mark Valencia summarizes the implications of the 1994 ratification of UNCLOS on East Asia, including a description of the four different navigational regimes: innocent passage, transit passage, archipelagic sea lane passage, and high seas passage. Like Meyrick, Valencia

sees mostly economic consequences arising from potential disputes in Asian waters, but he does caution that these disputes can arise from national laws conflicting with the rights of innocent passage. The most egregious violations of this nature, known as "creeping jurisdiction," can be found among regulations to prevent marine pollution. As noted in Prof. Lin-Sien Chia's chapter, "Marine Carriage of Petroleum in Northeast Asia," countries dread the potential impacts of catastrophic accidents that are likely to grow as oil-laden shipping increases in the region's choke points. In addition, with Japan reprocessing 90 percent of its nuclear material in Europe, concern is being raised about ships carrying plutonium plowing through the straits of Southeast Asia. Both Valencia and Chia also point to low-level nuclear waste dumping incidents (violators include Russia and Japan) as likely to spark major regional tensions.

What are the possibilities for cooperative solutions to these issues? Valencia feels that international organizations such as the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) and International Maritime Organization (IMO) do not provide suitable mechanisms for dispute settlement or cooperative action to settle jurisdictional disputes in Asia. Chia documents how Asian countries have not signed onto many IMO conventions. But Valencia sees hope, citing examples of how UNCLOS encourages cooperation among neighboring states by leaving it up to them to determine how their specific geographic circumstances should fit the guidelines within UNCLOS.

In its final section, Maritime Shipping in Northeast Asia turns its attention to the issue of SLOC security in Asia. The paper by Weeks assesses various military and non-military threats to these SLOCs, through which more than \$1 trillion worth of trade passed in 1994, half bound for Northeast Asian destinations. Weeks notes that half of the world's merchant fleet capacity passes through the Straits of Malacca, Sunda, and Lombok and the South China Seas bound for Asia. Weeks maintains that there is little military threat to the SLOCs in Southeast Asia, with little chance of intra-ASEAN conflict and mining unlikely because of the region's shared dependence on ocean-going trade, as documented by Meyrick. Weeks notes that the greatest concern is China seeking to enforce its sovereignty claims

to Taiwan and the Spratley Islands in the South China seas through the direct exercise of naval power.

Among non-military threats, Weeks views natural disasters and accidents as problems that modern shipping technology can overcome. Surprisingly, it is piracy and creeping jurisdiction that are Weeks' biggest worries with respect to SLOC security in Asia. Weeks documents that two-thirds of the world's piracy incidents in the 1992-94 period was in the Asia-Pacific, mostly concentrated off the Chinese Southern coastal regions. Many incidents purportedly were undertaken by Chinese in uniform and the Chinese government has claimed that these were rogue elements in its Customs and Public Security Bureaus. Combating piracy has been one area where international pressure and cooperation has been successful, however. Chinese unilateral efforts to patrol its adjoining seas and cooperative efforts between Malaysia, Indonesia, and Singapore have significantly reduced the number of piracy incidents in Asian waters.⁴

But Weeks cites various examples of creeping jurisdiction that are worrisome because of their impact on freedom of navigation. Traffic safety regulations laid down by littoral states have become a concern, as has the establishment of EEZs under UNCLOS. For example, Indonesia has sought to limit passage through its archipelago to three North-South sea lanes, but international naval powers insist that East-West routes should be available. And finally, the United States government has raised concern about the impact the Southeast Asian Nuclear Weapons Free Zone (SEANWFZ) agreement will have on high seas freedom of navigation.

Lee worries that the Asian SLOCs can be disrupted and explores various proposals to solve Asia's vulnerability to the blocking of these transit points. He described the positive impact of the Regional Maritime Surveillance and Safety Regime, which developed relatively successful multilateral anti-piracy accords in 1992. Lee also sees potential in a Japanese concept, the Kawamura Proposal, which would establish an arrangement to help Asian nations and the United States share responsibility for SLOC security in Asian waters. The United States would still

maintain freedom of navigation on the high seas, while the protection of shipping in regional areas would fall on the major Asian powers. Littoral states would be responsible for surveillance of coastal seas.

The groundwork for such proposals may have been laid in January 1998 when the United States and Chinese navies agreed to the establishment of a consultation mechanism to strengthen military maritime safety in the region. Maritime Shipping in Northeast Asia illustrates the increasing need for a SLOC security regime in Asia, if not a broader regional maritime security regime along the lines of this U.S.-Sino agreement.

Endnotes

1. John H. Noer, *Chokepoints: Maritime Economic Concerns in Southeast Asia*, National Defense University Press, Washington, D.C., 1996.
2. In March 1996, Chinese live-fire military exercises, including missile firings into the straits near Taiwan, caused shipping and airline traffic to be diverted from normal routes through the Taiwan straits.
3. Most papers in this collection first were presented to an April 1997 Northeast Asia Cooperation Dialogue (NEACD) workshop on Maritime Trade in Northeast Asia held in Harriman, New York. IGCC founded NEACD in 1993 as an informal track two dialogue exploring the potential for cooperation on security issues among China, Japan, Russia, the Republic of Korea, the Democratic People's Republic of Korea, and the United States. This workshop on maritime trade offered participating government officials and private experts an opportunity to explore the ramifications of increasing maritime shipping on future security relations among their countries.
4. Weeks highlights the positive impact of the Regional Piracy Center, which was established to defend ships in the Malacca and Singapore Straits from pirate attacks.

DEVELOPMENTS IN ASIAN MARITIME TRADE

by Stephen J. Meyrick

Shipping and Trade

In 1984, the results of the first international maritime project in which I was involved were published in a volume entitled 'Shipping: the Handmaiden of Trade.' I would like to use this title as the keynote for this paper. In Asia, as elsewhere, shipping is a response to the economic opportunities opened up by trade and a reflection of what has happened and what is likely to happen to the volume, composition and direction of Asia's maritime trade. But the changes that have occurred in Asian trade can only be understood in the context of the growth and structural changes that have occurred within economies of Asian states. It is therefore with this point that I would like to begin.

Developments in Asian Trade

Asian Economic Growth

There is no need to remind anyone with even a passing interest in Asian affairs that the average rate of economic growth in Asia over the last few decades has been phenomenal. There is sometimes a need to remind ourselves that this growth has been extremely uneven, both temporally and geographically. In understanding the evolution of shipping systems in Asia in particular of container shipping systems it is useful to think in terms of four phases in the Asian economic development:

- the Japan phase, during which Japan completely dominated the Asian industrial scene;
- the Tigers phase, during which rapid industrialization in Korea and Taiwan complemented that of Japan, and the city-state hubs of Hong Kong and Singapore began to emerge as major centres of commercial and industrial activity within the region;
- the ASEAN phase, during which Thailand and Malaysia took over as the fastest growing States in Asia;

- the current phase, the phase of China, during which the massive Chinese economy signaled its arrival as a major international force with several consecutive years of economic growth in excess of 10 percent.

And there are of course many countries that have yet to play a significant part in the Asian economic miracle. Some, such as Vietnam, the Philippines and perhaps India, are showing clear signs that they do not intend to remain in this group for much longer. Others, such as North Korea, Bangladesh and Pakistan, have further to go. However, despite the differences in timing and pace with which economic development has proceeded, it remains true that, in aggregate, growth in the Asian economies has for several decades significantly outstripped that in the rest of the world. Figure 1 makes it clear that economic growth in the developing economies of Asia¹ has consistently outstripped growth in every other region of the world. In each and every year between 1990 and 1995, growth in these countries was more than double the world average: on average it was three times.² As a result, Asia's cumulative economic growth in recent years has far outstripped that of other regions of the world (see Figure 1).

It is true that 1996 was not a great year for most Asian economies and 1997-98 has been even worse, given the region's economic tumult, including crises in Thailand, Indonesia, and South Korea.

Despite the region's economic woes in 1997-98, economic growth is expected to recover to within 5 years, and trade once again should drive this growth that has increased Asia's economic weight in the world economy.

In 1964, the combined GDP of the East Asian countries was approximately 4 percent of the world total. By 1992, this had risen to 25 percent, and it is estimated to rise to 33 percent by 2010.³

Nature of Asian Economic Growth

From the point of view of maritime trade, however, changes in the structure of Asian economies are as important as changes in their size. There are two critical factors here: the importance of trade, and changes in economic structure.

The growth model for almost all of the principal Asian economies has been based on trade:

The newly industrialised countries of Asia are outstanding examples of the success of outward-looking strategies for economic development. Rapid growth in manufacturing output and incomes has been closely tied to rapid trade growth . . . resource endowment has dictated an obvious and binding rationale for outward-looking trade development strategies for the resource-poor countries of Northeast and Southeast Asia, but other Western Pacific developing countries have adopted the same policy course. While China's resource base is large in absolute terms, its population density is on average high, and its commitment to modernisation has also substantially increased trade dependence.⁴

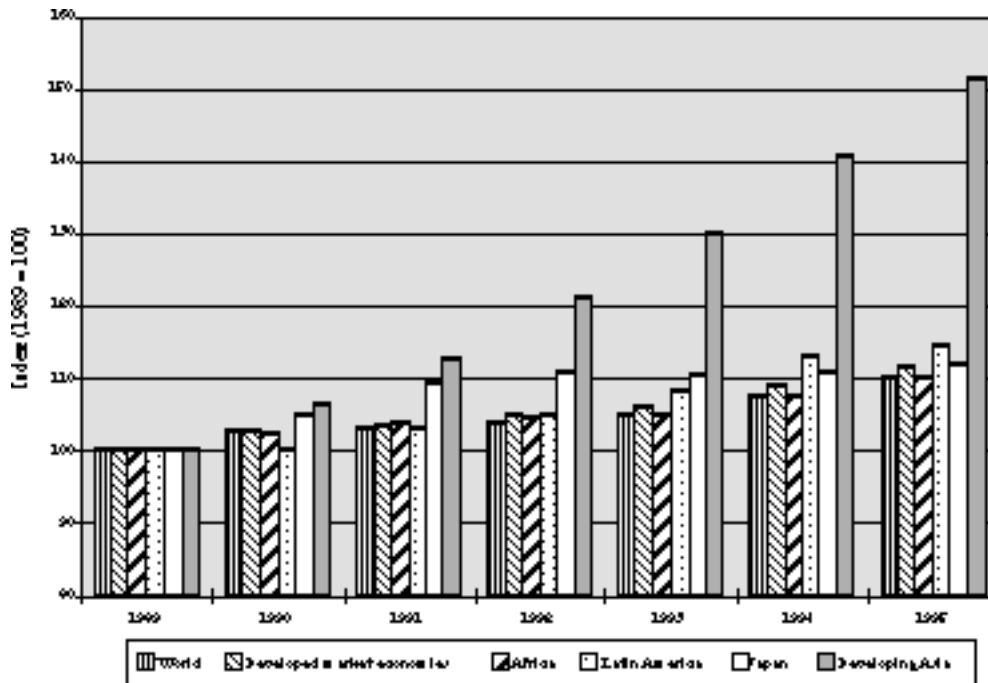
A 1995 ESCAP study of trade development in Asia and the Pacific estimated that the value of the merchandise exports of 16 major Asian economies had increased in value from US\$312 billion in 1980 to \$1.048 trillion in 1993. This represents a compound growth rate of approximately 10 percent over this period, compared with a world average of approximately 5 percent.⁵ Once again, while it is true that export growth rates for most Asian economies fell steeply in 1996, longer term forecasts suggest that the pattern of the recent past is most likely to continue: Project LINK model forecast are for exports from developing Asia to expand at a rate approximately 50 percent higher than the world average for the rest of the decade.

Changes in Economic Structure

The second important feature of Asian economic growth is that it has been accompanied by a sectoral shift in economic activity away from primary production towards manufacturing.

This effect is even more marked in the traded goods sector. Table 1 below shows the share of manufactures in the exports and imports of the major developing Asian economies in 1994 compared to that in 1977.⁶

In all cases except Hong Kong, there has been a marked increase in manufacturing share

Figure 1: Cumulative Economic Growth Various Regions, 1989 to 1995

of exports. The increase is less extreme in the case of Taiwan and the Republic of Korea, because industrialization was already well advanced in these economies by 1977. Perhaps equally noteworthy is that manufacturing as a share of imports has increased substantially in all cases except Indonesia.

This is reflected in the dynamics of shipping to and from the region. While both dry and bulk shipments to and from the region have increased rapidly, the real excitement has been in the container shipping, with the need to ship vastly increased volumes of manufactured goods to, from, and within Asia, providing one of the major forces that have led to a comprehensive reshaping of the world shipping system.

But while the volume of Asian manufactures has increased rapidly, so has the value. As the successive waves of economic development noted in the previous section have occurred, each cohort of countries has moved up the ladder of sophistication in manufacturing output, while lower-valued labor-intensive manufacturing industries have migrated to the latest members of the development club. This process has been facilitated and accelerated by massive flows of foreign direct investment, as multinational com-

panies based in “more advanced economies shift their production and their simple processes to the less advanced economies, which have cheaper and more abundant labour . . . with the strong surge of FDI in the 1980s, sophisticated manufactures under Section 7 of the SITC have become more important, increasing their share from 13 percent in 1980 to 25 percent in 1990.”⁷

As the geographical spread of sophisticated manufacturing in Asia has increased, so has the demand for sophisticated shipping services. The revolution in logistics and manufacturing that began in trade between Japan and the United States in the early 1980’s has spread to many of the other more advanced Asian economies, with integrated intermodal operations ensuring fixed-day door-to-door delivery in a wide range of intercontinental and intra-Asian trades.

Changes in the Geography of Asian Trade

The big change of the last two decades in the geographical patterns of Asian trade has been the increase in the level of Asia’s trade with itself.

Table 1: Share of Manufacturing in Exports and Imports, 1977 and 1994

	Exports		Imports	
	1977	1994	1977	1994
Korea	84.9%	93.4%	53.9%	69.6%
Taiwan	84.9%	93.9%	56.4%	77.2%
China	48.6%	81.8%	63.6%	86.3%
Hong Kong	97.5%	98.9%	70.1%	89.9%
Thailand	23.5%	71.7%	64.3%	79.5%
Malaysia	25.8%	74.7%	25.8%	74.7%
Singapore	43.0%	83.3%	52.7%	83.4%
Indonesia	3.5%	48.0%	68.6%	63.0%
Philippines	18.2%	45.0%	53.5%	60.5%

Notes: China values are for 1980 and 1993; Hong Kong includes re-exports.

Source: Derived from data in Asian Development Bank, Key indicators of Developing Asian and Pacific Countries.

Intraregional exports grew in value from US\$150 billion in 1985 to about US\$475 billion in 1993. Whereas in 1985, intraregional exports represented 37 percent of total exports from Asia to the world, by 1993 this had risen to 45 percent. Moreover, the role that intra-Asian FDI has played in stimulating this increase, combined with the higher propensity of foreign-owned firms to export and the growing importance of intra-firm trade will continue to ensure that trade of Asian countries with each will be the strongest component of Asian trade growth for the foreseeable future.

Demand for Maritime Transport

Conventionally, the demand for maritime transport is divided into three major components: dry bulk, liquid bulk and general cargo. The dry bulk sector, formally defined as “dry cargo shipped in loose condition and of a homogeneous nature,” comprises a wide range of goods, dominated by a few major commodities: we will deal explicitly with iron ore, coal and grain.⁸ Liquid bulk essentially those cargoes which travel in tankers is dominated by crude oil and petroleum products. The general cargo covers the rest of maritime trade, increasingly dominated by containers but including also the so-called neobulks (steel, timber, cars) as well as a miscellany of cargoes, largely in trades to LDC’s, that continue to travel in non-containerised form.

Dry Bulk Cargoes

Iron Ore

As iron ore and coal are the two largest volume traffics in the dry bulk sector, the steel industry is a key factor in the dry bulk market. In the early 1990’s the already modest growth in the carriage of coking coal and iron ore was hit badly by a downturn in Japanese steel production. The adoption of new technologies in steel-making has also tended to reduce the demand for these primary inputs. Until recently, most analysts have therefore been fairly pessimistic about the future prospects for these two key commodities.⁹

There are recent signs that growth may be stronger than had been anticipated. The OECD reports that, during 1995, largely because of a large increase in steel production in the Republic of Korea and a recovery in Japan, iron ore shipments increased by 4.4 percent, while coking coal volumes increase by a similar percentage.¹⁰ More recent forecasts now suggest that world economic growth during this period will provide the basis for fairly buoyant global demand for this sector through the end of the decade.

Asia’s share in this global total is large and expected to rise slightly. A modest recovery in demand from Japan should be complemented by continued strong growth in demand from Korea, with strong growth also from China. One recent forecast suggests that total Asian imports of iron ore may increase from 154 million tonnes (49.4

percent of the world total) to 189 million tonnes (51.2 percent) by 2001.¹¹

This demand is now primarily met by exports from Australia. Australian exports now provide nearly 60 percent of Asian demand for iron ore, and this percentage is likely, if anything, to edge up over the remainder of the decade. The other major supplier to Asian markets is Brazil, with a little more than 25 percent of the Japanese market and around 16 percent of the Korea market.¹² A smaller and fairly stable percentage of East Asia's iron ore needs is met from India.

Coal

While seaborne movements of coking coal have been depressed by slack conditions in the steel industry, demand for steaming coal has been supported by the energy demands of the newly industrialized economies of Asia, much of which has been met by the construction of coal-fired generating plants. The decline in European coal production has also offered new market opportunities for major coal producers.

OECD reports strong growth in steaming coal shipments during 1995, with volumes rising 7 percent from 219 million to 236 million tonnes. Much of this growth is attributed to "strong growth in the shorthaul inter-Asian trades."¹³ Drewry forecast similar rates of growth for seaborne trade in steaming coal for the rest of the decade. Despite the continued rapid growth in energy demand in East Asia over this period, this forecast may be a little optimistic. WSTS estimates overall growth in coal shipments (steaming plus coking coal) to rise at around 4.8 percent per annum for the rest of the decade. A substantial part of this increase will come from the Far Eastern Newly Industrialized Economies (FENIE's), in which demand is expected to grow at 8 percent per year, while demand from Japan should rise at around 3.8 percent.

Australia is the principal supplier of coal to most East Asian markets, providing an estimated 60 percent of Japan's requirements in 1996, a similar percentage of Taiwan's requirements and a somewhat smaller share of Korean imports. Both the US and Canada are also important suppliers, shipping 16 and 25 million tonnes respectively in 1996 (compared to Australia's 100 million tonnes).

However, these traditional suppliers are coming under increasing pressure from exports from China, particularly in the steaming coal sector. From 5 million tonnes in 1980, exports of coal from China increased to approximately 20 million in 1991, and an estimated 33 million in 1996. A further increase of about 60 percent is expected by the end of the decade. An estimated 75 percent of this volume is imported by other Asian economies, principally Japan and Korea: if this continues, China will supply between 15 percent and 20 percent of Asia's coal import needs by 2001.¹⁴ Indonesia is also emerging as a second major Asian coal exporter.

Grain

Seaborne grain trade enjoyed a very slow start to the 1990's, with no significant growth recorded between 1990 to 1995. After a sharp rise in volumes in 1996, the expectation is for moderate to strong growth for the rest of the decade, with an increase in the order of 20 to 30 million tonnes (around 11 percent-16 percent of current world trade) by 2001.

There is considerable difference between sources on the geographical distribution of likely growth. While the International Wheat Council expects expansion to be "concentrated in Asia and Africa," WSTS estimates place most of the growth in the Middle East and Latin America.¹⁵

At the present time grain imports to Asia stand at around 75 million tonnes per year, of which Japan accounts for a little under 40 percent. Approximately 30 percent is accounted for by the East Asian FENIE's, while China's imports account for more than 20 percent. The US is the dominant supplier, with 75 percent of the total Asian market. This dominance is clear in each subsector except China, in which Canada holds about one-third of the market (Canada has approximately 12 percent of the total Asian grain market).

Very little structural change is expected in this market over the next few years. The most probable outcome is a modest volume increase (about 10 percent), with a small decline in Japan's share of the total import market.

The most volatile segment of the market is probably imports to China. China is a significant grain producer, and much of that country's current import volume reflect regional supply/

demand imbalances within the country and under-developed inland transport systems. China exports substantial volumes of coarse grains from its northern ports to other Asian countries. There is a possibility that increased internal production and improved transportation within China will substantially reduce its import volumes.

Liquid Bulk Cargoes

The oil price shocks of the 1970's did serious and lasting damage to the world's seaborne carriage of crude oil and oil products. It was not until 1993 that total volumes recovered to the levels of 1980. Subsequent growth has been sluggish, and is expected to remain so for the rest of the decade, with growth rates in the order of 1.5 percent per annum.¹⁶

However, growth in Asian crude imports has been rising, and is likely to continue to rise, at a higher rate. This is because widespread investment in new refinery capacity, particularly in Thailand, South Korea and Taiwan, is leading to the replacement of previous importation of refined product by the imports of refinery feedstock.

A partial offset may come from an increase in the importation of petroleum products by Japan. SS&Y Research Services reports that it expects the relaxation of restrictions that prevent non-oil refiners from importing products into Japan during 1996 will lead to a reduction in crude imports and an increase in imports of refined product.¹⁷ If this eventuates, it is highly likely that the additional product will be sourced from the new refineries within Asia.

Drewry Shipping consultants has estimated that the Asian imports of crude oil will increase to nearly 500 million tonnes per year by 2000.¹⁸ Of this, approximately one-half will be destined for Japan: the remainder will be distributed amongst a wide range of Southeast and East Asian nations. This implies that crude oil imports to East Asia, including Japan, will increase at approximately twice the rate than the world as a whole.

Despite China's substantial reserves of crude oil, the expansion of domestic demand makes it unlikely that it will be a major supplier of crude to the region. Exports of crude oil from China, which were reported at 36 million tonnes

in 1989, had fallen by 1995 to 19 million tonnes, only marginally in excess of China's imports of 17 million tonnes.¹⁹ The overwhelming majority of Asia's imports will continue to be sourced from the Middle East, as they are at present.

The prospect for petroleum product trade is somewhat different. Increased refining capacity within Asia will reduce the need for imports of product from the Middle East. Indeed, most commentators expect a persistent excess of refinery capacity to lead to intense competition to supply an increasing share of Asian product needs from refineries elsewhere in Asia. Asian refineries already supply approximately 50 percent of Japan's import requirements.

Total product imports to East Asia currently amount to around 112 million tonnes per year, of which Japan's share is around 46 million. It is unlikely that we will see a significant increase in this total in the next five years.

Containers

We have grown so accustomed to the rapid economic development of Asia that it is easy to lose sight of just how severe the physical challenge of coping with growth has been. There is no better way to remind ourselves than to examine the increase in the volume of containers handled at Asian ports over the last decade:

- in 1985, the total number of containers handled through the ports of East Asia was 12.7 million TEU.²⁰ In 1996, two individual ports—Hong Kong and Singapore—each handled volumes in excess of this figure.
- the total volume of containers in East Asia ports increased by 270 percent from 1985 to 1995.
- in 1985, East Asian ports handled approximately 40 percent more cargo than the ports of the United States, the world's largest container market. By 1995, East Asian ports handled over three times the total cargo handled in the USA.

Table 2 shows the growth that has occurred in containers handled within each of the major Asian economies during this period. It also shows some preliminary forecasts based on work in progress on a current ESCAP/Korea Maritime Institute project of anticipated volumes for 2000. By that time, East Asian ports will handle around

Table 2: Container Movements in East Asia History and Forecasts (000 TEU)

Economy	1985	1990	1995	2000
Japan	5,517	7,851	10,740	13,500
Taiwan Province of China	3,075	5,430	7,848	12,000
Hong Kong	2,289	5,100	12,549	16,000
Singapore	1,699	5,223	11,800	17,500
South Korea	1,246	2,348	4,502	7,400
Philippines	638	1,383	1,707	2,900
PRC	446	1,143	4,678	10,900
Thailand	400	1,078	1,962	4,000
Malaysia	389	882	2,086	4,600
Indonesia	229	922	2,197	5,300
EAST ASIA TOTAL	15,928	31,360	60,100	94,100

Source: Historical data from Containerisation International Yearbook 1997. Singapore figure for 1995 revised in accordance with data in Containerisation International, March 1997, p 34.

47 percent of total world container throughput: by the year 2005, this will probably reach 50 percent.

Forecasts are preliminary estimates from current ESCAP/KMI research project on intra-Asian shipping.

Within this massive overall growth, there are several major structural changes. As the four successive waves of Asian economic development have occurred, the centre of gravity of container shipping operations has changed. In the 1970's, Asia's container trades were Japan's container trades, and the trans-Pacific trade was in effect a bilateral trade between the USA and Japan.

By 1985, this had changed dramatically. The diversification of Asian container trade was already entering its mature phase. Container volumes from Hong Kong, Taiwan and Korea comprised more than 40 percent of Asia's total, while Japan's share had shrunk to 31 percent. Container volumes from the ASEAN countries were still modest, but Singapore had begun to emerge as a major global hub: with total throughput of 1.7 million TEU, it was the sixth largest container port in the world (two places behind New York/New Jersey).

By 1995, another profound change had occurred. During the decade 1985-1995, container volumes through the ports of ASEAN countries increased six-fold, so that by the end of the decade they collectively handled almost one-third of the Asian total. The other three tiger economies

continued to grow strongly, maintaining their share at more than 40 percent. Japan ports now handled less than one-fifth of all Asian container.

And something else was happening. The volume of containers handled by ports on the mainland of China began to surge, increasing four-fold between 1990 and 1995. Information for 1996 is still rather sketchy, but *Containerisation International* magazine reports that the throughput of Shanghai which accounts for approximately one-third of the total containers handled on the Chinese mainland increased by 26.4 percent last year. It is unlikely that the ports of the Pearl River delta grew more slowly than this, and it seems reasonable to estimate that overall container volumes grew by around 25 percent. By the end of the decade, the ports of mainland China will handle more than 10 percent of the Asian total.

The other major transformation that has occurred is the growth importance of container trades within Asia itself. The intra-Asian container trade has consistently registered growth rates in excess of 10 percent per annum for more than a decade, reaching almost double that figure, and is now recognised as the second-largest container trade in the world second only to the trans-Pacific trade. The massive investment of Japan and the newly industrialised economies of Asia in China, and the explosive growth of the container trade of that country, as well as the increasing integration of the Southeast and Northeast Asian economies suggests that there is

Table 3: Estimated Intra-Asian and Trans-Pacific Container Flows 1996 and 2000 (000TEU)

1996	Japan	FENIE*	SE Asia	China	USA	Canada
Japan	0	825	625	218	833	60
FENIE*	417	926	596	715	912	60
SE Asia	413	606	n.a.	n.a.	751	41
China	590	821	n.a.	n.a.	1,486	63
US	1,143	1,640	667	293	0	18
Canada	229	150	64	56	42	0
2000	Japan	FENIE*	SE Asia	China	USA	Canada
Japan	-	1,263	976	314	967	75
FENIE*	637	1,633	1,044	1,507	1,074	82
SE Asia	606	1,115	n.a.	n.a.	1,123	60
China	967	1,030	n.a.	n.a.	1,703	97
US	1,463	2,576	987	440	-	22
Canada	309	226	86	74	59	-

Source: Derived from WSTS.

*Far East newly industrialised economies: Korea, Taiwan and Hong Kong.

not likely to be any abatement in this growth in the foreseeable future.

Table 3 shows the scale of container flows within Asia. For the sake of comparison, container flows between the major Asian sub-regions and North America have also been included. The table also shows estimated container flows in the year 2001. It can be seen that the intra-Asian trade, which is now around 80 percent of the trade between Asia and North America, will be approximately equal to that trade at the beginning of the next decade.

Supply Side Developments

The Rise of Asian Ship Ownership

While there have been major changes in the scale and pattern of Asian demand for maritime transport, there have also been a number of changes occurring on the supply side.

The most striking of these has been the increasing Asian participation in ownership of the world shipping fleet. Over the last two decades, Korea, China, Singapore, and Taiwan have joined Japan and Hong Kong as major ship owning nations. Table 4 indicates that, between them, these six economies now control approximately 30 percent of the total world shipping tonnage. (ships beneficially owned but operated

under an open registry flag are included in the totals for each economy).

Some indication of how things are likely to move over the next few years can be gleaned from the fact that, according to UNCTAD, the developing countries of Asia, which in 1995 controlled approximately 17 percent of the world fleet, took delivery of 27 percent of the total new tonnage delivered.

Asian Liner Operators

The increasing strength of the Asian shipowning sector is nowhere more clear than in the container shipping sector. Of the 20 largest container shipping lines in the world, fully half are owned and based in Asia: 3 in Japan, 2 in Taiwan, 2 in Korea, and one each in Hong Kong, China, and Singapore (Table 5).

In addition, the strength of intra-Asian container trade growth and the maritime aspirations of countries such as Malaysia have served to ensure that the “second tier” of Asia operators is exceptionally strong, with companies such as MISC, Wan Hai, RCL, Kien Hung and PIL adding considerable depths to the ranks of container shipping lines based in the region.

Once again, there is every likelihood that Asian carriers’ presence in the container shipping market will consolidate and continue to increase. The expected strength of Asian trade growth will provide the opportunity, and there

Table 4: Leading Asian Shipowning Economies

	Tonnage (dwt)	Share
Japan	86,770	12.93%
China	35,246	5.25%
Hong Kong	31,331	4.67%
Korea	20,930	3.12%
Taiwan	14,370	2.14%
Singapore	12,998	1.94%
Combined	201,645	30.05%
World Total	671,184	100.00%

Source: OECD, *Review of Maritime Transport*.

are clear signs that the major Asian carriers have no intention of neglecting it: the top 10 Asian carriers listed in Table 5 are responsible for greater than 25 percent of known worldwide orders for new container vessels.

Global Alliances

1996 saw a radical restructuring of corporate alignments in the liner shipping sector, and long-standing consortia and operating agreements were abandoned in favour of new “global alliances.” While cooperative arrangements have long been a feature of liner shipping, they have traditionally been arranged on a “trade land by trade line” basis. A line would work with one set of partners in the trade between Europe and Asia, and another in the trade between Asia and North America. The significance of the new alliances lies both in their scope and their scale: they are

larger than anything before, and they have the avowed intention of allowing the alliance partners to establish a global service network.

There are three principal alliances:

1. Global Alliance: APL, MOL, OOCL, Nedlloyd (and MISC)
2. Grand Alliance: P&O, Hapag-Lloyd, NOL and NYK
3. Sea-Land/Maersk

Hanjin Shipping has also formed a close co-operation with the Tricon partners, which is sometimes listed as a fourth global alliance, but the scale and port coverage of this grouping falls short of the other three.

There is much debate about the extent to which these alliances will dominate the global liner business and about their stability. With respect to the first of these, the main challenge to their dominance appears to be the major

Table 5: Leading Asian Container Lines, 1996

Company	Ranking	Capacity	No. Ships
Evergreen/Uniglor	1	204,061	103
Cosco	4	163,650	149
NYK/TSK Line	5	127,400	76
Mitsui OSK Line	6	121,085	71
Hanjim Shipping	7	111,900	45
Hyundai Merchant Marine	9	101,992	32
K-Line	13	82,331	47
Yangming Marine Transport	14	80,058	33
OOCL	15	76,514	28
Neptune Orient Line/PUL	19	57,379	35

Source: Containerisation International.

independent carriers of Asia: lines such as Evergreen, Cosco, Hyundai and Yangming. With regard to the second, a major threat has already emerged in the form of the merger between P&O and Nedlloyd, two companies which are members of rival alliances.

Changes in Service Patterns

In the liner shipping sector, the successive waves of Asian economic development have brought with them significant changes in the geographical structure of line services in the intercontinental trades to and from Asia. Briefly tracing the history of the trade between Asia and North America:

1. In the earliest phase, container shipping services concentrated largely on providing quality services between Japan and both the East and West Coasts of the United States, with East coast services transiting the Panama canal;
2. As economic activity in Hong Kong, Korea and Taiwan grew, an increasing number of lines began providing direct shipping services to these locations. Initially this was done in conjunction with a service to Japan, and this is still the pattern in the case of services to Korea. Recently, many operators introduced additional dedicated service to the Southern ports of East Asia. Towards the end of this phase, the spread of intermodal services in the US led to a decline in service transiting the Panama Canal in favor of landbridging from West coast ports to the Midwest and even to East Coast destinations.
3. As economic development of Southeast Asia took off in the second half of the 1980's, major consortia began to introduce services that extended westwards to Singapore, transshipping cargoes from other Southeast destinations through that port.
4. With further growth in Southeast Asia, a new strategy for serving the East Coast of the USA was introduced, with vessels proceeding from Asia via the Suez Canal. This proves an attractive option for cargoes from Taiwan and Hong Kong as well as from Southeast Asia. Lines also begin to experiment with additional calls at Southeast Asian ports: Port Klang in Malaysia, Laem Chabang in Thailand.

5. With the rapid growth in Chinese cargoes, improved handling facilities at mainland China ports and congestion in Hong Kong because of delays in the construction of Terminal 9, major lines begin to experiment with direct calls at mainline ports, collecting cargoes previously transhipped through Hong Kong or Japanese ports.

Phase 6, yet to commence, will see:

- a further buildup of direct calls to ports in southern and mid-China
- competition from Kaohsiung for cargoes previously transhipped through Hong Kong and Japanese ports as political obstacles to shipping links are removed;
- the inclusion of direct calls at the Philippines on trans-Pacific routes; and
- (possibly) the introduction of services dedicated exclusively to serving the ASEAN countries.

Increases in Vessel Scale

The massive growth in container traffic, changes in route patterns, and the never-ending search for economies of scale in container ship operations led APL in 1986 to place orders for the first "post-Panamax" containerships.²¹

It was several years before any other company followed suit, but in 1989 the French national carrier CGM ordered a single vessel, to be followed one month later by Malaysian carrier MISC. From then on, the trickle became a flood: by mid-1996, there were 45 post-Panamax vessels in service. At the same time unfilled orders for post-Panamax vessels comprised more than 20 percent of the total container ship capacity on order, and nearly one-half of the capacity for large vessels.²²

From the point of view of the present paper, the most significant point is that all of these new large vessels will be deployed to and from Asia: either on the trans-Pacific, and on services between Northern Europe and Asia. This will place enormous demands on Asian ports -- these ships are longer, deeper and considerably broader than the Panamax vessels that they will replace. Moreover, the vast increases in carrying capacity will require an extremely high standard of terminal performance if the economies of scale are not to be undermined by excessive time spent in port.

Port Investment

Catering for the vast increase in Asian international trades requires not only a major increase in shipping capacity, but also the vast quantity of fixed investment in port facilities. In 1994, ESCAP estimated that meeting the needs of Asia's maritime trades would require an investment of around \$25.5 billion dollars between 1994 and 2000. However, the forecasts on the basis of which this estimate was made now appear to be conservative; ESCAP notes that the methodology used "results in a significant underestimation of the investment requirements."²³ Total port investment requirements may well be in excess of \$10 billion per year.

Partly in response to this need and partly as a result of a broader policy shift towards market solution, there has been a significant liberalization of port policy in most Asian jurisdictions, with a proliferation of BOO and BOOT schemes and other strategies for encouraging private investment in and operation of port facilities. An associated development has been the emergence of international port companies: P & O Ports (Australia), Hutchison International Terminals (Hong Kong) and International Container Services Inc (Philippines) have all adopted aggressive expansion plans that extend far beyond their country of origin. The Port of Singapore has also signaled its intention to internationalize, and has made this intention concrete in a major venture in China.²⁴

Conclusion

In this paper, I have attempted to introduce a few of the major developments that have taken place in the Asian seaborne trade, and to take a preliminary look at likely future developments. There is much that is uncertain about how the maritime sector will develop in the future, but there are a few things about which we can be confident:

- the Asian economy will continue to grow more quickly than the world economy for the foreseeable future;
- this growth will be driven by trade, and in particular by trade in manufactures, giving rise to a more than proportionate growth in seaborne trade, especially containerized trades;
- the massive volume of FDI by Asian investors in Asia, and the rising volumes of intra-component trade, will drive increasing integration of the Asian economy, and continued rapid growth in intra-Asian trade;

- this will complement, rather than replace, trade between Asia and Europe/North America;
- catering for these two intercontinental trades will forge the strategies of all the world's major shipping lines in the coming decades;
- these strategies will require major lines to take a truly global approach to service development, encourage the formation of international alliances in pursuit of scale economies and the ability to provide a "one stop shop" for global customers;
- rising unit values of cargoes in these trades will continue the pressure for the development of high quality integrated logistics services, reliability in sailing schedules, and route innovations that minimize door to door transit times for all market segments;
- this will cause lines to make increasing demands on the quality of port services and intermodal connections to all ports on their service networks;
- meeting this demand will require vast capital investment, greater responsiveness, the rapid upgrading of technology and the adoption of best practice operating techniques in a wide range of Asian ports; and
- this will reinforce the present trend to more liberal port policies and the development of an internationalized port industry in Asia.

Endnotes

1. The somewhat anachronistic UN ESCAP definition of the developing economies of Asia includes all Asian nations other than Japan.
2. United Nations ESCAP, *Economic and Social Survey of Asia and the Pacific* (United Nations:Y, 1996).
3. UN ESCAP, *Review and Analysis of Intra-regional Trade Flows in Asia and the Pacific* (United Nations: New York, 1995), 32.
4. Peter Drysdale, *International Economic Pluralism: Economic Policy in East Asia and the Pacific* (Allen & Unwin: Sydney, 1988), p 152.
5. UN ESCAP, *Review and Analysis of Intra-regional Trade Flows in Asia and the Pacific* (United Nations: New York, 1995). The economies included are Australia, New Zealand, Japan, Hong Kong, Republic of Korea, Singapore, Taiwan Province of China, Indonesia, Malaysia, Philippines,

- Thailand, India, Pakistan, Sri Lanka and China.
6. SITC classifications 5 to 8 inclusive.
 7. *Review and Analysis of Intraregional Trade Flows in Asia and the Pacific*, 33.
 8. Eric Sullivan, *The Marine Encyclopedia Dictionary* (Lloyd's of London Press: London, 1988).
 9. Drewry shipping consultants forecast a 1.5% fall in iron ore shipments between 1996 and 2000 (385 million tonnes to 380 million tonnes) and a rise of only 7% in coking coal shipments over the same period. Drewry Shipping Consultants, *Bulk Carrier Market: Prospects for Recovery 1993-2000* (Drewry: London, 1993).
 10. UNCTAD, *Review of Maritime Transport 1995* (UN: New York, 1995), p 3.
 11. DRI/McGraw-Hill/Mercer, *World Sea Trade Service Review*, 3rd Quarter 1996. (WSTS). WSTS estimates of total seaborne iron ore imports, and those of individual Asian countries, are considerably smaller than those from other sources. I have not tried to reconcile these differences.
 12. WSTS for Japan, Korea Maritime Institute, *Shipping Statistical Yearbook 1996* (KMI: Seoul, 1996), for Korea.
 13. OECD, p 3.
 14. These are my own estimates, based on data in several sources: WSTS, OECD, and Drewry Shipping Consultants, *Pacific Rim Trade and Shipping: The Powerhouse of World Shipping in the 21st Century* (Drewry: London, 1993).
 15. Drewry Shipping Consultants, *SSE Market Briefing*, April 1995, p 23. WSTS, III-54.
 16. WSTS, III-60.
 17. SS&Y Research Services Ltd, *Weaker Oil Demand in Japan in 2nd Half 1995*, December 1995.
 18. Excluding South Asia.
 19. BP *Statistical Review of World Energy*, 1996.
 20. TEU = 20-foot equivalent units, the standard measure of capacity on the supply side.
 21. That is, the first container ship too large to pass through the Panamal canal.
 22. Drewry Shipping Consultants, *Post-Panamax Containerships: 6000 TEU and Beyond* (Drewry: London, 1996).
 23. United Nations ESCAP, *Infrastructure Development as Key to Economic Growth and Regional Economic Cooperation* (United Nations: NY, 1994).
 24. "Top 10 Private Operators" *Port Development International*, September 1996.

NORTHEAST ASIA: TRANSNATIONAL NAVIGATIONAL ISSUES AND POSSIBLE COOPERATIVE RESPONSES

By Mark J. Valencia

Introduction

Barely a decade ago, many policymakers thought of the East Asian region as a collection of nations separated by wide marginal seas--the Sea of Japan, the Yellow Sea, and the East China Sea. But with the extension of jurisdiction to 200 nautical miles (nm) or more, almost no marine area in East Asia is left unclaimed, and many claims overlap. Transnational navigational issues arise from the diverse pattern of maritime jurisdictional zones, their corresponding navigational regimes, and differing degrees of conformity with international conventions, particularly the Convention on the Law of the Sea (CLS) (Table 1).¹ Both the extent of these zones and their concomitant regulations may be controversial.

These extensions of jurisdiction are authorized by the CLS which came into force on 16 November 1994 for those 112 ratifying countries. On 12 March 1997, Russia ratified the Convention, joining in Asia, Brunei, Malaysia, Indonesia, the Philippines, Vietnam, China, the Republic of Korea (ROK), and Japan. However, some maritime powers like the United States and the United Kingdom have not yet ratified it and may not do so. This agreement, reached after more than 20 years of negotiations among virtually all of the world's nations, embodies most international law and state practice relating to the oceans, and marked a fundamental compromise between the preservation of freedom of navigation in return for a preferential share of high seas mineral resources for the developing world. There are four principle navigational regimes recognized by the CLS: innocent passage, transit passage, archipelagic sealane passage, and high seas. (see Appendix 1 for definitions.)

China, the Democratic People's Republic of Korea (DPRK), Japan, the ROK and Russia have all declared territorial seas of 12 nm. However, both Japan and the ROK have modified their territorial seas to 3 nm in the Korea Strait. This strait is an important regional navigational route connecting the Sea of Japan and the East China Sea and is a "strait used for international navigation," which means the transit passage regime applies. These declarations of 3-nm territorial seas provide a high seas "corridor" through which ships may transit without entering the territorial seas of Japan and the ROK. Japan has also declared territorial seas of 3 nm wide in the La Perouse (Soya), Tsugami, and Osumi Straits.

Some areas of straits remain outside the application of the transit passage regime: Okushiri-kaikyo, Rishiri-kaikyo, and Sado-kaikyo all fall within the exception of Article 31.1 of the CLS, which provides that it will not apply when there exists seaward of an island and its mainland (with a strait between) a route through the high seas (or an EEZ) "of similar convenience with respect to navigational and hydrographical characteristics." For example, Cheju Strait is a major navigation route. However, the ROK argues that it is not a strait used for international navigation because there is another route seaward of Cheju Island. According to the CLS, if the route is equally convenient, ships are supposed to use the seaward route; however, there is disagreement whether the strait between the mainland and the island or the route seaward of Cheju is more convenient. Much shipping now uses the strait between the mainland and the island.

Japan and the ROK have now declared 200 nm EEZs, and China is preparing to do so. However, their respective boundaries remain uncertain and in some areas, disputed. The DPRK has declared a 200 nm exclusive economic zone (EEZ) and, within this EEZ, a 50 nm area designated as a "military zone." There has been some debate about the precise boundaries of the EEZ in the Sea of Japan (East Sea), particularly as to whether it extends beyond the hypothetical equidistant lines with the ROK and Russia. Additional controversy has arisen concerning navigational restrictions within this military zone because the DPRK has declared a prohibition on both overflight and navigation by foreign merchant ships and military vessels unless previous authorization has been granted. This appears contrary to the CLS since Article 17 grants ships

of all states the right of innocent passage through the territorial sea of any coastal state.

The ROK also had established a "security zone" within the Sea of Japan adjacent to the border with the DPRK, extending 150 nm from east to west and up to 75 nm from north to south. Shipping operations were prohibited within this zone, unless authorized, and then only if the vessel was equipped with adequate communication facilities. Because the ROK has ratified the CLS, it is not clear whether this zone and its regulations still pertain.

The maritime boundary between the DPRK and the ROK continues to be the most sensitive area in the Sea of Japan because of the precarious relationship between the two. Although this tension delays the establishment of EEZ and continental shelf boundaries in the Japan Sea, it should not necessarily hinder other cooperation or undermine the achievement of a minimum level of stability in the area.²

Regulations

Although well-traveled international straits are focal points of vessel traffic and often of congestion, the only IMO-approved traffic separation schemes (TSS) in the Japan Sea are based on Russian proposals and are off Ostrovnoi Point and in the approaches to the Gulf of Nakhodka. Outside the Japan Sea are two TSS, also IMO-approved, for Aniwa Cape and the Fourth Kurile Strait. Only one of these is concerned with a strait and that is not a major strait.

The Japan Sea may provide a model area for whatever forms of ship management emerge in safe navigation. It is an area where most of the elements that require vessel management are found: narrow sea areas and island-fringed coastlines, intensive fishing activity combined with merchant shipping, and uncertain weather with poor visibility.

Already in its busy ports, Japan has resorted to sophisticated and effective measures for overall traffic guidance and specific directions to vessels. The Maritime Safety Agency of Japan (JMSA), established in 1948, is responsible for the exercise of law enforcement at sea, prevention of maritime casualties, search-and-rescue activities, marine environment protection, hydrography, safety of maritime traffic, and aids to navigation. Maritime and port safety rules are administered by the JMSA, which implements

Table 1: Rights of Aliens for Different Activities in Different Jurisdictional Zones

Activity	Internal Waters	Territorial Waters	Contiguous Zone
Navigation	Aliens have no rights except where a straight baseline has converted waters to the internal status. In such cases, the right of innocent passage remains (8.2)	Aliens have the right of innocent passage provided they comply with legitimate laws and regulations adopted by the coastal state and with accepted international regulations to prevent collisions at sea (21). Aliens have the right of transit passage through straits used for international navigation (38). Aliens must follow designated sea lanes and traffic separation schemes (22 and 41)	Aliens have full navigation rights provided they have not infringed regulations relating to the territorial sea (33)
Overflight	Aliens have no rights	Aliens may overfly straits used for international navigation (38)	Aliens have full overflight rights
Scientific Research	Aliens have no rights	Research can only be conducted with the express consent of the coastal state (245)	Aliens would possess rights to conduct research in the water column if no Fishing Zone had been proclaimed extending beyond the seaward limit of the Territorial Sea. However, no research could be conducted on any continental shelf underlying the contiguous zone in this situation (246)
Imposition of environmental legislation	The coastal state has complete authority (8)	The coastal state has complete authority (21.d and f), provided it does not hamper innocent passage (211.4). Warships are exempted because they possess sovereign immunity (236)	The coastal state would have authority only if the contiguous zone was overlapped by an exclusive economic zone or underlain by the continental shelf. In the first case the state would have authority over the seabed and water column; in the second case the state could only legislate for the seabed. Such regulation would have to be consistent with rights of aliens in this zone. Warships are exempt because they possess sovereign immunity (236)

Exclusive Economic Zone	Continental Shelf	Archipelagic Waters	High Seas
Aliens have full navigation rights provided they observe safety zones designated by the coastal state around artificial islands, installations and structures (58 and 60.6)	Aliens have full navigation rights provided that they observe safety zones designated by the coastal state around artificial islands, installations and structures (80)	Aliens have the right of innocent passage though the archipelagic state may designate sealanes for continuous and expeditious passage and may close certain areas temporarily for the protection of its security (52 and 53). Where archipelagic waters intrude between two parts of a neighboring state, existing traditional rights and interests will be preserved (47.7)	All operators have equal rights (87.a)
Aliens have full overflight rights	Aliens have full overflight rights	Aliens have overflight rights, although they might be restricted to designated corridors (53). Aliens having traditional or agreed rights in waters prior to them being declared archipelagic waters shall have those rights respected through the concluding of bilateral treaties (51)	All operators have equal rights (87.b)
Research can be conducted only with the consent of the coastal state (246)	Research can be conducted in the water column, but consent of the coastal state would be required for research on the seabed (246 and 257)	Research can only be conducted with the consent of the archipelagic state (54 and 40)	All operators have equal rights, although these do not include the continental shelf, which underlies high seas (87.f and 257)
The coastal state has complete authority (56.b.iii), provided the rights of aliens are not adversely affected (52.2). Regulations dealing with pollution from vessels should give effect to generally accepted international rules and standards (211.5). Provision exists for imposing special regulations dealing with pollution from vessels after consultation with the competent international authority (211.6). Warships are exempt because they possess sovereign immunity (236)	The coastal state has complete authority to legislate for the protection of the seabed environment (194.2 and 200) providing such regulations do not unjustifiably interfere with the rights and duties of aliens (194.4). Aliens have rights to conduct scientific research in those areas of the shelf, more than 200 nm from the baseline, which have not been designated by the coastal state as areas within which exploration or exploitation will occur in a reasonable time (246.6). Warships are exempt because they possess sovereign immunity (236)	Archipelagic states have complete authority to legislate for protection of the environment in these waters (50 and 42) and are bound not to use regulations to hamper innocent passage (50, 42.2 and 44). Warships are exempt because they possess sovereign immunity (236)	All operators have equal responsibilities (116-120)

Note: Numbers and letters in the brackets refer to sections of the CLOS.

Source: Prescott, *Maritime Jurisdictions and Boundaries* in Morgan & Valencia (eds.) *Atlas for Marine Policy in Southeast Asian Seas*, 42, 44 (1983).

the standards set out in the relevant IMO Conventions and the Maritime Traffic Safety Law of Japan. Some 20 international seaports are located in Japan (some with their own safety rules), and in some of these ports and their approaches, vessel traffic is heavy and congested. JMSA operates a Maritime Traffic Information System for informing and controlling ships in coastal waters.

The JMSA also implements the Japanese Law Relating to the Prevention of Marine Pollution and Maritime Disaster and enforces specific types of plans for the discharge of wastes, incineration of oil and wastes whether or not containing oil, and disposal of scrap. It regularly monitors and surveys coastal areas for marine pollution. Above all, it implements the International Convention for the Prevention of Pollution from Ships, 1972, as modified by the Protocol of 1978 (the "MARPOL 73/78 Convention"), which is the IMO comprehensive treaty dealing with vessel-source pollution. The JMSA takes steps to ensure that pollution from foreign vessels observed through the agency's surveillance is reported to the flag state.

International Conventions

Japan, the DPRK, and the ROK are all members of the IMO. However, many conventions have not been ratified by all of these nations. Of the 40 conventions, including the IMO convention itself, Russia has accepted 28; China and Japan, 22; the ROK, 13; and the DPRK, nine. Even the International Convention on Maritime Search and Rescue has not been accepted by either the DPRK or the ROK. However, a 1956 agreement between Japan and the USSR does provide for distress assistance in the Sea.*

The United Nations Conference on Trade and Development (UNCTAD) has also developed three conventions relating to maritime matters. First, the Convention of a Code of Conduct for Liner Conferences, the primary objective of which is the improvement of the liner conference system, has been signed by the ROK and the USSR but not Japan and the DPRK. Second, UNCTAD's U.N. Convention on International Multimodal Transport of Goods, designed to facilitate the continued expansion of international multimodal transport, has been signed by Japan and the USSR but not the DPRK and the

ROK. Third, UNCTAD's U.N. Convention on Conditions for Registration of Ships has been formulated to combat the "open registry" phenomenon by ensuring that a real link exists between a state and ships flying its flag. Although none of the states in this region operate an "open registry," the ROK and Russia appear to support this convention while Japan, with the world's third largest fleet, has expressed opposition. The ROK and Russia are also members of the Comité Maritime International (CMI), which has as its principal aims the unification of maritime and commercial law and the promotion of national associations of maritime law.

Exercise of Rights and Responsibilities Under CLS

The shipping tonnage of the countries bordering these seas is increasing, both in absolute terms and as a proportion of the total world's tonnage. Thus the volume of ship movements in and near these seas will continue to grow and will increasingly involve ships from outside the region. This increase in shipping movements could pose problems for the littoral countries and for countries whose shipping routes pass through or near East Asian Seas. The problems will relate mainly to the regulation of shipping for safety and the prevention of marine pollution. However, these seemingly technical questions could also have crucial economic, political, and social implications for some, if not all, of the countries concerned.

All East Asian states except the DPRK have ratified the CLS. The relevant rights and responsibilities of the countries bordering the seas in relation to shipping and maritime transport in general, under CLS or under general international law of the sea, include:

1. Rights and obligations as flag states in exercising their jurisdiction and control in administrative, technical, and social matters for the promotion of safety at sea and the prevention, reduction, and control of marine pollution.
2. The powers and obligations of coastal states regarding the control of foreign ships exercising the right of innocent passage in their territorial seas and in straits used for international navigation.

3. The rights and obligations of port and coastal states in respect of national and international regulations for the prevention, control, and reduction of marine pollution by vessels in areas within the jurisdiction of the respective coastal and port states.
4. The rights and obligations of the countries in respect of the prevention, control, or reduction of marine pollution in semi-enclosed seas, including the establishment of special mandatory measures in areas where the adoption of such mandatory measures is required for recognized technical reasons.
5. The establishment of contingency plans and arrangements for eliminating the effects of marine pollution and preventing or minimizing pollution damage.
6. The prevention and control of unlawful activities such as piracy, illicit traffic in drugs, unauthorized broadcasting, and maritime fraud in all its forms.
7. The exercise by Mongolia of its right of access to and from the sea and freedom of transit.

Potential Disputes

Transnational disputes may arise regarding the following issues:

1. The control of shipping by coastal and port states in their territorial seas, with due regard to the right of foreign ships to innocent passage.
2. The extent to which national laws legitimately regulate maritime traffic or “hamper the innocent passage of foreign ships through the territorial sea,” contrary to the CLS. The criteria postulated by the Convention for innocent passage and the conditions attached to the regulatory powers of coastal states are not all sufficiently “objective” to obviate the possibility of differences in interpretation and application. Accordingly, the exercise by one coastal state of its powers of regulation, in the way such a state interprets and understands the Convention, could provoke controversy with other states. Examples include what passage may be considered to be “prejudicial to the peace, good order or security” of the coastal state. In particular, what acts amount to “threat of use of force by a foreign ship against the sover-

eighty, territorial integrity or political independence” of a coastal state or “a violation of the principles of international law embodied in the Charter of the United Nations;” an “act aimed at collecting information to the prejudice of the defense or security of the coastal State;” an “act of propaganda aimed at affecting the defense or security of the coastal State;” an “act aimed at interfering with any systems of communication or any other facilities or installations of the coastal State;” and activity that does “not have direct bearing on passage.”

3. Whether and when a coastal state can be rightly accused of hampering innocent passage, contrary to the CLS, because it has imposed a requirement on foreign ships “which have the practical effect of denying or impairing the right of innocent passage.”
4. What action by a coastal state would amount to “discrimination in form or in fact against the ships of any State or against ships carrying cargoes to, from or on behalf of” any other state.
5. Whether the exercise or attempted exercise of criminal jurisdiction by a coastal state on board a foreign ship in the territorial sea is in accordance with or contrary to the provision of the CLS and, in particular, whether there are reasonable grounds for claiming that the consequences of any crime involved “extend to the coastal State” or is of a kind “to disturb the peace of the country or the good order of the territorial sea.”
6. What role, if any, other states should have in connection with the designation of sealanes and the prescription of traffic separation schemes by coastal states in their territorial sea, as well as straits used for international navigation.
7. The extent of the duty of the coastal state to give publicity in respect of matters pertaining to navigation in the territorial sea including, in particular, publicity in relation to charts or lists of geographical coordinates for the baselines used for measuring the breadth of the territorial sea or archipelagic waters; the laws and regulations adopted relating to innocent passage through the territorial sea; charts indicating sealanes and traffic separation schemes designated or pre-

scribed in the territorial sea or archipelagic waters; and dangers to navigation within its territorial sea.

8. Whether a foreign warship or other governmental noncommercial vessel has complied with the law of a coastal state concerning passage through the territorial sea; and the basis and extent of liability of the flag state for damage or loss arising from any such noncompliance.
9. Whether a coastal state has fulfilled its obligations in relation to artificial islands, installations, and structures in the EEZ to ensure safety of navigation.

A most fertile source of dispute may be the question of whether or not a non-ratifying state like the United States may avail itself of the CLS's provisions governing the various navigational regimes. The United States argues that these navigational "rights" are customary international law, and negotiated an agreement with the former Soviet Union declaring these rights and guaranteeing mutual observance thereof. However, some ratifiers like China may not agree, and since the United States is not a party to the Treaty, it cannot avail itself of the dispute resolution provisions. This then leaves the resolution of such disputes purely in the political arena.

The provisions of CLS on the prevention, reduction, and control of marine pollution presuppose a wide measure of cooperation between states. In some cases, the effective implementation of enforcement of national and international regulations depends on the coordination of efforts or measures between governments or the exchange of information not just between neighboring coastal or port states, but also the flag states of the ships involved. The need and desirability for coordination and cooperation in this regard assume even greater importance in these seas because (1) they are semi-enclosed seas, which may require special measures for pollution prevention; and (2) they will continue to be a major theater of shipping activity.

Possibilities for dispute exist regarding:

1. The regulation of shipping in and around the seas to prevent marine pollution by vessels, including the enforcement of applicable national and international laws and regulations.

2. Whether the laws and regulations adopted by coastal states for marine pollution prevention, and applicable to foreign ships in the territorial sea and in the EEZ, are in accordance with the provisions of international law and, in particular, whether such laws hamper innocent passage.
3. Whether particular requirements set by coastal states as a condition for the entry of foreign ships into their ports or internal waters or for call at their offshore terminals are in accordance with international law, and whether the requirements for publicity have been fully complied with.
4. Whether a coastal state has the right to adopt additional laws and regulations for the prevention of pollution of any particular areas in their EEZ and, if so, how the procedure set out in the CLS may be fulfilled for this purpose.
5. Whether measures of enforcement taken by port and coastal states are permitted by international law and have been taken in accordance with procedures established in respect of such enforcement. Specific areas of possible conflict in this regard include:
 - In what circumstances may a port state institute proceedings against a foreign vessel for violations of national or international rules and standards within the territorial sea or EEZ (i.e., specifically what violations may be considered as likely to cause or threaten "significant pollution" or "major pollution" to the interest of the coastal or port state)?
 - In what circumstances may a coastal state require information from a foreign vessel navigating in its territorial sea or EEZ, or take physical action against such a vessel, in respect of alleged violations of antipollution regulations or standards?
 - When is a coastal state obliged to release a foreign vessel held for marine pollution violations and, in particular, when will a coastal state be deemed to be bound by procedures for bonding or appropriate financial security?
 - In what circumstances may a coastal state apply the provisions of international agreements for preventing pollu-

tion or providing liability and compensation for pollution damage to ships of states that are not parties to such agreements by virtue of provisions requiring that nonconvention ships should not be given “more favorable treatment?”

- The obligations of coastal states and port states to consult with and facilitate appropriate roles for the flag state (and other interested states and organizations) in proceedings against foreign vessels, particularly in regard to the need to avoid undue delay, endangering the safety of navigation, or exposing the environment to an unreasonable risk of pollution; and the liability of coastal states arising from enforcement measures

SLOC Insecurities

When analyzing freedom of navigation issues, one must distinguish between freedom of navigation for commercial vessels and that for warships. Logically, the critical economic importance of the Sea Lines of Communication (SLOCs) in Asia to Asian nations themselves like Japan, which imports 80 percent of its oil over these SLOCs, as well as to extraregional powers such as the United States, indicates that it would not be in the interest of any Asian nation or extraregional powers to interfere with the movement of commercial vessels along regional SLOCs.³ But nations’ actions often make little economic sense.

The least likely scenario for disruption of the SLOCs in the foreseeable future is conflict among Asian states and/or attacks by any of them on commercial vessels in regional sea lanes. A greater concern, particularly among ASEAN nations, is disruption of SLOCs by conflicts involving China and Taiwan, or China and Vietnam regarding the Spratly islands or disputed oil fields. To allay just such fears, the Chinese Foreign Ministry has denied that it may threaten freedom of navigation, stating: “While safeguarding its sovereignty over the Nansha (Spratly) Islands and its maritime rights and interests, China will fulfill its duty of guaranteeing freedom of navigation for foreign ships and air routes through and over the international passage of the South China Sea according to international law.”⁴ However, China’s firings of missiles to

areas off Taiwan’s seaports in early 1996 did not exactly bolster confidence in China’s guarantees. Conflict potential in the Taiwan Strait and the Spratlys remains a real concern, but even in this worst case scenario, there are still major sealanes available that run well to the west of the Spratlys and to the east of Taiwan. Nevertheless, Japan is sufficiently concerned about its oil lifeline to be safeguarding the SLOCs up to 1,000 miles from its territory. Such “safeguarding” could in future be extended into the South China Sea.

Another threat scenario would involve the mining of critical SLOCs, or, especially, straits. But given the economic interests of all regional states, it is hard to imagine any state openly mining these waters, and even harder to identify a current rationale for clandestine mining like that in the Red Sea in 1984. Further, although such mining would be a major threat to coastal areas and confined straits, currents and deep water would minimize mine effectiveness.⁶ In summary, while there are real concerns regarding potential military disruptions to the movement of commercial vessels along Asian SLOCs, both the probability of such disruptions, and that of their direct effect on shipping are low.

In Northeast Asia proper, there is a higher probability of impediments to safe navigation for commercial vessels. Beginning in 1992, piracy in the East China Sea took on a more overt, quasi-military scale, with the attackers being Chinese, in uniform and in patrol boats, firing shots in many cases.⁶ Between 1991 and 1992, there were 78 such incidents. Beijing eventually claimed that rogue elements of the Chinese Customs and Public Security Bureaus (not military units) were responsible. However, other nations in Asia were concerned that these “piracy” incidents might be a deliberate PRC exercise of extra-territorial sovereignty, and an unofficial exertion of expansive PRC maritime claims. After 17 of 20 piracy incidents involving Russian ships in the East China Sea, Russia deployed naval ships to the area in mid-1993 with orders to attack any threats to shipping. The incidents promptly ceased. Japan, whose ships were also victims, proposed to the PRC Foreign Minister during his February 1993 visit to Tokyo that officials from the two countries’ coast guard authorities meet to discuss East China Sea shipping problems. The PRC agreed to an “informal” June 1993 meeting, which arranged the establishment of a hotline to the Japanese Maritime Safety Agency and inci-

dents over the next year were reduced to only one.

Reflecting Japan's growing concern with security of the sealanes, an emergency study has been underway since May 1996.⁷ It focuses on protection of Japanese overseas, contingencies for a massive refugee influx, patrol of important offshore facilities, and assistance to the U.S. military in defense of the sealanes, particularly those close to Japan.

Environment and Navigation

The growing acceptance of the notion of comprehensive security,⁸ the ocean transport of nuclear waste, and the dumping and catastrophic accidental spillage of oil are making environmental pollution a matter of serious concern. Eastbound tankers proceeding along the Malacca-Singapore Straits-South China Sea route are for the most part loaded with crude petroleum from the Arabian Gulf area bound for Northeast Asia, with some originating in Malaysian coastal ports or Indonesian ports on the northeast coast of Sumatra.⁹ South and westbound traffic either carries refined products or is in ballast. The physical restrictions imposed by the less than 23 meter (75 foot) channel depths in the Straits, and the safety limitation of a 3.5 meter under-keel clearance added by the three coastal states effectively preclude the use of this route by fully laden tankers of more than 200,000 dwt, which commonly have drafts of 19 meters (62 feet) or more. The alternate route for these VLCCs is through the deep (150 meters) and wide (12.5 mile minimum) waters of Lombok and Makassar Straits and the Celebes Sea south of Mindanao.

The greatest source of tanker-related oil pollution is the discharge of tank washings. Between 0.35 and 0.50 percent of a tanker's cargo settles out during long sea voyages and unscrupulous operators discharge this residue into the sea. Approximately 1,000 tons, or 300,000 gallons on a single voyage of a 200,000 ton tanker may be discharged into the sea with tank washings. In Southeast Asia, this phenomenon results in major concentrations of ballast discharge at each end of the Malacca Strait, in the western Java Sea, west of Madura, off Balikpapan, and off Brunei and Sabah. Plumes of tank washings

are also generated along the two major tanker routes.

Asia was introduced to high technology marine accidents through the 1973 grounding of the *Showa Maru* in the Strait of Malacca and the ecological damage resulting from pollution. There have been several more spectacular accidents there in recent years. The specialization of cargoes, the application of space-age technology in transporting these cargoes, and the often far-reaching impact of these casualties on coastal populations and on the environment put these accidents in a class by themselves. Malaysia and Indonesia are now considering their options to enhance their security regarding such environmental assaults.

As if oil tankers were not a sufficient threat, Asia now has to deal with the possibility of an accident involving a vessel carrying a nuclear spent fuel.¹⁰ Japan is shipping plutonium from France to fuel its nuclear power plants. The shipments follow a route around the Cape of Good Hope, across the Indian Ocean, through Southeast Asia, and on to Japan. The shipments began in 1992. At the time South Africa said it would bar Japanese ships carrying plutonium from sailing within 200 nm of its coast. Emil Salim, then Indonesia's minister of state for population and environment, said that in the interests of safety, Indonesia advised Japan to avoid congested straits and shipping lanes off Southeast Asia even though they might offer a quicker route. In January 1997, Malaysia expressed its serious concern with an ongoing shipment and requested the vessel, the *Pacific Teal*, observe strict safety precautions while in its waters. There is also concern that the Japanese shipments may open the door to worldwide commercial traffic in one of the most toxic substances known. For example, South Korea and Taiwan may eventually want to start shipping spent nuclear fuel from their reactors for reprocessing into plutonium and have it returned by sea.

In Northeast Asia, there is very heavy oil tanker traffic, mainly to Japan, Taiwan, and South Korea. About 4 billion barrels of crude oil a day are imported by these three, representing 23 percent of the global total. New oil shipping routes running from the Bo Hai to Japan, South Korea, and southern China were opened recently.

Although routine discharges are a problem, the major concern is the possibility of a cata-

strophic spill. The first major oil pollution incident in the East Sea was the 6,400 tons spilled from the wrecked tanker *Juliana*. Many organisms were killed and fisheries products were unmarketable for 3 months; cleanup costs were significant.¹¹ The extreme sensitivity and vulnerability of the region were demonstrated by a South Korean spill in 1987. A tanker carrying 2,000 tons of refined oil, diesel fuel, and bunker-C oil was wrecked 40 miles off Inchon harbor and spilled 80 tons of bunker-C oil. The strong tidal current with the prevailing spring northwesterly wind spread the oil over 40 km of coastline contaminating numerous mariculture sites and damaging more than US\$10 million worth of seaweed, shellfish, and shrimp. Total economic loss of South Korean resources because of oil spilled from 1983 to 1987 was estimated at more than ¥17 million. And in June 1995, the *Sea Prince* ran aground and spilled more than 800 tons of bunker-C oil. Bringing the issue home to Japan, on 2 January 1997, the Russian tanker *Nakhodia* broke in two, spilling some 4,500 tons of oil and costing an estimated \$17 billion worth of damage and further adding to the mutual distrust between the two countries.¹²

The news that the former Soviet navy dumped 18 decommissioned nuclear reactors and 13,150 containers of radioactive waste from 1978 to the present, most of it in the Sea of Japan, created an uproar in the world environmental community. It particularly jolted nuclear-sensitive Japan and South Korea, and even drew a rare comment from North Korea.¹³ Adding fuel to the fire, a Russian naval vessel dumped nearly 1,000 tons of low-level waste in the Japan Sea shortly after Russian President Boris Yeltsin's visit to Japan.

Japanese Foreign Minister Tsutomu Hata warned his counterpart Andrei Kozyrev that if Russia proceeded with its plans to dump another 900 tons of similar waste, "the foundation of a new Japan-Russia relationship will crumble." But in a stunning case of the "pot calling the kettle black," Japanese Science and Technology Agency Chief Satsuki Eda admitted that Tokyo Electric Power Co. dumps 10 times more radioactive waste each year into the Sea of Japan than the 900 tons dumped by the Russian navy. South Korea strongly protested the dumping by both countries.

What are the likely consequences of this increasing environmental insecurity? Amid growing environmental consciousness, jurisdictional extension may sooner or later be interpreted by governments as a responsibility to protect living marine resources and the health of people from such activities that could cause serious pollution. The eventual result may be "creeping" jurisdiction which in effect bars environmentally-risky vessels like tankers and nuclear spent fuel carriers from particularly congested or shallow straits and archipelagic sealanes. The main effect on shipping would be higher costs for insurance and the diversion of such vessels to longer routes.¹⁴

Possible Cooperative Responses¹⁵

In East Asian Seas, political tensions have long overshadowed concerns related to the shipping sector, such as freedom of navigation, safety of shipping, marine pollution control, vessel accident contingency planning, and coordination of vessel traffic. However, with the muting of the Cold War, there is now an opportunity to begin building the foundation for a coordinated effort to manage maritime traffic. Such effort could take the form of cooperative initiatives among the respective government agencies, culminating eventually in the formation of an effective international regional organization.

The CLS has heightened the possibility of intercountry cooperation in certain areas of maritime transportation by providing a way for resolving conflicts that do not have major political dimensions. In the first place, the Convention requires, or at least encourages, states bordering on semi-enclosed seas to cooperate with one another in exercising their rights and in performing their duties under the Convention. In the second place, some of the lights and responsibilities of coastal, port, and flag states in safety of navigation and prevention and control of vessel-source pollution, as clarified in the Convention, are such that they can be exercised or discharged more effectively through cooperation between the countries concerned.

Further, cooperation is indispensable for the enforcement of international regulations and standards in areas beyond the jurisdiction of states. For the implementation and enforcement of national laws and regulations or international rules and standards for the protection of the ma-

rine environment in the territorial sea and the EEZ, the coastal state will benefit from pragmatic cooperation and coordination with other states in areas such as the giving of publicity in respect of special requirements imposed as a condition for the entry of foreign vessels into their ports, internal waters, or offshore terminals; and the giving of publicity in respect of dangers to the safety of navigation in their territorial sea or the existence of artificial islands and structures in the EEZ (or continental shelf) and the existence of safety zones around such islands or structures.

The implementation and enforcement of international regulations in areas outside the jurisdiction of particular countries and the prevention, control, and reduction of marine pollution in general can engender possible conflict. Cooperation and coordination will be useful in:

1. The provision of information by or to flag states in respect of violations committed by their ships outside the territorial waters or EEZs of flag states;
2. The enforcement of international rules and standards by port states against foreign vessels voluntarily within their ports; and the role of the flag state in assisting such enforcement, or in taking over such proceedings;
3. The establishment of procedures to avoid unnecessary physical inspection of vessels at sea, and arrangements for bonding or provision of other appropriate financial security by foreign vessels detained in foreign ports;
4. Notification by coastal states of other states likely to be affected by damage or imminent danger to the marine environment;
5. The establishment, by neighboring states, of contingency plans for responding to pollution incidents or emergencies;¹⁶ and
6. The establishment by agreement between the bordering states of the semi-enclosed seas of arrangements to coordinate the implementation of their rights and duties with respect to the protection and preservation of the marine environment arising from vessel traffic.

The coastal states could also cooperate regarding their rights and obligations with respect to:

1. The suppression of piracy, including unlawful acts against ships and their personnel at sea or in ports;
2. The prevention, detection, and punishment of acts of maritime fraud including acts that jeopardize the safety of ships, the integrity of maritime navigation, or international trade based on maritime transportation;
3. The suppression of illicit traffic in narcotic drugs and psychotropic substances contrary to international law; and
4. The suppression of unauthorized broadcasting from ships and installations on the high seas.

A standing mechanism, established in advance with clearly agreed procedures, would be of assistance to the authorities concerned. It may also act as a disincentive to persons who might contemplate any unlawful activities within the area.

Because of the relatively technical nature of some navigational problems, it may be possible to develop some pragmatic links for cooperation involving most, if not all, countries bordering the seas, as well as other countries that may be interested in or affected by the shipping operations there. So long as such arrangements do not require states to abandon or modify their maritime claims or political positions vis-à-vis other states, they may participate in such arrangements, especially if they are convinced that such participation can help them to exercise their rights and powers and discharge their obligations more effectively or to maximize the benefits that will accrue to them from shipping.

Many of these transnational issues can be addressed in subregional, regional, or global fora in which most of the countries concerned participate. However, the existing arrangements, which are formal and intergovernmental in character, are generally unsuitable for the situation in these seas since some of the major controversies relate to the political status of some of the entities themselves and to their capacity to participate in intergovernmental arrangements. Thus, neither the Economic and Social Commission for Asia and the Pacific (ESCAP), nor global international organizations such as the IMO, nor the various tribunals envisaged under the CLS can provide suitable machineries for dispute settlement or for cooperative action in which all the possible parties to disputes may be willing or

able to participate. It would appear therefore that some form of pragmatic local arrangement might be useful as a substitute for purely formal interstate or intergovernmental institutions.

Such approaches include those that:

1. permit countries, through an informal technical coordinating mechanism, to exchange information or pool relevant data that could form the basis of research, either by individual states or by independent research institutions or entities;
2. provide and establish standing institutions whose participants are "departments," "administrations," or "parastate institutions," rather than governments themselves; and
3. establish, by formal interstate agreement, a framework for practical cooperation through existing international organizations, regional or global.

Purely technical coordination for the exchange or pooling of information could be organized using existing international organizations such as ESCAP or IMO. Under such a system the international organization or organizations concerned would serve as the focal point for the receipt of information or positions, while the collection of information and the initiation of projects would be undertaken by governments or government-nominated institutions. The international organizations would be responsible for collating information and, where appropriate, publishing them in a form that will be readily available to all countries concerned.

Such informal mechanisms could help deal with issues such as publicity in respect of the breadth of territorial seas and charts or coordinates related thereto, and the laws and regulations and special requirements adopted by coastal states in relation to foreign ships, as well as procedures to be followed with regard to flag states when their ships are involved in proceedings in other states. Countries participating in such an arrangement will not necessarily have to assume any obligations to deal directly with, or even recognize, any of the other participants. It would be enough for each country to agree to communicate relevant information to the chosen coordinating organization that will, in turn, undertake to collate and make available information received to all interested states and organizations. To avoid controversy about the propriety of communication with entities whose status may

be open to question, such information might be disseminated in published texts available for general distribution and use. Examples of information published in politically "neutral" form are the *Law of the Sea Bulletin* published by the United Nations Secretariat, publications on ship routing and traffic separation schemes published by the IMO, and the international chart series issued by the International Hydrographic Organization (IHO). Other fields in which useful exchange of information could be organized in this way include national arrangements for maritime search and rescue, special facilities available in different ports, and information to help prevent maritime fraud and other unlawful activities at sea.

Another possibility for cooperation is for the establishment of standing institutions in which participation is open not to governments as such, but rather to particular departments of governments or suitable government-designated entities. The decision to have a Memorandum of Understanding between "maritime authorities" instead of a treaty or convention between governments can be deliberately taken in order to avoid problems and delays of formal ratification, and also to enable the provisions to be revised more speedily than would be possible in respect of a formal agreement between governments or states. This approach avoids delicate issues such as the status of any of the countries or governments that might participate in the arrangement. The need for formal relations between governments is further reduced by the establishment of an international secretariat, to which and through which information is transmitted to other partners and to other interested states or organizations.

A memorandum involving the maritime administrations (and assisted by a central secretariat located in a state that has relations with all the countries) could form the basis for cooperative action. It could also form the nucleus of a regional body for harmonizing the policies of the countries concerned, not only for safeguarding their individual and collective interests, but also for consolidating their position vis-à-vis shipping from states outside the region.

Formal intergovernmental institutions in these seas are still premature. Nevertheless, such formal intergovernmental arrangements could eventually be developed under UNEP/NOWPAP. Under this program, states are sup-

posed to negotiate a “regional action plan” to be carried out by the national institutions of the countries participating therein. The plan involves intergovernmental meetings to adopt agreed work plans, review progress achieved in implementing the work plans, and introduce appropriate adjustments to meet new or changed demands. A major element in these plans is the coordination provided by UNEP and other competent international organizations that provide assistance to the national institutions in the implementation of programs agreed to under the “action plans.” The substantive aspects of these action plans generally include assessment components, management components, legal components, institutional components, and financial components. Such an arrangement would provide a forum for cooperation and coordination in the prevention and control of pollution of the seas, particularly with activities outside the territorial sea or EEZ. It would also provide a forum for the discussion of proposed additional measures to deal with peculiar ecological problems of the seas. Above all, it would offer a dependable mechanism for pooling information and for organizing the resources of the countries in the area, and for appropriate institutions outside the region for dealing with marine pollution incidents and emergencies.

The first task that might be taken up in establishing *entente* (in the sense of listening to and comprehending others) is to compile an inventory of maritime issues in the region, singling out those that are not divisive in themselves but provide some advantage for the region and the participants. In *semi-detente*, the solution of some of these issues might not even require goodwill among some of the participants in the process to realize the advantages of cooperative action. The countries might set aside those issues that raise the question of the legitimacy or illegitimacy of precedent.

Common interests in rescuing persons in distress at sea and in preserving an unpolluted marine environment are strong inducements to act in concert, even if at “arm’s length.” Traditionally, states could agree also to suppress piracy and other lawless maritime acts, since most states favor law and order. This area of noncontention seems as relevant to the present as to the past; along with piracy has been added the suppression of illicit traffic in narcotic drugs and psychotropic substances, of maritime fraud, and

of unauthorized broadcasting from ships. The states bordering the Japan Sea might easily establish a standing mechanism between their marine law enforcement agencies or arrive at some practical method of collaboration to detect and suppress such acts.

However, the inventory of noncontentious areas of mutual help leaves some troublesome gaps where the common interest is plain. They can be an offshoot of nonrecognition in diplomatic terms, as when a state is only in communication with another through a third state or some neutral body like the Red Cross. This is not an insuperable obstacle, as is shown by the agreements between Japanese and the DPRK Fisheries Associations allowing Japanese fishing in DPRK waters. There may be substantial room for maneuver and practical assistance by turning to the secretariats of international organizations, particularly of the United Nations system, but not limited to those bodies. For example, all the states bordering these seas are members of IMO and send representatives to the technical and legal bodies where the work of the organization is done. Some of these states are active in formulating and adopting standards.

Scholarly gatherings are of great value to the process of pragmatic cooperation in maritime matters, as well as in the implementation of the new Law of the Sea. Technical and other coordinating mechanisms of an informal character, brought about by institutions of learning and professional bodies, are powerful agents of beneficial change. In the very process of “lobbying,” these nongovernmental groups are often influential in evolving new solutions to old problems and in raising public consciousness of issues (e.g., land-source pollution) that are sometimes more than even governments can easily control. The Japan Sea could prove to be the paradigm among semi-enclosed seas and achieve this by practical and informal measures pursued as likely as not both in and out of the governments of the region and both in and out of the region itself.

Appendix 1: Main CLS Navigational Regimes

INNOCENT PASSAGE

1. Passage means navigation through the territorial sea for the purpose of:

a) traversing that sea without entering internal waters or calling at a roadstead or port facility outside internal waters; or

b) proceeding to or from internal waters or a call at such roadstead or port facility.

2. Passage shall be continuous and expeditious. However, passage includes stopping and anchoring, but only in so far as the same are incidental to ordinary navigation or are rendered necessary by *force majeure* or distress or for the purpose of rendering assistance to persons, ships or aircraft in danger or distress.

3. Passage is innocent so long as it is not prejudicial to the peace, good order or security of the coastal State. Such passage shall take place in conformity with this Convention and with other rules of international law.

4. Passage of a foreign ship shall be considered to be prejudicial to the peace, good order or security of the coastal State if in the territorial sea it engages in any of the following activities:

a) any threat or use of force against the sovereignty, territorial integrity or political independence of the coastal State, or in any other manner inviolation of the principles of international law embodied in the Charter of the United Nations;

b) any exercise or practice with weapons of any kind;

c) any act aimed at collecting information to the prejudice of the defence or security of the coastal State;

d) any act of propaganda aimed at affecting the defence or security of the coastal State;

e) the launching, landing or taking on board of any aircraft;

f) the launching, landing or taking on board of any military device;

g) the loading or unloading of any commodity, currency or person contrary to the customs, fiscal, immigration or sanitary laws and regulations of the coastal State;

h) any act of willful and serious pollution contrary to this Convention;

i) any fishing activities;

j) the carrying out of research or survey activities;

k) any act aimed at interfering with any systems of communication or any other facilities or installations of the coastal State;

l) any other activity not having a direct bearing on passage.

5. In the territorial sea, submarines and other underwater vehicles are required to navigate on the surface and to show their flag.

6. The coastal State may adopt laws and regulations, in conformity with the provisions of this Convention and other rules of international law, relating to innocent passage through the territorial sea, in respect of all or any of the following:

a) the safety of navigation and the regulation of maritime traffic;

b) the protection of navigational aids and facilities and other facilities or installations;

c) the protection of cables and pipelines;

d) the conservation of the living resources of the sea;

e) the prevention of infringement of the fisheries laws and regulations of the coastal State;

f) the preservation of the environment of the coastal State and the prevention, reduction and control of pollution thereof;

g) marine scientific research and hydrographic surveys;

h) the prevention of infringement of the customs, fiscal, immigration or sanitary laws and regulations of the coastal State.

7. Such laws and regulations shall not apply to the design, construction, manning or equipment of foreign ships unless they are giving effect to generally accepted international rules or standards.

8. Foreign ships exercising the right of innocent passage through the territorial sea shall comply with all such laws and regulations and all generally accepted international regulations relating to the prevention of collisions at sea.

9. The coastal State may, where necessary having regard to the safety of navigation, require foreign ships exercising the right of innocent passage through its territorial sea to use such sea lanes and traffic separation schemes as it may designate or prescribe for the regulation of the passage of ships.

10. In particular, tankers, nuclear-powered ships and ships carrying nuclear or other inherently dangerous or noxious substances or materials may be required to confine their passage to such sea lanes.

11. The coastal State shall not hamper the innocent passage of foreign ships through the territorial sea except in accordance with this Convention. In particular, in the application of this Convention or of any laws or regulations adopted in conformity with this Convention, the coastal State shall not:

- a) impose requirements on foreign ships which have the practical effect of denying or impairing the right of innocent passage; or
- b) discriminate in form or in fact against the ships of any State or against ships carrying cargoes to, from or on behalf of any State.

12. The coastal State may take the necessary steps in its territorial sea to prevent passage which is not innocent.

13. The coastal State may, without discrimination in form or in fact among foreign ships, suspend temporarily in specified areas of its territorial sea the innocent passage of foreign ships if such suspension is essential for the protection of its security.

TRANSIT PASSAGE

1. Transit passage applies to straits which are used for international navigation between one part of the high seas or an exclusive economic zone and another part of the high seas or an exclusive economic zone.

2. All ships and aircraft enjoy the right of transit passage, which shall not be impeded.

3. Transit passage means the exercise of the freedom of navigation and overflight solely for the purpose of continuous and expeditious transit of the strait between one part of the high seas or an exclusive economic zone and another part of the high seas or an exclusive economic zone.

4. Ships and aircraft, while exercising the right of transit passage, shall:

- a) proceed without delay through or over the strait;
- b) refrain from any threat or use of force against the sovereignty, territorial integrity or political independence of States bordering the strait, or in any other manner in violation of the

principles of international law embodied in the Charter of the United Nations;

c) refrain from any activities other than those incident to their normal modes of continuous and expeditious transit unless rendered necessary by *force majeure* or by distress;

d) comply with other relevant provisions of this Part;

e) comply with generally accepted international regulations, procedures and practices for safety at sea, including the International Regulations for Preventing Collisions at Sea;

f) comply with generally accepted international regulations, procedures and practices for the prevention, reduction and control of pollution from ships.

5. States bordering straits may adopt laws and regulations relating to transit passage through straits, in respect of all or any of the following:

- a) the safety of navigation and the regulation of maritime traffic.

ARCHIPELAGIC SEA LANE PASSAGE

1. An archipelagic State may designate sea lanes and air routes thereabove, suitable for the continuous and expeditious passage of foreign ships and aircraft through or over its archipelagic waters and the adjacent territorial sea.

2. All ships and aircraft enjoy the right of archipelagic sea lanes passage in such sea lanes and routes.

3. Archipelagic sea lanes passage means the exercise in accordance with this Convention of the rights of navigation and overflight in the normal mode solely for the purpose of continuous, expeditious and unobstructed transit between one part of the high seas or an exclusive economic zone and another part of the high seas or an exclusive economic zone.

4. Such sea lanes and air routes shall traverse the archipelagic waters and the adjacent territorial sea and shall include all normal passage routes used as routes for international navigation or overflight through or over archipelagic waters and, within such routes, so far as ships are concerned, all normal navigational channels, provided that duplication of routes of similar convenience between the same entry and exit points shall not be necessary.

5. In designating or substituting sea lanes or prescribing or substituting traffic separation schemes, an archipelagic State shall refer proposals to the competent international organization with a view to their adoption. The organization may adopt only such sea lanes and traffic separation schemes as may be agreed with the archipelagic State, after which the archipelagic State may designate, prescribe or substitute them.

EXCLUSIVE ECONOMIC ZONE

1. In the exclusive economic zone, all States, whether coastal or land-locked, enjoy the freedoms of navigation and overflight and of the laying of submarine cables and pipelines, and other internationally lawful uses of the sea related to these freedoms, such as those associated with the operation of ships, aircraft and submarine cables and pipelines, and compatible with the other provisions of this Convention.

2. In exercising their rights and performing their duties under this Convention in the exclusive economic zone, States shall have due regard to the rights and duties of the coastal State and shall comply with the laws and regulations adopted by the coastal State in accordance with the provisions of this Convention and other rules of international law in so far as they are not incompatible with this Part.

HIGH SEAS

1. The provisions of this Part apply to all parts of the sea that are not included in the exclusive economic zone, in the territorial sea or in the internal waters of a State, or in the archipelagic waters of an archipelagic State.

2. The high seas are open to all States, whether coastal or land-locked. Freedom of the high seas is exercised under the conditions laid down by the Convention and by other rules of international law. It comprises, *inter alia*, both for coastal and land-locked States:

- a) freedom of navigation;
- b) freedom of overflight;
- c) freedom to lay submarine cables and pipelines;
- d) freedom to construct artificial islands and other installations permitted under international law;

- e) freedom of fishing; and
- f) freedom of scientific research

3. The high seas shall be reserved for peaceful purposes.

Endnotes

1. Information in this section is derived from the following papers presented at East-West Center conferences: T. Mensah, "Transnational Navigational Issues in the Yellow Sea" (Paper presented at the International Conference on the Yellow Sea, 2327 June 1987, East-West Center); E. Gold, "Shipping in the Sea of Japan: Perspectives on Present and Future Trends" (Paper presented at the International Conference on the Sea of Japan, 1114 October 1988, Niigata, Japan); T. Busha, "Semi-cordial *Entente* for a Semi-enclosed Sea: A Model Area or Functional Maritime Co-operation?" (Paper presented at the International Conference on the Sea of Japan, 1114 October 1988, Niigata, Japan); T. Mensah and A. Herring, "Transnational Issues and Challenges for Cooperation in Shipping and Trade" (Paper presented at the International Conference on the Seas of Japan and Okhotsk, Nakhodka, USSR, September 1989). The material in these papers is summarized in M. J. Valencia, *International Conference on the Yellow Sea*, Environment and Policy Institute Occasional Paper no. 3 (Honolulu: East-West Center, 1987), 113132; *idem*, *International Conference on the Sea of Japan*, Environment and Policy Institute Occasional Paper no. 10 (Honolulu: East-West Center, 1989), 143-155.
2. E. Frankx, "Innocent Passage of Warships: Recent Developments in U.S.-Soviet Relations," *Marine Policy* 14(6) (November 1990): 484490, specifically Appendix 3.
3. This paper assumes that Russia has inherited the rights and responsibilities of such agreements and treaties.
4. Stanley Weeks, "Sea Lines of Communication (SLOC): security and access," Paper presented to the Maritime Institute of Malaysia Workshop on ASEAN Maritime Security, Kuala Lumpur, 89 October, 1996.
5. PRC Ministry of Foreign Affairs, *Beijing Review*, 814 May, 1995; p. 22; Henry

- Kenny, *An Analysis of Possible Threats to Shipping in Key Southeast Asian Sea Lanes* (Alexandria: Center for Naval Analysis), February, 1996.
6. Kenny, *Possible Threats*, p. 23.
 7. Stanley B. Weeks. Law and order at sea: Pacific cooperation in dealing with piracy, drugs, and illegal migration. Discussion paper prepared for CSCAP Working Group on Maritime Cooperation, 23 June 1995, Kuala Lumpur.
 8. Cabinet security office also considers sea lane policy. *Yomiuri Shimbun*, 5 February 1997.
 9. Comprehensive security implies that security should and can be achieved through a web of interdependence including cooperation in economic development and scientific research, and a general enhancement of human interactions. It is not simply unconventional sources of conventional conflict. In this perspective, military might alone does not define security nor ensure long term peace. Indeed, in this formulation, the failure to comply with basic standards of good neighborliness, e.g., preventing or notifying neighbors about transnational pollution, or carrying out transboundary environmental clean up and impact assessments can endanger national and individual "security."
 10. Mark J. Valencia and James Barney Marsh. "Access to straits and sealanes in Southeast Asian seas: legal, economic and strategic considerations." *Journal of Maritime Law and Commerce*. v.16, no. 4, October, 1985, pp. 513-551.
 11. Mark J. Valencia. "Japanese plutonium raises a nuclear scare at sea." *International Herald Tribune*, 14 July, 1992, p. 4; "KL bars nuke waste ship from its waters." *The Straits Times*, 16 January 1997; "Nuke waste ship must follow safety steps: KL." *The Straits Times*, 16 January 1997.
 12. Baruch Boxer, "Marine Science and Society in China," *Oceanus*, Vol. 27, no. 1, Spring 1984, pp. 47-53.
 13. Japan battles to clean up oil from Russian tanker. CNN, 5 January 1997; *Associated Press*. Oil near Japan reactors. *Honolulu Advertiser*, 13 January 1997, p. A3.
 14. Foreign Broadcast Information Service (FBIS)EAS93082, 30 April 1993, p. 10; FBIS-EAS 93127, 6 July 1993, p. 35; Statement by the DPRK, Plenary Meeting, Maritime Safety Committee, IMO, 61st session, 8 December 1992.
 15. Mark J. Valencia. "ZOPFAN, strategic sealanes and navigation rights: stormy seas ahead?" *Far Eastern Economic Review*, 7 March, pp. 38-39.
 16. Mark J. Valencia. Transnational navigational issues and possible co-operative responses in Joseph Morgan and Mark J. Valencia, 1993. *Atlas for Marine Policy in East Asia Seas*, University of California, Berkeley Press, pp. 78-80.
 17. The recent spill by the *Nakhodka* has prompted Japan, Russia, the ROK, and China to schedule talks under the auspices of the United Nations Environment Programme's Northwest Pacific Program on measures to be taken in the event of similar accidents. *Asahi Shimbun*, 2 February 1997, p. 1.

MARINE CARRIAGE OF PETROLEUM WITH SPECIAL REFERENCE TO NORTHEAST ASIA

by Chia Lin Sien

Introduction

The Northeast Asian seas of concern in this paper refer to the Sea of Japan, the Yellow Sea which encompasses the Bo Hai to its northwest, and to the south the East China Sea bounded by the following countries: Russia, North Korea, South Korea, China, and Japan. The three sea areas are semi-enclosed by the mainland of Asia, and the islands of Sakhalin, the three major islands -- Hokkaido, Honshu, and Kyushu islands. Taiwan and the chain of islands forming the Ryukyu enclose the southern edges of the East China Sea.

The Sea of Japan is deep, and there is only a narrow shelf along most of the Russian and the two Korean coasts on the mainland until the entrance area of the Tatariskiy Strait. For most of the Japanese west coast, the shelf is also narrow and the bottom topography slopes steeply into the Yamato Basin and the Japan Basin. By comparison, the Yellow Sea and Bo Hai and a large part of the East China Sea together with the East and West Korean straits are shallow until it reaches eastward the Okinawa Trough before the intervention of the Ryukyu chain of islands, which separates the East China Sea from the Pacific Ocean. Taiwan's west coast lies along the 1000 m isobath, while its eastern coastal topography is steeply inclined.¹

A number of key straits connect the three sea areas as well as with the South China Sea to the south, the Pacific Ocean to the east, and the Okhotsk Sea to the northeast. They are:

- (1) Proliv Kruzenshterna: between the Russian mainland and the island of Sakhalin,
- (2) the La Perouse Strait: between Sakhalin and Hokkaido,
- (3) the Tsugaru Kaikyo (strait): between Hokkaido and Honshu

(4) the Kitakyushu Strait: between Honshu and Kyushu leading into the Inland Sea of Japan,

(5) the West Korean Strait and the East Korean Strait (Tsushima Strait): between the Korean Peninsula and Japan separated by the island of Tsushima,

(6) the Taiwan (or Formosa) Strait: between mainland China and Taiwan, and

(7) a separate channel to the east of the Taiwan Strait which is the P'eng-hu Shui Tao (or the Pescadores Channel) separated by the P'enghu series of islands.

There are also numerous channels which permit movement between the East China Sea and the Pacific Ocean through the Ryuku islands. Also, between Bo Hai and the Yellow Sea are a number of islands across the Liaodong Peninsula and Shandong (see Figure 1).

Some basic facts of the countries and Taiwan are presented in Table 1. It may be noted that of the six States, four of them, namely, South Korea, China, Taiwan, and Japan are members of the Asia Pacific Economic Cooperation (APEC) trade group. There are major differences among the states represented here. China has the largest population size and a rapidly growing economy recording more than 10 percent growth rate in 1994, Japan is one of the most powerful economies in the world, South Korea and Taiwan are members of the so-called Asian Newly Developing Economies (NIEs) or Asian "Tigers," while Russia is only beginning to recover from a period of economic depression, and North Korea has yet to open its economy to the international market place.

Of relevance to our subsequent discussion is the pattern of population concentration, urbanization, and industrial activities in the areas surrounding the Northeast Asian seas. The coastal areas of the Russian territory are sparsely populated except for the southernmost area around the Vladivostok and Nachoda area where land is relatively flat and the weather less inclement compared with the rest of Far Eastern Russia. The North Korean east coast suffers from being hemmed in by rugged terrain and coastal flat land is limited. But there are a number of coastal cities there, namely, Ch'ongjin, Songjin, Hong-

nam, and Wonsam. There is more low-lying land along the western coast of North Korean, where the capital city, Pyongyang, is located.

The pattern on the east coast of South Korea is similar to that of its northern neighbor. The largest city along this stretch of the coast is the port city of Pusan on the southeastern edge of the peninsula. By contrast, the southern and western coast of South Korea is highly indented and strewn with islands. The port city of Mokpo on the southwestern tip is noteworthy as are Inchon near the border with North Korea and the capital city of Seoul which lies on the lower reaches of a large river.

The Chinese mainland coast is heavily populated as well as within the vast delta and lower reaches of the two major rivers Huang He (Yellow River) and the Yangtsekiang. The entire coast is generally gently sloping and there are few deep waters along the coast and rivers for large seaports. Most of the southeastern coast is also hemmed in by steep slopes until the Pearl River which discharges its water in the Guangzhou and Hong Kong area. The other major coastal cities, from north to south, are Tianjin, Qingdao, and Shanghai. There are also along the Bo Hai and East China Sea coast a series of large cities including the port cities of Dalian, Jinzhou, Qingdao, Ningbo, Wenzhou, and Fuzhou.

There are major industrial concentrations in and around the northern cities as well as around Shanghai. Other coastal cities have all undergone industrial development as a result of the policy of opening up the coastal cities for foreign investments.

Taiwan has a fairly simple pattern of population distribution with high concentrations along the lowlands to the west of the island. The two major coastal cities are Keelung, located to the north, and to the southern west coast, Kaohsiung (Gaoxiong), both major port cities.

There is an absence of large cities and industrial areas along the western coast of Japan facing the Japan Sea. Notable cities are, from the North, Honshu, Toyama, Matsue on Honshu Island, and further southward, there is the port city of Nagasaki on Kyushu Island.

Figure 1: Northeast Asia: Seas, Straits, and Oil Refineries



Table 1: Basic Facts on Northeast Asian States, 1994

	N. Korea	S. Korea	China	Taiwan	Japan
Population (mil.)	23.5	44.5	1,208.8	21.1	122.2
Land area('000 sq km)	122	98	9,561	36	378
GDP (US\$bil.)	NA	376.5	522.2	260.9	4,591.0
GDP growth/yr(%90-94)	NA	6.6	12.9	6.6	1.2
GDP per capita (US\$)	NA	8,260	530	12,288	34,630
Exports (US\$bil.)	NA	96	121	NA	397
Imports (US\$bil.)	NA	102	116	NA	275

Source: John Andrews (1997), *Pocket Asia Profiles, Facts and Figures about Asia Today*, Profile Books Ltd in association with *The Economist*, London.

Table 2: Oil Reserves, Production, Refining Capacity and Consumption, East Asian States, 1994

Country	Proven Reserves (000 bbl)(a)	Oil Production (000 b/d)	Refining Capacity No. Plants	(000 b/d) (b) Crude Capac.	Consumpt'n (000 b/d)
China	24,000	2,961.0	34	2,867,000	3,030
Taiwan	4,000	1.1	2	543,000	665
Japan	48,873	14.6	41	4,867,000	5,770
Korea, North	0	0.0	2	71,000	n.a.
Korea, South	0	0.0	7	1,244,000	1,805
Russia (1994)	57,000(c)	6,369.0	35(d)	6,721,000	3,265

(a) Proven reserves as estimated on 1 January 1996.

(b) Figures for refining capacity is for the year 1996.

(c) Figures for the Commonwealth of Independent States (CIS).

(d) Figure is for number of companies, not refineries. Total number of refineries in CIS is 61.

Source: *International Petroleum Encyclopedia 1996*, pp. 251, 174, 280.

Oil Reserves, Production, Refining Capacity and Output, and Consumption of Northeast Asian Countries

The countries in the region are also distinguished by means of being endowed with petroleum with China and Russia as having much higher proven reserves of petroleum than the East Asian states. China has 24 trillion barrels of proven reserves of oil and a production level of just under 3 million barrels of oil per day (b/d).

The figure for proven reserves of Russia in the table refers to the Commonwealth of Independent States (CIS) and the bulk of the reserves are found in Russia, which is better endowed than China. Crude oil production for Russia is 6.4 million b/d and the Russian Far East accounts for 4.206 million b/d of the total.

By contrast, Taiwan has small reserves while both Koreas have no known oil reserves. The pattern seemed almost reversed in terms of oil refining capacity and oil consumption, with Japan leading with 41 plants totaling 4.9 million b/d refining capacity producing a wide range of products primarily for the country's domestic

consumption. China--with its population of 1.3 billion-- has 34 refineries mostly built over the last 10 years and a total capacity of 2.9 million b/d. Total consumption is 3 million b/d.

However, with the high economic growth rates averaging some 10 percent per annum over the last decade and expected to continue to expand at a high rate, consumption in China will rise. The other countries with significant refining capacities are South Korea with six plants totaling 1.24 million b/d and Taiwan with two plants with 0.54 million b/d. However, both have the means to build more plants should there be the market for oil products.

Oil consumption for China, Taiwan, Japan, and South Korea have all shown an increase between 1992 and 1994 while that of Russia declined during the same period (Table 3). South Korea registered the highest increase of more than 20 percent during the three-year period of the countries shown. China and Taiwan both registered double-digit growth while Japan, a mature economy, experienced a relatively small rate of growth. Japan has also been applying energy-saving measures to reduce consumption and dependence on foreign sources of energy. The fall in oil consumption of Russia is an indication of the state of its economy, although there are signs that this has turned around since the latter part of 1996. The demand for oil and other forms of energy in the region will continue to require more imports of oil unless other factors intervene.

Oil Refineries

The location of oil refineries (Figure 1) is an important clue to the movement pattern of oil

tankers. The map shows 11 refineries located along the coast or lower reaches of rivers in the Bo Hai area. Both onshore and offshore producing oil fields are found in the area. Around the Shanghai area on the East China Sea coast, a cluster of five refineries are located while operating offshore wells are also found in the East China Basin. Further south, one refinery is located in Fuzhou across the Taiwan Strait. In Taiwan, there are two refineries, one located in the north at Tan Shui near the northern end of the western coast and one in Kaohsiung in the South.

In North Korea, there is one refinery in Unggi on the north coast and one in Pyongyang on the Yellow Sea coast. As for South Korea, refineries are located in Seoul near the border with its northern neighbor; and a total of six refineries around the South and Southeast coast are serving the large cities of Yozu, Ulsan, and Pusan.

As for Japan, most of the country's 41 refineries are located along the shores of the Inland Sea taking advantage of the sheltered waters, in the Tokyo Bay and neighboring areas and, between the two areas of concentration, several more are located in the Nagoya Bay area. There are only three on the west coast of Honshu in Toyamatwo in Niigata and one in Funakawa further north on the island.

The two Far East Russian refineries of Khabarovsk near the Chinese border and Komsomol'sk are not on the coast. The oil production fields in the northern portion of Sakhalin Island are found along the eastern coast, as are offshore fields in the same area. Pipelines connect these oil fields to the two refineries, obviating the need for sea transport.

Table 3: Oil Consumption for Northeast Asian Countries, 1992-1994

Country	1992	1993	1994	('000 b/d) % increase 1992-1994
China	2,660	2,915	3,030	13.9
Taiwan	585	625	665	13.7
Japan	5,540	5,455	5,770	4.2
Korea, South	1,495	1,640	1,805	20.7
Russia	4,495	3,790	3,265	27.4

Source: International Petroleum Encyclopedia 1996.

Oil Trade

According to the International Energy and Oil and Gas Journal, Asia has a positive balance of crude oil of 1.7 million b/d in 1991, increasing to 2.1 million b/d in the first quarter of 1995. China has a net surplus of 2.8 million b/d, increasing to 3.0 million b/d for the same period. However, it is anticipated that with the rise in energy consumption, the oil balance will be reduced and by 2010, China will become a net importer of crude oil. It is known that China has been exporting its surplus crude oil to refineries in Japan and Singapore and elsewhere in the region. The amount exported to Japan is estimated to be 255,000 b/d. Russia has traditionally been supplying relatively small quantities (8,000 b/d) to North Korea.² Russia regards oil and gas and manufacturing of petroleum products as an export industry and will be looking for markets in Asia as well as its traditional markets of member CIS States, Eastern Europe and Western Europe.

Singapore with a capacity of 1.17 million b/d is a major supplier of oil products to all of these countries with the exception of Russia and North Korea. China too has been building up its refining capacity with the view to exporting surplus products. The recently built refineries in Dalian and Tianjin are supplied with crude oil from the Middle East and more than half of their output is intended for exports.

National Ownership of Oil Tankers

There is no direct information relating to the pattern of movement of oil tankers, crude or product tankers, within and through the seas in the Northeast Asian region. Countries in Asia as elsewhere do not acquire oil tankers merely to carry petroleum and products for its own national trade. However, the size of the oil tanker fleets of the countries (Table 4) concerned provides an indication of oil shipping activity in these waters.

Japan has by far the largest fleet of oil tankers numbering more than 1,000 with a total capacity of 6.4 million gross tons. Over the recent decade, the size of the Japanese tanker fleet has declined as a result of flagging out to other shipping registries. China, Taiwan, and South Korea all have significant fleets of oil tankers. Most of the oil tankers are deployed to carry crude oil from the Persian Gulf to the refineries in their

home countries and all of the tankers have to transit the Malacca Straits and the Straits of Lombok and Makassar though the waters of Southeast Asia (see later section). Japan also sources crude oil from the oil-producing Southeast Asian states of Indonesia and Malaysia using handy-sized (30,000-70,000 gt) tankers and less frequently large tankers of around 100,000 gt. South Korea and Taiwan is similarly engaged. For product tankers, the pattern of shipping is a lot more complex involving a range of product tankers and going from refinery terminals of exporting countries to foreign oil ports.

It should be noted that following Hong Kong's reversion to China, all of the ships registered under Hong Kong flag as well as the much large number of oil tankers beneficially owned by shipping companies will come under China's flag. Several of these quite large companies are owned by the Chinese government, operating under Hong Kong style commercial practices.

Pattern of Oil Shipping

In the absence of specific information on the flow of oil and petroleum products to and from the oil ports and terminals in the region, it will be necessary to put forward the following broad conjectures:

(1) Crude oil tankers destined for Japan will not come within the sea areas under discussion with the exception of tankers destined for the terminals serving Toyama, Niigata, and Funakawa. The availability of two Single Buoy Moorings (SBMs) at Niigata, one at Sakata on the west coast of Honshu Island as well as three in Kitakyushu in the straits between Honshu and Kyushu Island and two off the port of Hakata on Kyushu would suggest that these ports are capable of handling VLCCs and larger vessels. There is also one SBM in Naha on Okinawa Island, one of the islands in the Ryukyu archipelago.³

(2) Crude oil shipments using tankers of over 100,000 dwt to VLCCs from the Middle East destined for all of the South Korea refineries and several Chinese refineries (Dalian and Tianjin included) will transit the waters of the region. VLCCs would be able to use the terminals in Yosu at the southernmost tip of the Korean peninsular, Mokpo, and Pusan because of the availability of SBMs in these locations;

Table 4: Oil Tanker Fleets of Northeast Asian States, 1995

Country	Number	Gross Tonnage (000 gt)	Age (years)
China	349	2,295.1	16
Taiwan	31	959.4	9
Japan	1,054	6,032.9	8
Korea, North	3	115.8	19
Korea, South	112	399.2	18
Russia	299	2,294.4	17

Source: *Lloyd's Registry of Shipping, Statistical Tables, 1994.*

(3) The two refineries of North Korea are likely to be served by Russian supplies of crude oil from the Russian ports of Vladivostok and Nachoda;

(4) Feedstock for the Chinese refineries are sourced from domestic sources using mainly land routes and from the offshore fields off the Bo Hai and Shandong areas, but imports from foreign sources may already have started;

(5) Some crude oil (Shengli oil) from the Shanxi oilfields are shipped and exported from the port of Tianjin or those in the Bo Hai area. There are no SBMs on any of the Chinese ports indicating that only tankers of around 100,000 dwt or at best 150,000 dwt would be able to berth in Chinese terminals;

(6) Taiwanese refineries would also source crude supplies from the Middle East although tankers heading for Kaohsiung and the oil port of Tanshui which are served by three and four SBMs, respectively, would require VLCCs to navigate through the Taiwan Straits to the refineries located in these ports;

(7) As for trade in petroleum products, the pattern will be more complex and likely to shift over short periods of one or a few years. Singapore is known to be a major supplier to the countries in the region and the size of tankers used are likely to range between 5,000 gt to as large as 30,000 gt. Surplus products from South Korean and Japanese refineries are likely to be sold to Chinese and Hong Kong centers. The pattern would shift, if not already then or in the near future, when there are surpluses of certain types of oil products that the country does not require. In any case, some amounts of products are shipped coastwise to consuming centers within the country itself.

The above are listed movements that are considered to be speculative flows of crude oil and oil products. This is clearly an area for re-

search on the pattern of oil trade and flow of oil tankers, the size and type of tankers employed, frequency of movement, ownership of the vessels, conditions at the originating and receiving oil terminals within the area of interest as well as the trading conditions imposed by the countries concerned. For instance, it is known that the Chinese Government has recently imposed additional taxes on imported oil products. This may have an effect on the consumption and hence the quantity of the products imported to the country.

Oil Shipping Through the Malacca Straits

Of considerable interest to the Northeast Asian States is the experience of the countries around the South China Sea, which is also a semi-enclosed sea similar to the Northeast Asian seas area. Of direct concern is that the main source of crude oil continues to be from the Persian Gulf and the quantity of oil shipments involved is expected to increase. The Northeast Asian region also imports large quantities of petroleum products from Singapore and trade in this product with other South East Asian states as well as with the Middle East. The volume is expected to expand in the future. Special attention should therefore be paid to the oil tanker route through the Malacca and Singapore Straits as well as the experience of the Southeast Asian region in dealing with the navigation of oil tankers, particularly concerning the problem of ship-source pollution.

Details of the environmental conditions, marine and coastal resources, flow of vessels and incidents involving ships, the legal regime, measures both existing and proposed to control navigation and management of oil spills, and the disposal of oily wastes from ships in the Malacca Straits have been the topics for discussion in

Table 5: Shipping Traffic Through the Malacca Straits, 1982-1993

Year	Malaysian Traffic	Total Traffic	Average Daily Traffic	Annual Rate of Increase (%)
1982	6,916	43,633	120	-
1983	7,321	43,748	120	0.0
1984	7,731	41,982	115	-3.4
1985	7,971	43,837	120	4.3
1986	7,527	48,866	134	11.7
1987	7,468	51,072	140	4.5
1988	7,427	53,826	148	4.8
1989	8,259	58,924	161	9.5
1990	8,785	72,416	198	23.0
1991	9,371	84,414	231	16.7
1992	10,268	91,826	252	9.1
1993	10,540	99,888	274	12.7

Source: Lee, W.B. (1994).

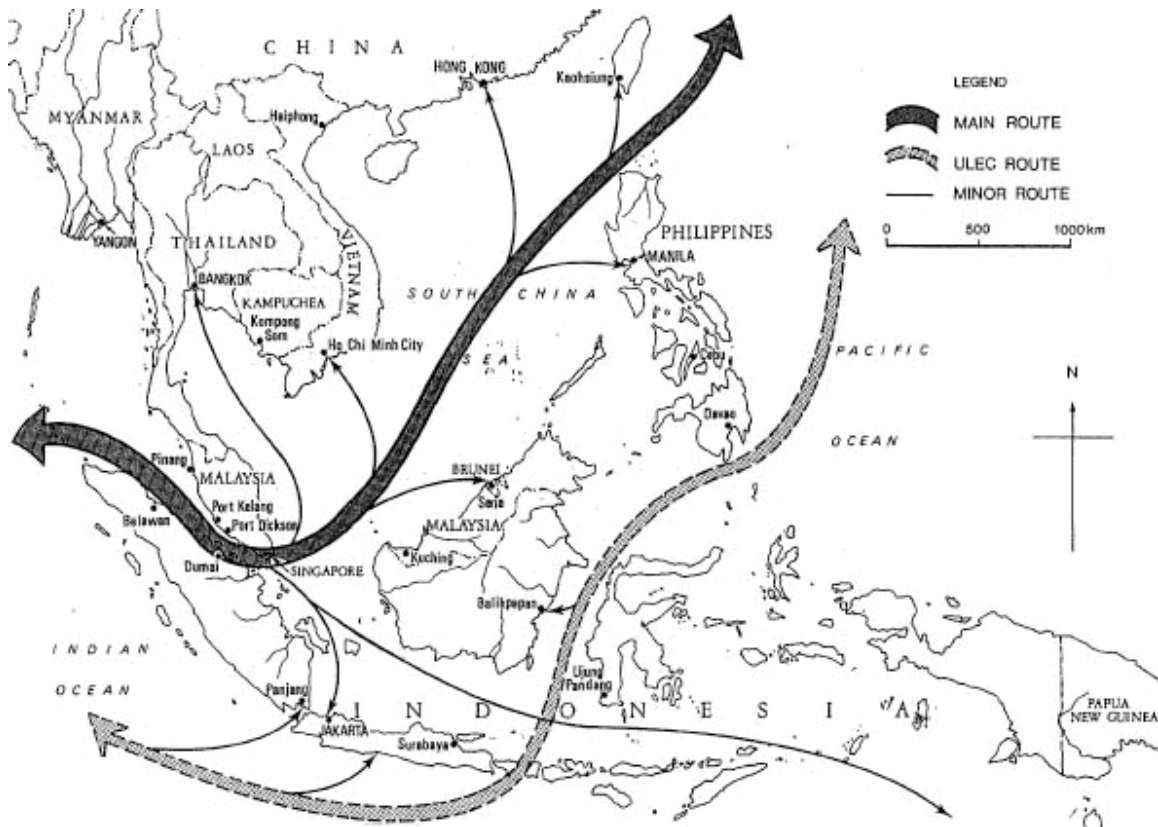
workshops and seminars organized by the Malaysian Institute of Maritime Affairs (MIMA), the Singapore Institute of Policy Studies, and the International Maritime Organization (IMO). The GEF/IMO/UNDP Regional Programme for the Prevention and Management of Marine Pollution in the East Asian Seas has mounted a major effort to initiate the institution of the Malacca Straits as a Special Zone in the fashion of the Mediterranean Sea.

Table 5 shows details of the shipping traffic through the Malacca Straits from 1982 to 1993. During this period, the total shipping traffic increased from about 43,600 in 1982 to 100,000, an increase of 129 percent. Malaysian generated traffic increased from 6,900 to 10,500 in the same period, an increase of 52.6 percent indicating that the bulk of the increase was generated by non-Malaysian traffic. In terms of daily traffic, the number had gone up from about 120 in 1982 to 274 in 1993. There appears to be a higher rate of increase of traffic through the Straits from the start of the 1990s than during the 1980s.

Since the imposition of the Traffic Separation Scheme, which effectively limits the size of oil tankers to below 220,000 dwt fully loaded, the number of casualties in the Straits have not shown any clear upward trend, tending rather to fluctuate from year to year. This indicates that the Scheme has been effective. The rapid rate of increase in shipping and presumably oil tanker traffic together with the *Nagasaki Spirit* incident raised much concern, particularly among the

Malaysians. The most recent collision was between the Cyprus registered tanker *Evoikos* and the Thai-owned supertanker *Orapin Global* on 15 October 1997.⁵ A proposal to extend the traffic separation scheme to the entire straits has been submitted to the IMO by the Malaysian Government for adoption. IMO has in turn, through its Regional Programme for the Prevention and Management of Marine Pollution in the East Asian Seas, mounted a major effort to provide a thorough understanding of the waters and coastal areas of the Straits as well as the diverse uses of the resources in the Straits with the view to designate it as a "Special Zone" for stringent control of both ship and land-based sources of pollution, minimization of pollutants into the waters and activities that would degrade the resources.

One avenue of inquiry has been to find ways to divert traffic of oil tankers away from the Malacca Straits into using alternative routes. Two such routes are through the Sunda Straits and the Lombok-Makassar Straits (see Figure 2). The Sunda Straits is unsuitable as it has a "highly irregular bottom topography of the Straits and the presence of rip tides render it unsuitable for vessels drawing over 18 m of water to use the Straits. In addition, there are hazards posed by the numerous oil drilling platforms to the north of western Java. The Sunda Straits have as yet no available detailed navigation charts." (Chia, 1995).

Figure 2: Major Shipping Routes Between Indian Ocean and Northeast Asia

In the case of the Lombok and Makassar Straits route, while there are no serious navigational hazards along the navigational channel, Chia (1997) finds that “based on data from industry sources, and assuming an additional three and a half days navigating at full commercial speed of 14-16 kt., the results show that the gain in deadfreight would show a surplus over the additional costs if vessels reach the size somewhat smaller than a 300,000-dwt tanker. . . . average earnings of VLCCs (motor tankers) was between about US\$8,000 to US\$11,000 per day for the first five months of 1994. Even when charter rates were higher from July 1994, earnings did not go above US\$18,000 per day still well below the US\$45,000 per day level needed for long-term profitable operations with sufficient savings for renewing of vessels. With the poor tanker markets that has plagued operators since the beginning of the 1980s, it will be most unlikely that tanker operators can be induced to

the longer and more costly Lombok-Makassar straits route.”

Thus far, only tankers of over 300,000 dwt (Ultra Large Crude Carriers or ULCCs) have been using this route to bring crude oil from the Persian Gulf to Japan but it is believed that the number of such vessels has dwindled to less than 10.⁶

Regional Cooperation in Control of Ship-Source Oil Pollution in Southeast Asia

The key to the task of dealing with safety with regards to minimizing potential shipping casualties and combating oil spill incidents involving oil tankers is in regional cooperation. Among the littoral states and users of the Malacca Straits, there is already discussion on joint efforts in the establishment of the TSS involving the three littoral states with the assis-

tance of Japan (Chia and Sakumoto, 1993; Chia, 1996, 1997). Japan also donated money to establish a Revolving Fund administered by the three littoral states, which can be called upon to pay for the cost of oil spill combat activities and subsequently refunded when the offending party causing the incident pays up. A Tripartite Technical Consultative Committee involving the three states meets regularly to deal with any problems relating to the navigation in the Straits that may arise. In addition, there is a Memorandum of Understanding (MOU) on Oil Spill Response Action Plan (OSRAP) between Japan and the Governments of the ASEAN States in 1993.⁷

Of particular interest are the soon to be adopted ASEAN Oil Spill Contingency Plan and the establishment of the East Asian Response Limited (EARL), which is a privately established facility located in Singapore to deal with Tier I oil spill incidents in the region from the African east coast to Northeast Asian waters. Members of EARL are major international oil companies and its services are available to all on a cost-plus basis. EARL was, for example, involved in dealing with the oil spill arising from the *Nagasaki Spirit* incident as well as the more recent *Evoikos* incident. Since the start of the 1990's, both Malaysia and Thailand have established their own (privately operated) oil spill capability to handle any Tier II incidents in their own and neighboring waters.

There is an avenue for further cooperation under the umbrella of the Association of South East Asian Nations (ASEAN) for dealing with environmental issues including the problem of marine pollution.⁸ There has been already under the ASEAN many research projects in marine science and coastal zone management.

Regional Cooperation Among Asian States

On a still wider area involving all of the Asia Pacific states are joint undertakings to deal with navigation and ship-source marine pollution. In December 1993, countries in the Asia-Pacific region signed the Tokyo Memorandum of Understanding on Port State Control to allow port States to inspect ships calling at their seaports for compliance with safety condition of the ships, including inspecting record books on the disposal of oil wastes and the proper certification

of the crew.⁹ The States that have become party to the MOU include all of ASEAN, China, Hong Kong, Japan, South Korea, and Russia. Judging by the success of the Paris MOU on Port State Control, it will not be long before the scheme will take effect and the incidence of shipping casualties and oil spills will decline. There are, however, many difficulties to be overcome before these states will be able to put the MOUs to full effect. For example, there is a lack of equipment and a shortage of trained manpower to carry out the task of inspection for most of the countries.¹⁰

A necessary condition for successful cooperation is the need for Asian states to become party to more international safety of navigation and marine pollution conventions (see Chia 1995). Table 6 shows the status of the countries in the region in terms of signing and ratification of a list of IMO conventions. While the record cannot be considered to be poor, there is still some ways to go before all of the countries have adopted the key conventions for the protection of marine environment from ship-source pollution. Among the Northeast Asian states, it should be noted that Japan and China have become party to the largest number of IMO conventions.¹¹ There remains the question of whether the signatory states are able to effectively implement the provisions of the conventions to which they are party.

The Asian region is the largest source of maritime manpower for international shipping: important to our discussion because human error has been identified as causing 80 percent of all shipping casualties worldwide. Apart from the Philippines and India, which have become the premier supplier of seafarers since the 1970s, other Asian countries including China have been promoting the seafaring industry to supply foreign-owned ships with crews. Western maritime states have long been depending on largely Asian crews to man their vessels to make up for their dwindling supplies of seagoing maritime personnel and to remain competitive in the shipping business. Japan has also joined the developed maritime states in being a major employer of Asian crew and, since the 1980s, Taiwan and South Korea have encountered a similar situation. There is considerable opportunities for cooperation among Asian employers and suppliers of seafarers. In this regard too, the revised IMO Convention on Standards of Training,

Table 6: IMO International Conventions and Contracting States in Northeast Asia as of 1 October 1996

International Convention	Entry into		China	Hong Kong	Japan	South Korea	TOTAL
	Force Date	Parties					
1982 LOS Convention	1994	106	x		x	x	8
1989 Basel Convention	1992	10	x		x		4
1973/78 MARPOL	1983	97	x	x	x	x	13
MARPOL Annex III	1992	78	x	x	x	x	7
MARPOL Annex IV		64			x		3
MARPOL Annex V	1988	81	x	x	x	x	7
1972 London Convention (LC)	1975	74	x	x	x	x	6
LC Amendments 1978				x	x		2
1969 Intervention Convention	1975	69	x	x	x		4
Intervention Protocol 1973	1983	38	x	x			2
1969 Civil Liability Convention (CLC)	1975	95	x	x	x	x	10
CLC Protocol 1976	1981	53	x	x	x	x	6
CLC Protocol 1992	1996	17			x		1
1971 Fund Convention	1978	69		x	x	x	7
Fund Protocol 1976	1994	34		x	x		2
Fund Protocol 1992	1996	16			x		1
1990 OPRC Convention	1995	28			x		1
1996 HNS Convention		0					
1974 SOLAS Convention	1980	131	x	x	x	x	14
SOLAS Protocol 1978	1981	86	x	x	x	x	11
SOLAS Protocol 1988		25	x			x	2
1966 Load Lines Convention	1968	139	x	x	x	x	14
Load Lines Protocol 1988		25	x			x	2
1976 COLREGS Convention	1977	128	x	x	x	x	13
1978 STCW Convention	1984	118	x	x	x	x	13
1995 STCS-F Convention		0	x				

Certification, and Watchkeeping (STCW) 1996, which comes into operation in 1998, and the International Ship Management Code will help ensure that the problem of human error is reduced.¹²

There is now an avenue for discussing matters concerning marine pollution and crewing among the Asian states in the Asian Shipping Forum, which was formed in 1995. The Forum was initiated by Japanese shipowners, and among the member States of ASEAN, the Federation of ASEAN Shipowners' Association (FASA) is well established and should provide an effective avenue for joint action on solving navigation and marine pollution problems.

Discussion

The seas in the Northeast Asian region have similarities with the South China Sea with regard to having several areas of overlapping territorial sea and EEZ claims as well as many straits that provide navigational channels for ships to enter/exit the seas. Although there is no real coun-

terparts to the Malacca and Singapore Straits in Northeast Asia the experience of the littoral states of these Straits should be of interest to the latter region. The countries of Southeast Asia surrounding the South China Sea have formed the ASEAN grouping, which has served as a useful platform for cooperative efforts in dealing with marine environmental issues. The experience of ASEAN could well be valuable providing case studies that may be adapted for implementation in Northeast Asia.

There is a strong desire for Northeast Asia to come together for economic cooperation, including the Tumen River joint development scheme, the subregional cooperative development schemes of the Hong Kong-Pearl River development, the Singapore-Johor-Riau growth triangle, and several others schemes. Cooperation is essential not only for achieving economic goals but also to help find solutions to marine pollution of shared waters such as the Malacca Straits and the seas in Northeast Asia. ASEAN has a head start, having been established in 1968,

and the Northeast Asian states would do well to move at a greater speed to provide the essential framework for cooperation.

An important element in the cooperative schemes for dealing with the problem of oil pollution from ship sources in Southeast Asia has been the role played by Japan, which provided both financial and technical assistance for the Malacca Straits Traffic Separation Scheme for deep draft vessels. Japan also provided assistance for the surveys of other waterways, including the Lombok and Makassar Straits, and donated equipment to the ASEAN countries for combating oil spills (Petroleum Association of Japan, 1993; Chia, 1995). However, in recent conferences and workshops on the Malacca Straits organized by the Malaysian Institute of Maritime Affairs in Kuala Lumpur and by the Institute of Policy Studies in Singapore, there have been calls for other users of the Straits to contribute in some ways to fund schemes to prevent and combat vessel-source pollution. Malaysia has also called for the payment of a toll for ships transiting the straits as well as the implementation of compulsory pilotage of large vessels. These activities should clearly merit attention by the Northeast Asian states.

International organizations, including the IMO, the United Nations Environment Programme (UNEP) and the UN Economic and Social Commission of Asia and the Pacific (ESCAP) have played an important role in the South China Sea area in supporting research, organizing workshops and training schemes, and initiating programs and projects for the region. These and other organizations should be called upon to make similar contributions in Northeast Asia. It is essential that the governments of the subregions concerned also are committed to supporting these efforts without which these international agencies cannot be expected to achieve significant results. One important aspect involving international organizations is the adoption of international conventions for navigational safety and marine pollution prevention and minimization. One major aim of the IMO Regional Programme for the Prevention and Management of Marine Pollution in the East Asian Seas is to provide assistance to the region to adopt more IMO International Conventions.¹³

Mention should also be made of the efforts of a number of regional research projects starting with the East-West Center Southeast Asian Seas;

the ASEAN-USAID Coastal Resources Management Project coordinated by the International Center for Living Aquatic Resources Management (ICLARM) in Manila; the CIDA supported ongoing South China Sea Project, implemented by the University of British Columbia Asia-Pacific Law Centre; the South East Asia Ocean Policy and Management Programme (SEAPOL) effort in bringing together countries in the region and surrounding countries for informal dialogues and consultation among government officials; and researchers and individuals from the private sector. The series of dialogue sessions, including this workshop organized by IGCC and not surprisingly sponsored by a Japanese institution plays a similar role. The results of these informal meetings have in the case of Southeast Asia been highly valuable as a means of promoting greater understanding among participating countries and promoting research efforts.

This paper falls short of the purpose of providing an understanding of trade and shipping of crude oil and petroleum products. It is hoped that the information presented offers an outline and preliminary background, pointing to the need for a detailed study of the pattern of oil trade and shipping in Northeast Asia seas.

Navigational safety and ship-source oil pollution in Northeast Asia will not ever represent as great a set of problems as those encountered in Southeast Asia for reasons that should already be clear. Nevertheless, there may be special problems presented to the former region not encountered in the latter. More importantly, ship-source oil pollution contributes no more than 10 percent of the pollutants that enter into Northeast Asian seas while land-based activities form the main source of marine pollution. In this regard, a commensurate amount of attention should be placed on industrial, domestic agriculture, mining, deforestation and land clearance, and other activities that form constant inputs of pollutants that enter the coastal and marine environment.

It is known that Northeast Asian seas have been the dumping grounds for low-grade nuclear waste material. This serious form of pollution, together with the problem of discharge and illegal dumping of untreated toxic chemical wastes, must draw the most urgent attention of the coastal States in the region as well as the international community.

References

- Chia Lin Sien (1995), *Protecting the Marine Environment of ASEAN from Ship-Generated Oil Pollution and Japan's Contribution to the Region*, Institute of Developing Economies, Tokyo.
- _____ (1996), "The importance of the Straits of Malacca and Singapore," paper presented in *Navigational Safety and Control of Pollution in the Straits of Malacca and Singapore: Modalities of International Cooperation*, 23 September 1996, Singapore, organized by Institute of Policy Studies (Singapore) and International Maritime Organisation.
- _____ (1997), "Alternative routes to the Straits of Malacca for oil tankers: a financial, technical and economic analysis," paper presented in the *Kuala Lumpur Workshop on the Strait of Malacca*, 24-25 January 1995, Kuala Lumpur, organized by Malaysian Institute of Maritime Affairs (MIMA), Kuala Lumpur.
- _____ (forthcoming), "Responding to oil spills in the waters of Southeast Asia," in Fujisaki, and Naoyuki Sakumoto (eds), *Implementation of Environmental Law and Environmental Protection*, 12-13 November 1996, organized by the Institute of Developing Economies (IDE), Tokyo.
- _____ & Naoyuki Sakumoto (1993), "Japan's role in global environmental protection and contribution to marine environmental protection in ASEAN with special reference to ship-source oil pollution," paper presented at the *International Workshop on Development and the Environment: the Experience of Japan and Industrializing Asia*, 20-21 December 1993, Tokyo, organized by Institute of Developing Economies, Tokyo.
- Chua Thia-Eng (1995), "Marine pollution: developments since UNCLOS III and prospects for regional co-operation," in K.L. Koh, R.C. Beckman and Chia Lin Sien (eds), *Sustainable Development of Coastal and Ocean Areas in Southeast Asia: Post-Rio Perspectives*, Proceedings of SEAPOL Singapore Conference, 26-28 May 1994, Singapore, National University of Singapore Faculty of Law, 1995, pp. 144-176.
- Couper, Alaister (1983), *The Times Atlas of the Oceans*, Times Books Ltd., London.
- International Petroleum Encyclopedia 1994, "Asia Pacific demand to fuel petroleum industry growth," Pennwell Publishing Co., USA, Volume 27, pp. 511.
- International Petroleum Encyclopedia 1996, Volume 29, Pennwell Publishing Co., USA.
- Lloyd's Registry of Shipping, *Statistical Tables*, 1992.
- Payoyo, Peter (1993), *Port State Control in the Asia-Pacific: An International Legal Study on Port State Jurisdiction*, Institute of International Legal Studies, University of the Philippines, Manila.
- Petroleum Association of Japan (PAJ)(1993), "Major oil spill response programme," paper presented at *Conference on Oil Spill Response in Asia Pacific Waters*, 30 June-2 July 1993, Kuala Lumpur, IBC Technical Services Ltd., Singapore.
- Raja Malik Saripulazan bin Raja Kamarazaman (1993), "Safety of the Strait and other outstanding issues," paper presented in *National Conference on the Strait of Malacca*, organized by the Malaysian Institute of Maritime Affairs, Kuala Lumpur.

Endnotes

1. Many of the seas, straits and islands in the East Asian region bear different names as each country chooses to have its own. For the sake of consistency, the names used in this paper are those found in atlases pub-

lished in Western countries and do not indicate the author's personal preference.

2. *International Petroleum Encyclopedia 1996*.
3. Data on Single Buoy Moorings (SBMs) are found in A. Couper (ed.), *The Times Atlas of the Oceans* (p. 130) which was published in 1983. There may well be more such facilities installed in the region since the publication of the atlas.
4. The Traffic Separation Scheme operates in two sections, one in the One Fathom Bank on the northern section of the Malacca Straits and the other in the Philips Channel to the south of Singapore and imposes an under keel clearance (UKC) of a minimum of 3.5 meters.
5. The collision, which took place in the Singapore Straits, spilled 28,463 tons of marine fuel oil and is the worst incident within the Malacca-Singapore Straits. *Evoikos* was carrying 125,000 tons of marine fuel oil from the United Arab of Emirates. It was reported that a total 16 government and private agencies, 650 personnel, and 80 craft were involved in cleanup operations. The incident could have severely affected the operation of oil refineries and power generation plants which use sea water for their cooling. The nearby tourist attractions on Sentosa island would also be badly affected. (Geraldine Yeo, "Mah says oil spill disaster could have been worse," *Straits Times* (Singapore), 22 Oct 1997).
6. See also Chia (1995).
7. Malaysia did not sign the MOU initially but did so subsequently.
8. Formed in 1968, the original group comprises Brunei Darussalam, Indonesia, Malaysia, Philippines, Singapore, and Thailand. Vietnam joined the group in 1996 and it is expected that other Southeast Asian countries will also become members in time..
9. The MOU was adopted on 1 April 1994 at a meeting in Beijing.
10. See Payoyo (1993) and Chia (1997).
11. For a detailed discussion on dealing with oil spills in the Southeast Asian region, see Chia (forthcoming).
12. New IMO rules on safety and pollution will take effect on 1 July 1998, and about 70 percent of the 120,000 ships affected by new safety regulations are expected to comply with the new rules according to the International Maritime Organisation (IMO).
13. For details, see Chua (1995).

SEA LINES OF COMMUNICATION (SLOC) SECURITY AND ACCESS

by Stanley B. Weeks

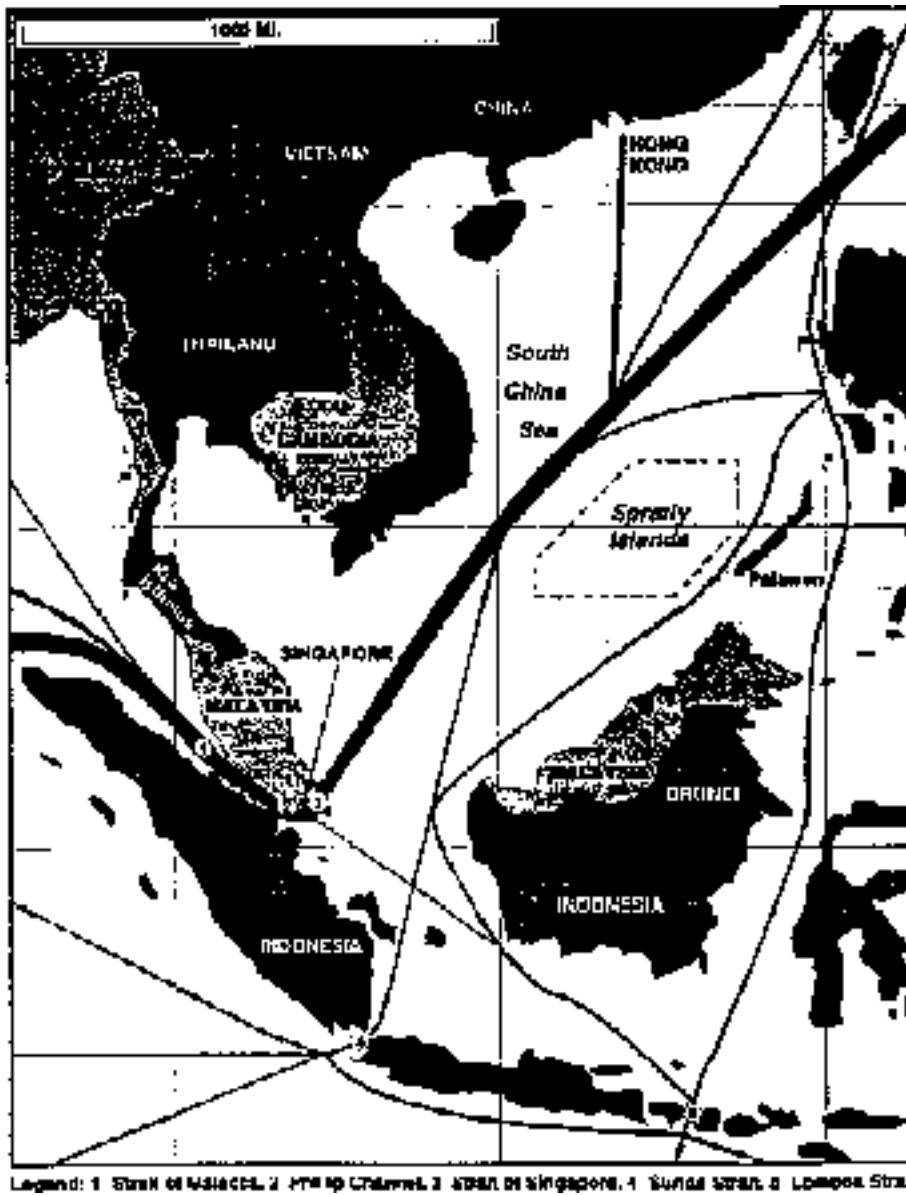
Background

Security and access to sea lines of communication (SLOCs) is of increasing importance, as these sea lines are the maritime highways for vast trade flows critical to the rapidly growing prosperity not only of the Northeast Asia region, but also for the entire Asia-Pacific. Threats to the security and access to SLOCs include both military concerns (conflicts between regional countries as well as sea mines) and non-military concerns (natural disasters and accidents, piracy, and particularly “creeping jurisdiction” of regional states). The United States, with both trade and security interests in East Asian SLOCs, has three times in the past 18 months reemphasized its commitment to uphold the traditional principles of freedom of navigation in regional SLOCs--a commitment which logically should be shared by the other East Asian states.

SLOCs and Critical Straits in East Asia

Figure 1 indicates major sea lanes and critical straits in the ASEAN and East Asian region, notably the South China Sea and the straits of Malacca (including for simplicity the Phillip Channel and the Strait of Singapore), Sunda and Lombok.¹ More than half of the world’s merchant fleet capacity sails through these straits and the South China Sea, much of it bound to or from northeast Asia. The Strait of Malacca, where more than 200 ships a day pass, is the main passage between the Indian Ocean and the South China Sea, although relatively shallow in places (IMO-recommended maximum draft of 19.8 meters) and as narrow as 1.5 miles at its eastern end, leading to the preferred use of the deeper (150 meters) Lombok Strait by the largest tanker ships. The northern part of Sunda Strait is relatively shallow with dangerous currents, and thus ships over 100,000 dwt use the Lombok Straits (a route only 150 miles longer, which is not draft-limited).² The South China Sea, larger than the Mediterranean, extends over 1,800 miles from Sumatra to Taiwan, with SLOCs connecting Southeast and Northeast Asia, whose major routes pass well west of the disputed Spratley Islands.

Figure 1: Principal International Sea Lanes Through Southeast Asia



Source: CNA.

SLOCs as Economic Lifelines

Table 1 indicates the near trillion dollar value in 1994 of international trade using the major East Asian region SLOCs, with more than half a trillion dollars being northeast Asian trade.³ Table 2, using IMF data, provides a

country analysis of the annual trade using these regional SLOCs. Although domestic seaborne trade is not included, the figures indicate the great dependence of ASEAN and East Asian countries on regional SLOCs.⁴ Obviously, export-led growth in ASEAN and East Asia depends heavily on SLOC security and access, with freedom of navigation essential. From another perspective, trade using these regional SLOCs,

Table 1: 1994 Trade Via the Southeast Asian Straits (Billions of 1994 U.S. Dollars)

Nation or group	Exports	Imports	Total trade
Japan	139.0	121.4	260.4
South Korea	26.3	35.4	61.7
China	30.7	34.9	65.6
Hong Kong	38.3	37.3	75.6
Taiwan	25.3	29.3	54.6
ASEAN	204.1	227.5	431.6
Total	463.7	485.8	949.5

Table 2: Value of Trade for Select Asian Countries Passing Through Major Southeast Asian Sea Lanes (\$Billions)^a

Country	1994 exports via SEA sea lanes	1994 imports via SEA sea lanes	Total trade via SEA sea lanes	Percent trade via SEA sea lanes	Percent 1994 GDP
Brunei	2.0	3.0	5.0	95	94
Indonesia	35.7	28.2	63.9	94	41
Malaysia	55.8	56.6	112.4	95	161
Philippines	4.0	8.5	12.5	35	20
Thailand	39.3	51.5	90.8	95	69
Singapore	91.6	97.1	188.7	95	311
Vietnam	4.4	8.1	12.5	93	65
Japan	139.0	121.4	260.4	39	6
PRC	30.7	34.9	65.6	27	16

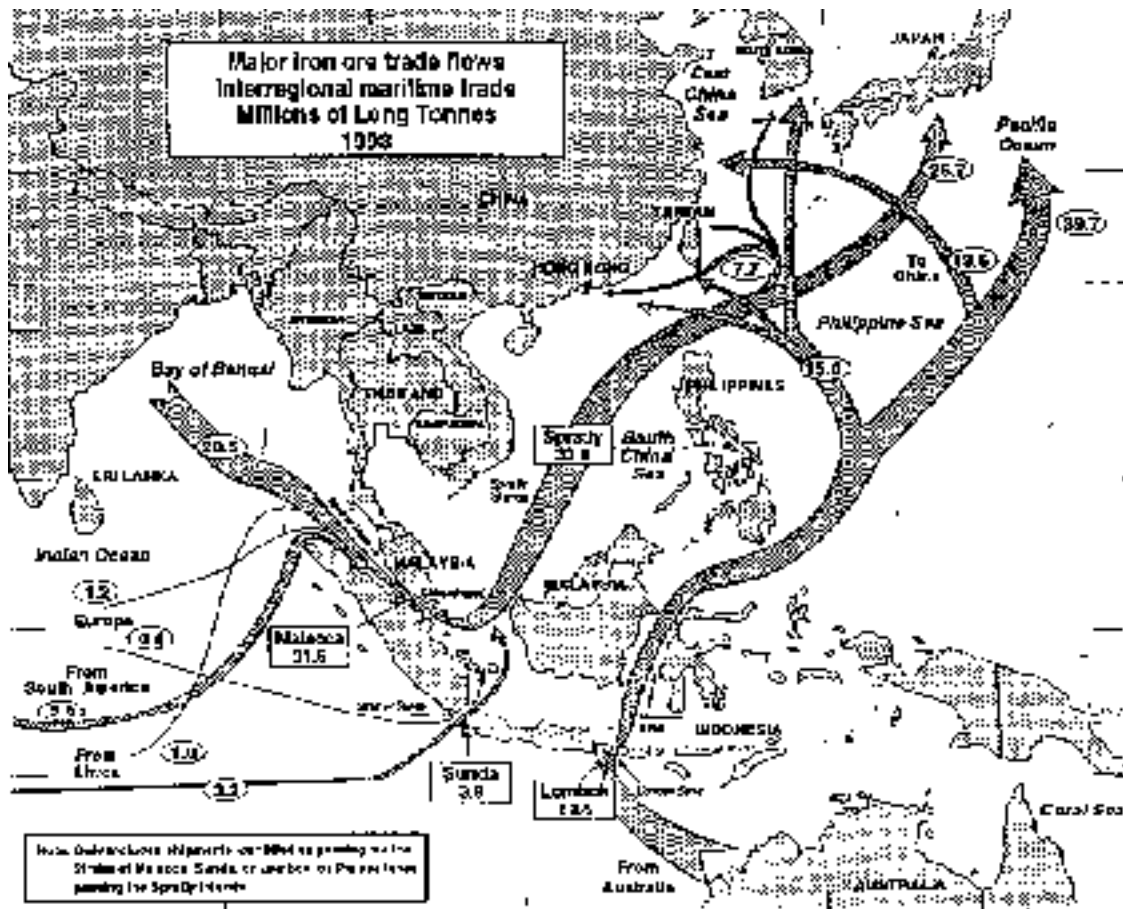
^a All figures are estimates: n.b.: the combined total does not equal the totals in Table 1 because trade in this table includes trade by each nation with each other nation, including those in the table, whereas Table 1 excludes such trade for purposes of eliminating double-counting in estimating total trade via the straits. Percent of 1994 GDP is based on GDP reported by the International Institute for Strategic Studies, *The Military Balance 1995/96*, October 1995. The Southeast Asian sea lanes considered here include the straits of Malacca, Sunda, and Lombok, and that portion of the South China Sea to the east and west of the Spratlys.
Source: CNA.

as a percentage of GDP, is more than 21 percent for South Korea, Hong Kong, and Taiwan, 10 percent for Japan, and 12 percent for Australia.⁵ Figures 2-4 show the heavy volume on northbound East Asian SLOCs of bulk crude oil, coal, and iron ore destined to fuel northeast Asian industry. Southbound traffic on the East Asia SLOCs then consists primarily of manufactured goods bound to Southeast Asia and to Europe. Table 1 does not include figures on U.S. trade with the region, which also relies in part on Southeast Asia SLOCs (for around 4 percent of imports and exports), but relies much more on trans-Pacific SLOCs from the West Coast to northeast Asia. In 1995, U.S. exports to Asia grew 25.8 percent, the highest among all regions,

and at \$193 billion, exceeded U.S. exports to Europe by \$50 billion, and accounted for 3.8 million U.S. jobs.⁶ Clearly, the U.S. also has a growing economic interest in the security of SLOCs in this region, particularly in view of the impact of their disruption on U.S. trading partners.

The proposed *Guidelines for Regional Maritime Cooperation* developed in December 1996 by the Maritime Cooperation Working Group of the Council for Security Cooperation in the Asia Pacific (CSCAP) have as one of their explicit purposes to “help promote a *stable maritime regime* in the region with the free and uninterrupted flow of seaborne trade.”

Figure 2: Interregional Iron Ore Movements: Millions of Long Tonnes (MLT)

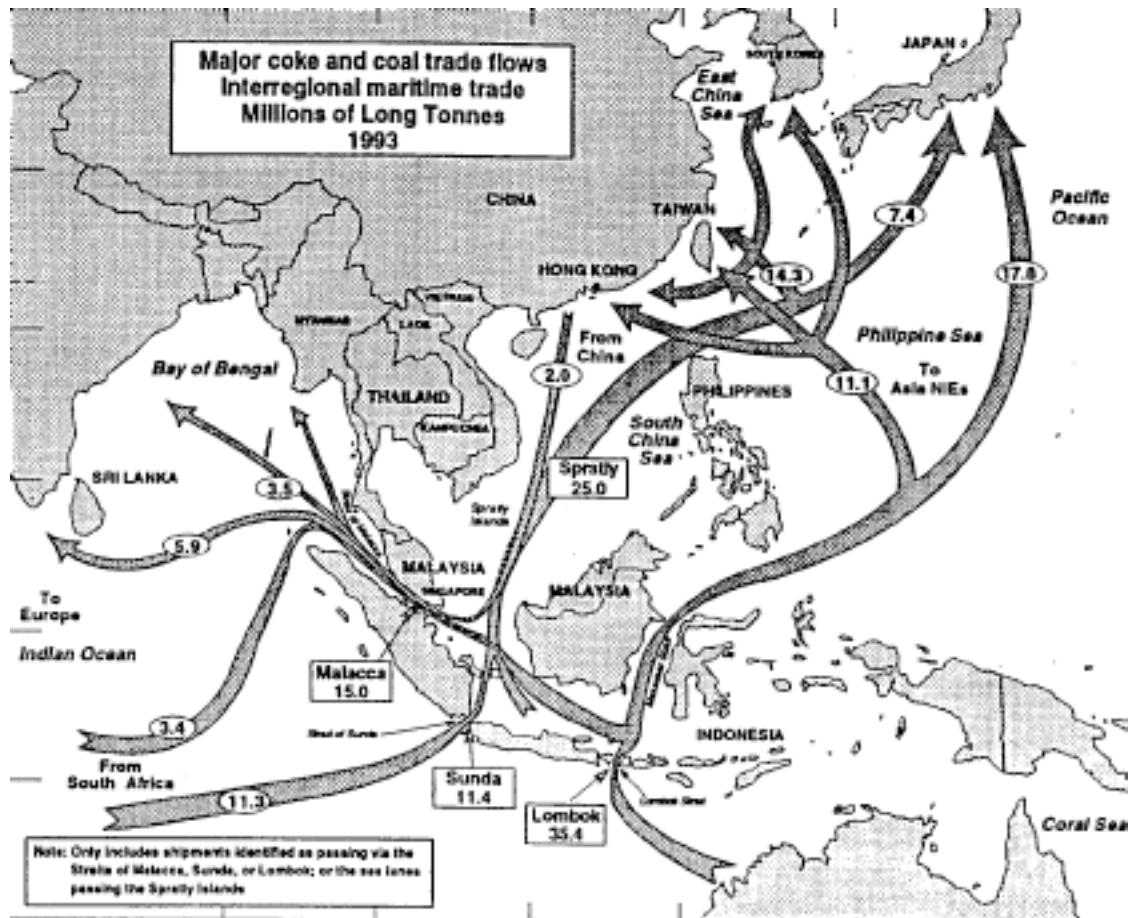


Source: *Chokepoints*, NDU Press.

over the Nansha (Spratly) Islands and its maritime rights and interests, China will fulfill its duty of guaranteeing freedom of navigation for foreign ships and air routes through and over the international passage of the South China Sea according to international law.⁷ However, PRC missile firings to areas off Taiwan's seaports in early 1996 again heightened concern. Conflict potential in the Taiwan Strait and the Spratleys remains a real concern, but it is worth noting that even in this worst case, there are some natural limits to disruption of SLOCs given the fact that (see Figure 1) major sealanes run well to the west of the Spratleys and to the east of Taiwan. A final threat scenario would involve the mining of critical SLOCs, or straits, in the ASEAN region. Given the economic interests of all regional states, it is hard to imagine a scenario where any

state would openly mine these waters and even harder to identify a rationale for clandestine mining like that in the Red Sea in 1984. Such mining would be a major threat to coastal areas of ASEAN, and to the confined and relatively shallow Strait of Malacca, but the currents and depth of Sunda and Lombok straits would minimize mine effectiveness there.⁸ In summary, there are real concerns regarding potential military disruptions to SLOCs in the ASEAN and East Asian region, but both the probability of such disruptions, and their direct effect on shipping, may be somewhat less than sometimes assumed. Of greater concern, of course, would be the indirect costs of military disruption (or even the threat of such disruption) of SLOCs in terms of higher costs for insurance and to divert shipping to longer, more expensive, routes.

Figure 3: Interregional Coke and Coal Movements: Millions of Long Tonnes (MLT)



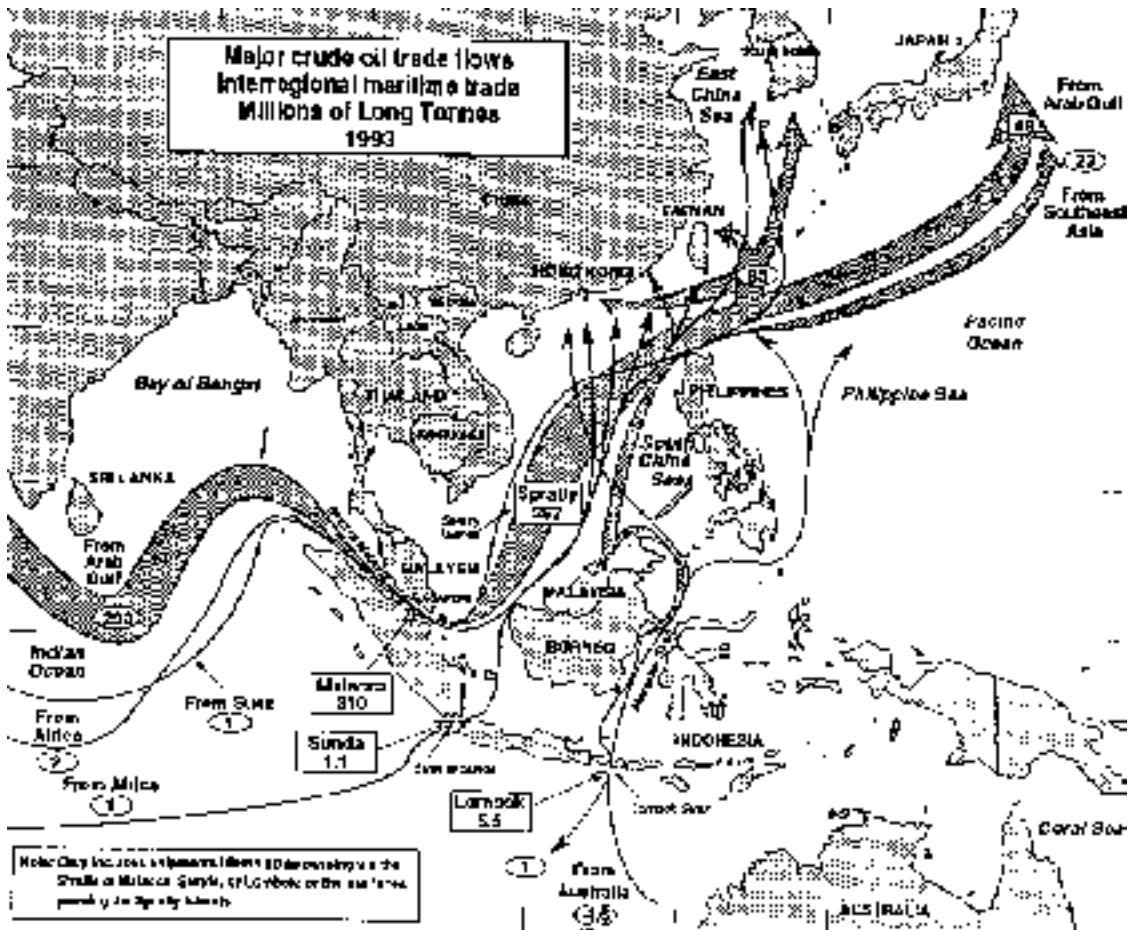
Source: *Chokepoints*, NDU Press.

Non-Military Concerns

Non-military concerns for SLOC security and access include natural disasters and accidents, piracy, and “creeping jurisdiction” of regional states. Natural disasters for the East Asian region particularly include the average of nine typhoons that strike part of the South China Sea each year, although most of these strike well north of the critical straits.⁹ Unlike natural disasters, accidents such as collisions and groundings can be reduced with more careful seamanship as well as measures such as the traffic separation lanes in the Straits of Malacca. Nonetheless, dangers of pollution from major oil spills will remain a significant concern in the heavily trafficked SLOCs of this region.

Piracy poses real dangers in the SLOCs of the ASEAN region, not only to the lives of crew but also to other ships in heavily traveled areas. Figure 5 indicates the geographic “hot spots” for piracy in the Asia Pacific region. As the IMB statistics on piracy in Table 3 indicate, in 1992 and 1993, more than two-thirds of the world’s piracy incidents occurred in the Asia-Pacific region. As Table 4 indicates, 71 of 87 global pirate attacks in 1994 took place in the Asia-Pacific region. Figure 6 indicates the specific geographic distribution of piracy attacks in 1994, but cannot show the interesting trends in location of attacks in recent years. After a surge in 1990-1992, new cooperative initiatives (to be discussed below) in the Straits of Malacca and Singapore area reduced piracy incidents

Figure 4: Interregional Maritime Crude Oil Shipments: Millions of Long Tonnes (MLT)

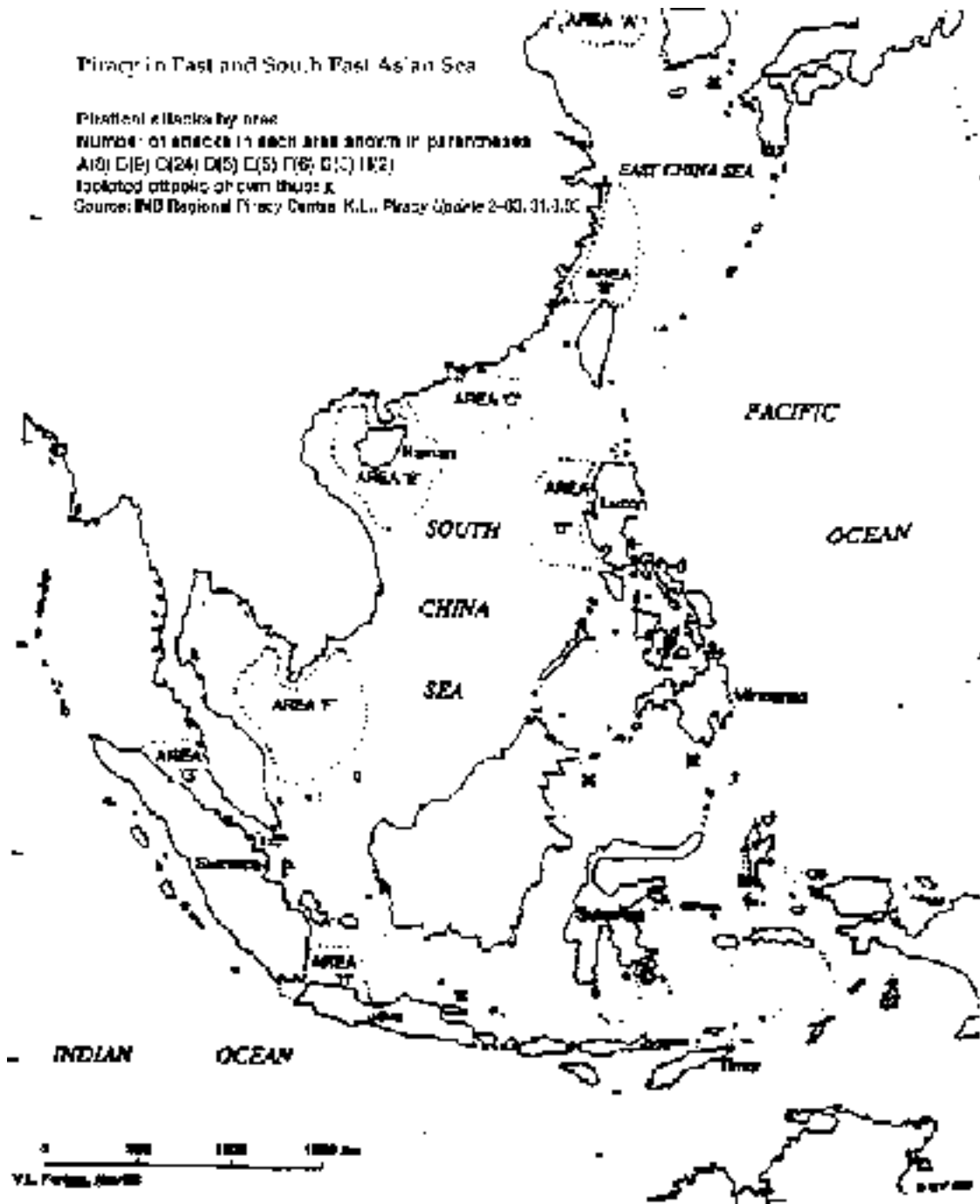


Source: *Chokeypoints*, NDU Press.

significantly in that area. But in the 1992-early 1994 period, there was a significant shift of the focus of piracy to the Hong Kong-Luzon-Hainan Island (HLH) area and the South China and East China Seas. Piracy in these areas was on a more overt, quasi-military scale, with the attackers frequently being Chinese, in uniform, and in patrol boats, firing shots in many cases. Beijing eventually claimed that rogue elements of the Chinese Customs and Public Security Bureaus (not military units) were responsible.¹⁰ (This may have reflected both the pressure of the PRC “anti-smuggling” initiative, and the fact that local officials could keep half of the “contraband” seized.) Other nations in Asia were concerned that these “piracy” incidents might be a deliberate PRC exercise of extra-territorial sovereignty and (particularly in the South China Sea and East China Sea and Senkaku Island area) an unofficial

exertion of expansive PRC maritime claims. If so, the PRC has either rethought this tactic or gotten better control of local “rogue” officials. International pressure clearly played a role in this. After having seen 17 of 20 piracy incidents directly against Russian ships in the East China Sea in late 1992 and early 1993, Russia deployed naval ships to the area in mid-1993 with orders to attack any threats to shipping—whereupon such attacks promptly ceased. Japan, another focus of the 78 cases in 1991-1993 where foreign vessels were boarded or shot at by Chinese, proposed to the PRC Foreign Minister during his February 1993 visit to Tokyo that officials from the two countries’ coast guard authorities meet to discuss East China Sea shipping problems. The PRC agreed to an “informal” June 1993 meeting, which arranged the establishment of a hotline to the Japanese Maritime Safety Agency

Figure 5: Piracy “Hot Spots” in East and Southeast Asia



Source: IBRU Maritime Briefing, 1994.

Table 3: Comparison of Worldwide Piracy Statistics Reported to the IMB in 1992 and 1993

Area	1992	1993	Variance
Africa	16	9	-7
South Asia	9	5	-4
Southeast Asia	65	8	-57
Far East	9	68	+59
South America	10	5	-5
Middle East	1	0	-1
Europe	1	0	-1
Latin America	1	0	-1
Unclear coordinates	3	0	-3
Robbery in port	0	7	+7
Unknown area	0	1	+1
Total	116	103	-12

Of the 103 incidents reported for 1993, the major “hot spot” is the Hong Kong-Luzon-Hainan area. In fact, there were 33 reported cases for this area in 1993, 11 for the South China Sea, and 20 for the East China Sea. There were only four reported incidents for the Straits of Malacca and Singapore. A dramatic decrease from the previous two years.

The IMB have also categorised attacks on vessels for 1993, thus:

25 attempted boardings repelled by would-be victim vessels.

28 actual boardings.

19 reports of vessels trailed by suspicious craft.

16 reports of vessels being stalked and fired upon by pirate craft.

7 vessels detained over varying periods of time.

8 robberies at port/anchorage.

Source: IBRU Maritime Briefing, 1994.

Table 4: Pirate Attacks in Asia and the Rest of the World, 1994

Waters	Number of Attacks
Indonesia; Papua New Guinea	23
Hong Kong-Luzon-Hainan Triangle; Hong Kong	16
Strait of Malacca-Indonesia; Singapore Straits; Malaysia	10
South China Sea	6
East China Sea	6
Philippines	5
Vietnam; Cambodia	4
Bangladesh; Sri Lanka	3
Yellow Sea	1
Rest of the world	16

Source: International Maritime Bureau.

and incidents over the next year were reduced to only one.¹¹ Elsewhere, an embarrassing Chinese attempt in May 1994 to seize a vessel inside Hong Kong’s territorial waters even led to a PRC apology and promise to avoid such incidents in the future. As Table 5 indicates, however, there were still numerous incidents in 1994 in the

Hong Kong-Luzon-Hainan (HLH) region, although half the 1993 number and a significant increase (double 1993) in piracy incidents in Indonesian waters in 1994 and in 1996. These trends in regional piracy suggest that such acts may, in some cases, have broader implications for regional security.

Figure 6: Piracy in the Far East



Source: IMB Piracy Report, 1 Jan.31 Dec. 1994.

Table 5: Number of Attacks, January-December, by Location

Locations		1991	1992	1993	1994	1995	1996
SE ASIA	Indonesia	55	49	10	22	33	53
	Thailand					4	13
	Malaysia	1	2		4	5	5
	Philippines		5		5	7	7
	Malacca Straits	32	7	5	3	2	3
	Cambodia			1	1	1	1
	Burma						1
	Singapore Straits				3	2	2
FAR EAST	China/Hong Kong/Macau			1	4	31	9
	'HLH' Area			27	12	7	4
	South China Sea	14	6	31	6	3	2
	Vietnam				2	4	
	Taiwan					2	
	East China Sea		1	10	6		1
	Gulf of Tonkin				1		
Yellow Sea				1			
INDIAN SUB CONTINENT	Sri Lanka			2	1	5	8
	India		5	1		8	9
	Bangladesh				2	2	4
	Arab Sea/Persian Gulf					8	1
AMERICAS	Brazil			4	7	17	16
	Peru					1	2
	Ecuador				3		3
	Caribbean				1		
	Colombia			1		1	3
	Dominican Republic						1
	Jamaica						1
	Salvador						1
	Nanama					1	
	Nicaragua					1	
Uruguay						1	
AFRICA	Somalia/Djibouti				1	14	3
	Tanzania			2	1	2	3
	Algeria				1	1	
	Ivory coast				1		2
	Senegal						2
	Guinea				1	1	2
	Nigeria			2		1	2
	Angola			3			
	Egypt				1		
	Guyana			1			1
	Gabon					1	
	Ghana					1	2
	Sierra Leone						2
REST OF WORLD	Turkey					1	1
	Denmark					1	
	Yemen						1
	Greece						1
	Russia					1	
	Italy					1	2
Location Not Available	5	31	2				
Total at year end	107	106	103	90	170	175	

A total of 175 incidents have been reported for 1996, compared to 170 in 1995.

Source: ICC Int'l Maritime Bureau Regional Piracy Center Annual Report, January 1997.

However, it is also clear that discussions and cooperation between regional Asia-Pacific nations can help ensure crackdowns on piracy. In the Malacca and Singapore Straits area, international cooperation and specific cooperative measures between neighboring states have significantly reduced piracy incidents in recent years. 1992 was the key year. In October 1992, the International Maritime Bureau (IMB) of the International Chamber of Commerce with support from the shipping and related industries, the UN International Maritime Organization (IMO), and law enforcement agencies established a Regional Piracy Centre in Kuala Lumpur, Malaysia. This Regional Piracy Centre was designed to cover all the countries east of Sri Lanka to Southeast Asia and the Far East, to serve as an information and reporting center, and to be a liaison with regional law enforcement authorities (the Centre has no enforcement capabilities of its own).¹² Earlier, in the summer of 1992, Singapore and Indonesia had agreed to establish direct communications links between their navies and agreed to provide coordinated patrols of their navies to protect Singapore Strait shipping lanes against piracy, including provisions for coordinating pursuit across territorial boundaries. Later, in December 1992, Indonesia and Malaysia, using the long-standing Joint Border Committee mechanism for maritime cooperation (which already included joint naval and police exercises and operations in the Strait of Malacca, and procedures for regular rendezvous at sea to exchange information), agreed to form a joint Maritime Operation Planning Team to conduct coordinated patrols along the common borders in the Malacca Strait. (In mid-1993, these two countries conducted a 10-day joint patrol exercise in the Strait of Malacca.) As a result of these cooperative measures (as well as significant unilateral anti-piracy measures by Singapore, Malaysia, and Indonesia), the piracy problem in the Malacca and Singapore Straits diminished significantly after 1992.

There is still considerable scope for further cooperation in combating piracy in the Asia-Pacific region. In the Malacca and Singapore Straits area, one suggestion has been that Singapore, Malaysia and Indonesia agree to establish "joint patrol areas," where more than the territorial state would have the right to patrol, arrest, and punish for acts of piracy. In the South China Sea area, a paper prepared for the Indonesian-

sponsored Fifth Workshop on Managing Potential Conflicts in the South China Sea included a proposal for "coordination and cooperation between the navies and authorities of the region" in combating piracy and illicit drug traffic. The third South China Sea Workshop in 1992 had reported that some participants "suggested that piracy could be most effectively dealt with at the national level, while others considered that a regional approach to the problem would be preferable." In the East China Sea area, a continuation of the dialogue between the coast guard authorities of the PRC and Japan, as well as inclusion of this problem on the agenda of the PRC-Taiwan "informal" discussions on cross-straits issues would be useful. The Regional Piracy Centre in Kuala Lumpur should continue to develop, and could act as a spur to the inclusion of the piracy problem on the future regional maritime cooperation agenda. The new proposed CSCAP *Guidelines for Regional Maritime Cooperation* explicitly recognize "the importance of cooperation in the maintenance and enforcement of law and order at sea, including the prevention of piracy, drug smuggling, and other crimes at sea."

Perhaps the greatest threat over the longer term to SLOC security and access in the East Asian region (and globally) comes from the "creeping jurisdiction" of states in the region taking actions that restrict traditional freedom of the seas. Proposed constraints often have good motives (safety, anti-pollution, etc.), but cumulatively would restrict SLOC access in ways potentially quite harmful to regional states themselves, given their great dependence on SLOC shipping for economic growth. First, there have been various proposals by regional straits states to go beyond the International Maritime Organization safety regulations and traffic lane demarcations and to impose additional restrictions on passing ships, including even tolls for the use of these recognized international straits. Such proposals have to date been fiercely resisted by other regional states as well as major powers. The UN Law of the Sea Convention which took effect in November 1994 has also given rise to some increased attempts to impose navigation restrictions in newly-declared (and often overlapping) Exclusive Economic Zones, and has resulted in a major dispute between Indonesia and many other states as Indonesia, declaring her new archipelagic sea lanes, proposed to limit

passage to only three north-south sea lanes.¹³ Finally, there is the issue, discussed below, of the concern of the United States and other major powers over freedom of the seas restrictions raised by the unfortunate wording of the Southeast Asia Nuclear Weapons Free Zone (SEANWFZ) Treaty signed by the ASEAN countries at their 15 December 1995 Bangkok summit.

U.S. Concerns on SLOC Security and Access

The United States has on three occasions in the past 18 months reemphasized its commitment to uphold the traditional principles of freedom of navigation in regional SLOCs. The U.S. State Department policy statement on the Spratleys dispute in May 1995 identified freedom of navigation as “a fundamental interest” of the United States.¹⁴ The Secretary of Defense’s February 1995 *United States Security Strategy for the East Asia-Pacific Region* said:

Our strategic interest in maintaining the lines of communications linking Southeast Asia, Northeast Asia and the Indian Ocean makes it essential that we resist any maritime claims beyond those permitted by the Law of the Sea Convention.

Finally, the United States, in December 1995, issued a statement explaining its displeasure (shared by other major powers) with the wording of the SEANWFZ Treaty signed by ASEAN countries. This treaty includes a protocol open to signature by the five declared nuclear weapons states. The United States on 20 October 1995 had already joined with France and the UK in pledging to sign the protocols of the earlier South Pacific Nuclear Free Zone (SPNFZ) Treaty in the first half of 1996, and had been “prepared to consider positively” a SEANWFZ Treaty that met U.S. security concerns. However, U.S. concern for basic principles of freedom of the seas in the end resulted in the following official U.S. statement:

One of the most significant issues preventing us from supporting the treaty at this point is the inclusion of exclusive economic zones (EEZs) and continental shelves in the zone, which we believe is inconsistent with internationally recognized high seas free-

doms of navigation and over-flight. We feel that, to the extent that the SEANWFZ Treaty imposes security obligations on non-treaty parties without their consent in areas where high seas freedoms exist, the treaty is inconsistent with the U.N. Law of the Sea Convention and sets an unfortunate precedent. Moreover, extending the treaty zone to the EEZ and continental shelf could be a source of conflict due to uncertainty over competing territorial claims in the region. . . . The inclusion of EEZs and continental shelves in the treaty zone is inconsistent with high seas freedom of navigation and overflight in and over these areas. These rights, which may be exercised worldwide beyond foreign territorial seas, permit all military ships and aircraft to undertake activities such as task force maneuvering, flight operations, and training exercises, provided these activities are conducted with due regard for the rights of other nations and the safe conduct and operations of other ships and aircraft. Military ships and aircraft need not be in transit to conduct these activities, which may involve operations in a fixed geographic area. Therefore, the treaty’s protection of transit rights does not directly address these necessary activities of multi-mission military vessels. The current treaty language does not appear to impose restrictions on the exercise of other navigational rights, such as the right of innocent passage through territorial and archipelagic waters, the right of transit passage through international straits, and the rights of archipelagic sea lanes passage through archipelagic waters. However, as indicated previously, we are concerned with the impact of the treaty on high seas freedoms of navigation.”⁵

Conclusion

The increasing importance of SLOC security and access for states in the East Asia region will result in their increased attention to both military and non-military concerns regarding freedom of navigation. The United States, which shares the interests of the East Asian states in regional SLOC security and access, would undoubtedly welcome increased cooperation, understanding and support of regional states in upholding tradi-

tional principles of freedom of the seas so vital to seaborne trade.

Endnotes

1. Kenny, Henry J., *An Analysis of Possible Threats to Shipping in Key Southeast Asian Sea Lanes*, Center for Naval Analyses, Alexandria, VA, February 1996, p. 3. Much of the discussion below is drawn from points accompanying this map, and from Noer, John H., and Gregory, David, *Chokepoints: Maritime Economic Concerns in Southeast Asia*, National Defense University Press, October 1996.
2. Kenny, p. 4.
3. Kenny, p. 5.
4. Kenny, p. 17.
5. Noer, p. 25.
6. Dori, John T., "Trade with Asia Means Jobs for America," FYI, No. 19, 16 September 1996, The Heritage Foundation, Washington, D.C.
7. PRC Ministry of Foreign Affairs,
8. Kenny, p. 23.
9. Ibid, p. 14.
10. *Far Eastern Economic Review, Asia 1995 Handbook*, pp. 62-63.
11. See "China's New Law of the Sea," cover story in *Far Eastern Economic Review*, June 16, 1994, pp. 2228.
12. *IBRU Maritime Briefing 1994*, p. 18.
13. McBeth, John, "Water of Strife," *Far Eastern Economic Review*, 29 February 1996, p. 30.
14. U.S. Department of State, *United States Policy on the Spratleys and the South China Sea*, 10 May 1995.
15. U.S. Department of State, "U.S. Position on Southeast Asia Nuclear Weapons Free Zone," 15 December 1995. It should be noted that the Chairman's closing statement on 15 December 1995, at the Bangkok ASEAN Summit pledged that "the protocol to the (SEANWFZ) treaty will be further reviewed."

SECURITY OF SLOCS IN EAST ASIA

by Seo-Hang Lee

Introduction

With the growing interdependence of the world, it is hard to imagine a coastal nation that does not, in some important ways, depend on the sea to carry out its essential trade. The idea that the seas are of vital importance to the nations has been addressed eloquently by many scholars and writers. For instance, John N. Moore, a highly respected analyst of naval affairs and associated strategy of seapower, once wrote that for many centuries the majority of countries in the world have depended on the free passage of goods across the sea for their existence.”¹

At the regional level, East Asia, which encompasses a huge maritime area, is not an exception. Over the past few years, the East Asian region has recorded the highest economic growth rate in the world, and one of the fundamental characteristics of this growth is that it is based on seaborne trade.²

In East Asia, the heavy dependence on seaborne trade has led to an explosion of shipping carrying exports to other parts of the world as well as within the region itself. Almost all East Asian countries are dependent on the security of the sea lanes of communication (SLOCs), and the protection of merchant shipping both in peace and war times is a task which no country in the region can ignore. While the end of the Cold War and the dissolution of the Soviet Union have reduced or changed the threat to the SLOCs, the drawdown of US forces has tended not only to reduce its capability as principal defender of the SLOCs but also to create discomfiting strategic uncertainties. Such a strategic scene has important maritime implications and provides countries in the region with a challenging task of protecting SLOCs. Recognizing this, I would like to examine the major sources of threat to SLOCs in East Asia and what should be done to enhance SLOC security.

Vital Importance of SLOCs in East Asia

Perhaps the most powerful factor boosting the importance of the East Asia's maritime environment is the rapid rise in the region's economy. As many data suggest, East Asia has achieved remarkable economic success in the past two decades. In particular, it has recorded the fastest growth rate among all regions of the world since the 1980s. Asia's newly industrialized economies (ANIEs), namely, the Republic of Korea, Taiwan, Hong Kong, and Singapore have consistently grown since the 1970s largely because of the successful pursuit of export-led development policies. The newly developing countries in East Asia, such as Thailand, Malaysia, Indonesia and China, have also successfully adopted export-led development strategies following the example of Japan and ANIEs. Accordingly, the pattern of growth of these countries resembles that of the ANIEs. These newly rising East Asian economies have grown much faster than other developing countries in the world in the past 10 years. The World Bank predicts that by 2020, seven of the world's 10 largest economies (in purchasing power parity terms) will be located in Asia, while only two will be in Europe.³ The uncertainties about regional developments would encourage many to be somewhat cautious about this prediction. However, the geostrategic implications of the general trend are profound.

The principal source of growth in these economies has been their outward-looking and open-development strategies. Thus, the rapid

economic growth of East Asia has been paralleled by an explosion in its external trade. During the 10 years from 1980 to 1990, for instance, the external trade of East Asia increased nearly twice as fast as world trade in general. As a result, the external trade of this region has already surpassed that of North America. Moreover, the economies of East Asia are growing far more interdependent. Trade between countries in East Asia is growing much faster than their trade with other regions of the world. Clearly, the economies in the region are feeding off each other far more than ever before in order to sustain their high rates of growth. In 1993, intraregional trade in East Asia accounted for more than 40 percent of its total external trade.⁴

If East Asia and North America are grouped into one area, namely the Asia-Pacific, the external trade of this enlarged region become similar in volume to that of the EU. It is predicted that during the 21st century, the Asia-Pacific region will account for more than half of total world trade. It is noteworthy, moreover, that Asia-Pacific international trade already corresponds to more than 60 percent of its overall external trade, similar in proportion to that of the EU. This means that the Asia-Pacific region has already achieved a degree of trade interdependence and economic integration, generating the highest percentage of world trade volume.

A primary consequence is that, because nearly all of this trade is carried by ship, the growth of shipping tonnages and container loads (TEUs) in the Asia-Pacific has been similarly rapid. Table 1 shows that in 1994 eight of the 10 busiest container ports in the world were located

Table 1: Ten Busiest Container Ports in the World. 1994

Container Port	Country	TEU (thousands)	Growth Rate(%)
1. Hong Kong	Hong Kong	11,050	20.1
2. Singapore	Singapore	10,399	15.0
3. Kaohsiung	Taiwan	4,900	5.7
4. Rotterdam	Netherlands	4,539	9.1
5. Pusan	Korea	3,213	4.6
6. Kobe	Japan	2,916	8.2
7. Hamburg	Germany	2,726	9.6
8. Long Beach	U. S. A.	2,574	23.8
9. Los Angeles	U. S. A.	2,519	8.6
10. Yokohama	Japan	2,317	6.9

Source: *Containerization International*, Vol. 28, No. 1 (January 1995).

Table 2: Volume of Seaborne Trade of Northeast Asian Countries (in millions NVT)

		1985	1990	1991	1992	1993	1994	Annual growth rate
China	Export	70	92	108	106	106	125	9.7
	Import	71	74	87	102	147	146	9.5
	Total	141	166	195	208	253	271	9.6
ROK	Export	32	48	52	63	73	74	8.7
	Import	101	172	211	223	246	274	10.1
	Total	133	220	263	286	319	348	9.3
Japan	Export	94	84	90	100	105	111	2.1
	Import	603	712	725	708	722	752	1.4
	Total	697	796	815	808	827	863	1.0
Russia*	Export	90	90	36	27	28	25	-11.4
	Import	42	35	23	7	5	2	-55.7
	Total	132	125	59	34	3	27	-22.9
Northeast Asia	Export	286	314	286	296	312	335	1.0
	Import	817	993	1,046	1,040	1,170	1,174	3.0
	Total	1,103	1,307	1,332	1,336	1,432	1,509	2.5
World Total (Export & Import)		6,586	7,954	8,220	8,442	8,678	8,950	1.6

* Far East of Russia

Source: UN, *Monthly Bulletin of Statistics* and KMI, *Shipping Statistics*.

in the Asia-Pacific region. Table 2 shows the spectacular rates of growth in volume of the seaborne trade experienced by some of the Northeast Asian countries.

The speed and sheer mass of this region's economic growth, the rapid rise in the regional economic interdependence, and the concentration of the linkages in vast volumes of the sea traffic highlight the critical importance of shipping in this region. Shipping routes are sometimes rightly described as the arteries of the regional economy. In the Asia-Pacific, an uninterrupted flow of shipping is critical to most regional countries' economic health and prosperity, and to some countries' very survival. The security of this shipping is, therefore, an important and increasingly critical strategic interest in this region.

Major Sources of Threat to SLOCs in East Asia

Despite the very importance of the SLOC security in East Asia, it is apparent from a look at the map of the region that the sea lanes are

vulnerable, not only because they are proximate to the Asian land mass, but, more importantly, because they pass through narrow choke points. Maritime traffic from Japan and Korea to the south transits either the Taiwan Strait or Bashi Channel between Taiwan and the Philippines. Ship sailing from the east coast of Korea or the west coast of Japan must first traverse the Korea Strait. Ships of many nations sailing from the Northern Pacific Ocean to the Indian Ocean or Persian Gulf must either pass through the narrow Strait of Malacca or one of many Indonesian passages.⁵ At every one of these choke points, they could be subject to an attack from submarines or aircraft.

In the past, the principal threat exerted to the SLOCs in East Asia was obviously that of the Soviet Union. With the end of the Cold War and the dissolution of the Soviet Union, however, such a threat to the SLOCs has been substantially reduced. One should, nevertheless, not be surprised if the security of merchant shipping constitutes a continuing problem. For one thing, there remains the potential for a wide range of low level threats, which include terrorism, pi-

racy, narcotics trade, and refugee flows. Obviously such threats are often criminal in nature and do not usually result in destructive confrontation between nations. What is more important, however, is the prevailing strategic uncertainty resulting from the disruption of the Cold War stability, which could pose a serious threat to the SLOCs in East Asia in the longer term. This development and its maritime implications are something that calls for careful scrutiny. Indeed, the security of the SLOCs in East Asia is the subject that certainly deserves continued attention.

Maritime Territorial Disputes

It has been pointed out that disputes over territory have been the most important single cause of war between states in the last two or three centuries. As one scholar has noted, there is some kind of sanctity about state boundaries.⁶ It is often stated that there is a psychological importance of territory that is quite out of proportion to its intrinsic values, economic or strategic. Thus, territorial disputes inevitably involve serious threats to international peace and security, including the SLOC security. The danger of confrontation is all the more obvious when important natural resources are at stake. In this sense, the existing maritime territorial disputes in East Asia, unless carefully dealt with, could end up with major threats to SLOCs in the region. In realistic terms, an interruption to the SLOC security could arise as a side effect of armed clashes between coastal states engaged in pressing claims to maritime jurisdiction, particularly those to mid-sea islands.

Currently, there are several major maritime territorial disputes in the seas of East Asia that can become threats to SLOC security in the region. According to a recent opinion poll conducted by the Far Eastern Economic Review in October 1996, many Asian people believe that the next war in the region would be over territorial disputes and natural resources.⁷ There is no doubt that the military confrontation over territory and natural resources necessarily involves the threat or use of sea mines, hence a serious threat to the East Asian sea lanes.

Coastal State Factor—Interdiction of Navigation and Extended Maritime Jurisdiction

On the basis of limited historical experience in East Asia, the coastal state factor could be another major threat to SLOC security in the region. In particular, the potential threats to shipping through international straits could arise from: (1) coastal states' attempts to control freedom of passage for national security; (2) domestic instability in coastal states; and (3) contention among the neighboring countries regarding overlapping maritime claims.⁸

In East Asia, there are a number of straits with international significance. For instance, the straits of Malacca, the Sunda Strait, and the Lombok Strait are the main passageways between the Indian and the Pacific Ocean. The latter two fall into the archipelagic waters of Indonesia, while the former is part of the territorial sea of Indonesia and Malaysia. In these straits, any attempt to hinder or block passage of ships by coastal states, if the experience of the Suez Canal and the Gulf is any guide, could pose a threat to SLOC security in the region.⁹ (See Figure 1).

The extended maritime jurisdictions or the excessive maritime claims by coastal states would be even more risky. For instance, in 1977, North Korea proclaimed the 50-mile military boundary zone for the purpose of defending its national interest and sovereignty. Its location is up to 50 miles from the baseline of the territorial sea in the East (or the Sea of Japan) and to the boundary line of the economic zone in the Yellow Sea. In this zone (on the sea, in the sea and in the sky), according to the proclamation, acts of foreigners, foreign military vessels and foreign military planes are prohibited and civilian ships and civilian planes are allowed to navigate or fly only with appropriate agreement or approval. In addition, civilian vessels and civilian planes in the zone are not allowed to conduct acts for military purposes or acts infringing upon the economic interests. Thus the military zone in jurisdictional terms appears even more exclusive than the territorial sea where foreign vessels are entitled to innocent passage.

Similarly, China has for more than 30 years announced restrictions in coastal areas well outside its territorial sea for military purposes. Currently, there are two security zones proclaimed by China in the Yellow Sea. One is a Military

Figure 1: Dispute Over Sea Lanes in Indonesian Archipelagic Waters

Locations		1991	1992	1993	1994	1995	1996
SE ASIA	Indonesia	55	49	10	22	33	53
	Thailand					4	13
	Malaysia	1	2		4	5	5
	Philippines		5		5	7	7
	Malacca Straits	32	7	5	3	2	3
	Cambodia			1	1	1	1
	Burma						1
	Singapore Straits				3	2	2
FAR EAST	China/Hong Kong/Macau			1	4	31	9
	'HLH' Area			27	12	7	4
	South China Sea	14	6	31	6	3	2
	Vietnam				2	4	
	Taiwan					2	
	East China Sea		1	10	6		1
	Gulf of Tonkin				1		
INDIAN SUB CONTINENT	Yellow Sea				1		
	Sri Lanka			2	1	5	8
	India		5	1		8	9
	Bangladesh				2	2	4
AMERICAS	Arab Sea/Persian Gulf					8	1
	Brazil			4	7	17	16
	Peru					1	2
	Ecuador				3		3
	Caribbean				1		
	Colombia			1		1	3
	Dominican Republic						1
	Jamaica						1
	Salvador						1
	Nanama					1	
	Nicaragua					1	
AFRICA	Uruguay						1
	Somalia/Djibouti				1	14	3
	Tanzania			2	1	2	3
	Algeria				1	1	
	Ivory coast				1		2
	Senegal						2
	Guinea				1	1	2
	Nigeria			2		1	2
	Angola			3			
	Egypt				1		
	Guyana			1			1
	Gabon					1	
	Ghana					1	2
Sierra Leone						2	
REST OF WORLD	Turkey					1	1
	Denmark					1	
	Yemen						1
	Greece						1
	Russia					1	
	Italy					1	2
Location Not Available	5	31	2				
Total at year end	107	106	103	90	170	175	

Source: *The International Herald Tribune*, May 16, 1996.

Alert Zone extending west of a line from the North Korean-China border, at the mouth of the Yalu River, to a point off the Shandong Peninsula. This zone includes the Bo Hai and legitimately claimed territorial sea as well as an area which other states consider high seas. Entry into the zone is only with the express permission of Chinese authorities. Another is a Military Exclusion Zone in the vicinity of Shanghai. In this zone, entry is forbidden even on innocent passage without specific permission.¹⁰

The idea of establishing the maritime zone for defense or security purposes could be justified as an exceptional measure of self-protection in times of emergency, based upon Article 51 of the UN Charter. However, the idea of permanent defense zone is inherently difficult to accept, since such an extended maritime jurisdiction interrupts freedom of navigation.

Piracy

Piracy is one of the newly emerging sources of threat to SLOC security in the region. The most common current form of piracy in East Asian region piracy against modern shipping is characterized by "hit-rob-run," short-term seizure of ships and acts of robbery (according to the International Maritime Bureau of ICC, the average length of an incident is thirty minutes, and the average theft between US \$5,000 and US \$15,000). In Southeast Asia, in the Straits of Malacca and Singapore in particular, most attacks are at night, against all types of commercial ships (container and bulk carriers, tankers) by pirates in small fast boats that approach from astern and board the ship with grappling hooks or ropes and then threaten the crew on the bridge and in their cabins. They usually rob money from the ship's safe and electrical goods. In contrast, it is reported that overt approaches and firing of weapons to stop ships are more common in the Hong Kong-Luzon-Hainan Island (HLH) piracy area further north.¹¹ Elsewhere in Asia, attacks have been more violent, people have been thrown overboard, shot and drowned.

In any case, piracy poses real dangers not only to the lives of crew, but also to other ships in heavily traveled areas (200 ships, half of them oil tankers, enter the Straits of Malacca and Singapore each day). According to recent IMB statistics on piracy, in 1995 and 1996, more than 50

percent of the world's piracy incidents occurred in East Asia. For instance, 100 of 175 global pirate attacks in 1996 took place there (see Table 3). These trends in regional piracy suggest that such acts of boarding any vessel with the intent to commit theft or other crime pose a serious threat to SLOC security and have broader implications for regional security.

Oil Spillage and Marine Pollution

The East Asian region contains two huge semi-enclosed seas: that is the Yellow/East China Sea encompassing 362,000 square miles; and the East Sea (Sea of Japan) encompassing 445,000 square miles. In terms of marine pollution, the following general observations need to be made. First, the littoral and adjoining areas have the heaviest population concentration in the world. Second, these areas have one of the heaviest concentrations of industry in the coastal zone in the world. Third, this area has a heavy concentration of shipping routes of the world, with its susceptibility to pollution from collision, groundings, discharges from tank cleanings, leaks or human error a major concern. Finally, there is considerable potential for oil and gas in the offshore.

With these conditions, the region obviously faces the potential of largescale deterioration that could interrupt the navigation of ships. The coastal waters of the Yellow/East China Seas already suffer from heavy contamination mainly by pollutants input from dangerous cargoes and from the fast growing industrial activities of the littoral states. The East Sea (Sea of Japan) is also showing serious signs of pollution and large coastal areas, mostly off Japan, are already heavily polluted. It can be easily foreseen that situations will deteriorate unless great care is taken. As the public and national awareness of the importance of environment grows, marine environmental degradation could constitute a serious potential source of threat to SLOCs in the region.

In addition to these explained above, there are many other sources of threats to SLOCs in the region. As is well known, East Asia/Northeast Asia in particular is an area of high military tension yet one where the littoral states have managed to coexist with relatively few incidents. The existing significant military preparations in the

Table 3: Number of Pirate Attacks in East Asia, 1991–1996

	Locations	1991	1992	1993	1994	1995	1996	
SOUTHEAST ASIA	Indonesia	55	49	10	22	33	53	
	Thailand					4	13	
	Malaysia	1	2		4	5	5	
	Philippines		5		5	7	7	
	Malacca Straits	32	7	5	3	2	3	
	Cambodia			1	1	1	1	
	Burma						1	
	Singapore Straits				3	2	2	
	FAR EAST	China/Hong Kong/Macau			1	4	31	9
		'HLH' Area	14	6	27	12	7	4
Vietnam				31	2	3	2	
Taiwan			1	10	6	2	1	
East China Sea					1			
Gulf of Tonkin					1			
Yellow Sea								
East Asia Total		102	70	85	70	101	100	
World Total	107	106	103	90	170	175		

Source: IMB-Regional Piracy Center(RPC), Kuala Lumpur, Malaysia, 1997.

region have the potential to spark open conflict, thus posing a threat to the SLOC security.¹²

Measures to Protect SLOCs in East Asia: Some Proposals

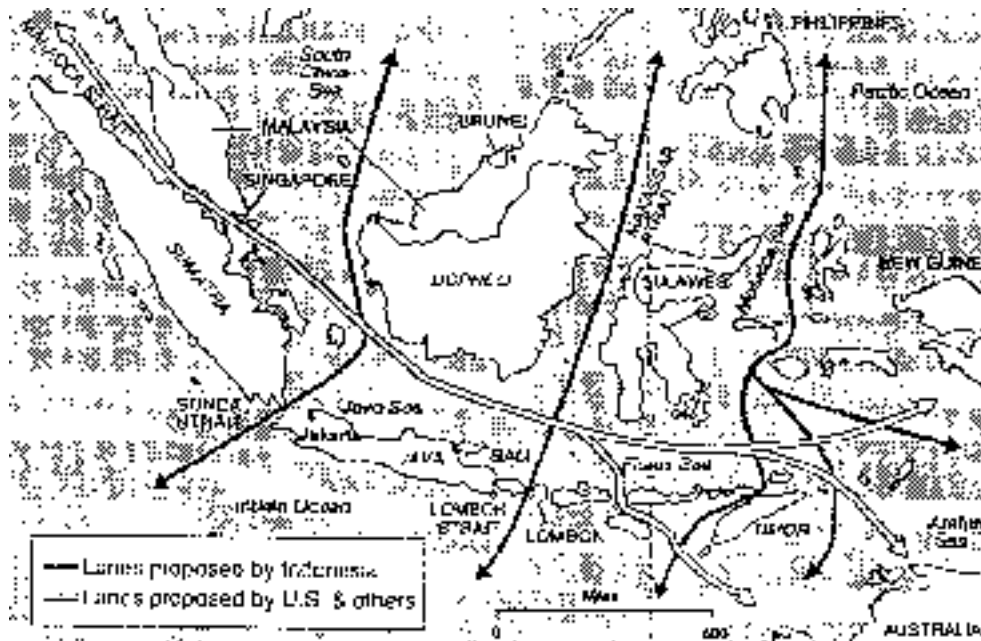
The best way to maintain the security and safety of SLOCs is to avoid or neutralize the aforementioned possible sources of threat. In practical terms, we need to consult with each other or to establish a cooperative mechanism among regional states, in order to avoid or neutralize possible threats.

Over the past years, there have been various suggestions concerning the means of cooperation to keep SLOCs safe in the region. For instance, the Institute of Strategic and International Studies in Kuala Lumpur has proposed the concept of a Regional Maritime Surveillance and Safety Regime for Southeast Asian waters. This pro-

posal could provide a medium for monitoring illegal activities, sharing information (including surveillance information), combating piracy, enhancing maritime safety and controlling pollution. Indeed, some of this agenda has already moved off the conference table into reality with the July 1992 signing of an anti-piracy accord between Indonesia and Singapore. These countries are now coordinating surveillance and patrolling in the Malacca Straits and adjacent waters.

Recently, Rear Admiral (Ret.) Sumihiko Kawamura of Japan made a proposal of establishing an international cooperative SLOC security scheme, placing the U.S. at its core (key strategic player) and having the Asia-Pacific countries share the responsibilities of areas and functions in accordance with their capabilities and geographic conditions. In accordance with capabilities and geographic locations of the regional states, Rear Admiral Kawamura suggested

Figure 2: International Cooperative Scheme for SLOC Security in East Asia (Kawamura's Proposal)



Source: *Sankei Shinbun* (Tokyo), May 8, 1996.

the following ideas: (1) maintenance of sea control throughout the Pacific Ocean by the U.S.; (2) protection of shipping, surveillance and search and rescue (SAR) in regional areas such as the Northeast Pacific, South Pacific or the ASEAN area, etc. by the concerned regional states; and (3) surveillance of coastal seas and local shipping protection by littoral states.¹³ (See Figure 2.)

Given the increasing need for the establishment of an international cooperative scheme for SLOC security in East Asia, such a multilateral burden sharing system seems to be very acceptable. To actualize this multilateral cooperative system, however, many political, military and economic difficulties should be removed.

In addition to this establishment of a multilateral cooperative scheme, for SLOC security in the post-Cold War era, the urgent tasks of all regional states in East Asia are to endeavor to build a stable and secure maritime regime as well as implement maritime confidence building measures. A stable maritime regime is a prerequisite not only for enhancing security at sea but also for further maritime cooperation among regional states. Along with such efforts to build

stable regime, various maritime confidence and security building measures should be explored, considering the changing maritime security context. The following are the most urgent tasks by which regional states should endeavor to strengthen SLOC security.

First, recognizing the importance of freedom of navigation to the maintenance of seaborne trade in East Asia, states in the region are encouraged to develop cooperative approaches to the maintenance and protection of sea lanes of communication. Such cooperative approaches might begin with exchanges of information and training in such areas as humanitarian assistance, search and rescue, marine safety, and law and order at sea. The exchange of information should include information on likely threats to, or security incidents concerned with sea lanes of communication.¹⁴ In this regard, a recent initiative of the IMB is illustrative of what is possible; it has been instrumental in setting up a Regional Piracy Center. The Center, based in Kuala Lumpur, Malaysia acts as an information exchange bureau and works on the basis of mutual assistance and recognizes the crucial role of intelligence and information as a policy basis.

Second, it is important to enhance the openness and transparency about maritime regime and the practice of regional states with the acceptance of the UN Convention on the Law of the Sea (UNCLOS). It is certain that the Convention has considerable potential of acting as a confidence-building measure (CBM) within East Asia. The first and perhaps most significant CBM resulting from UNCLOS is that the Convention assists to clarify the outer limits of coastal state claims to sovereignty and jurisdiction over adjacent maritime areas. A further aspect of UNCLOS as a CBM is the continued emphasis throughout the Convention on maritime cooperation: States are to reach cooperative agreements in determining their maritime boundaries; and they are to cooperate with respect to the utilization of EEZ.

Third, the maritime security context in the region requires measures to reduce risks at sea. Maritime confidence and security building measures (MCSBMs) have the objective of reducing the risk of maritime conflicts and misunderstanding or miscalculation of military activities at sea. Such measures include the sharing of naval information and the exchange of personnel as well as more advanced operational measures such as surveillance cooperation or agreements on the prevention at sea between naval forces. In East Asia, maritime confidence and security building measures could have enormous rewards if they could be put into practice. Bilateral and multilateral naval cooperation for MCSBMs would reduce uncertainty in maritime security environment of East Asia which will in turn significantly enhance SLOC security in the region.

Endnotes

1. Cited in Joseph R. Morgan, "Strategic Lines of Communication: A Military View," in J. Van Dyke, L. Alexander, and J. Morgan (eds.), *International Navigation: Rocks and Shoals Ahead?* (Honolulu: Law of the Sea Institute, University of Hawaii, 1988), p. 54.
2. For instance, in the Republic of Korea, ocean-borne trade accounts for more than 99 percent of the total foreign trade in terms of volume, while airborne and other trade represents less than one percent.
3. World Bank, *Global Economic Prospects and the Developing Countries* (Washington, D.C.: World Bank, 1994).
4. *The Dong-A Ilbo*, August 2, 1996, p. 7.
5. For the detailed description of major ocean navigation routes in Northeast and Southeast Asia, see Lewis M. Alexander, *Navigational Restrictions within the New LOS Context* (Peace Dale, RI: Offshore Consultants, Inc., 1986), pp. 289-305.
6. A. Cukwurah, *The Settlement of Boundary Disputes in International Law*, 1967, p. 10.
7. *Far Eastern Economic Review*, Special Issue, October 31, 1996, p. 215.
8. Michael Leifer, "The Security of Sealanes in Southeast Asia," *Survival* 25 (Jan/Feb. 1983), p. 16.
9. Recently, Indonesia is seeking to designate three special sea-lanes running in a north-south direction that international shipping could use with minimal restrictions to pass through its archipelagic waters (See Figure 1).
10. For details, see C. H. Park, *East Asia and the Law of the Sea*, 1983, pp. 83-84.
11. Stanley B. Weeks, "Law and Order at Sea: Pacific Cooperation in Dealing with Piracy, Drugs, and Illegal Migration," paper presented at the CSCAP Working Group Meeting on Maritime Cooperation, 23 June 1995, Kuala Lumpur.
12. For instance, China launched over 10 days of guided missiles and heavy artillery tests in the East China Sea just north of Taiwan in August 1995 and in March 1996 respectively, and it seriously threatened SLOC security and safety of civilian aviation.
13. Sumihiko Kawamura, "Maritime Transport and Communications including Marine Safety and SLOC security," paper presented

at the CSCAP Working Group Meeting on Maritime Cooperation, 23 June 1995, Kuala Lumpur.

14. *Draft Guidelines for Regional Maritime Cooperation*, Maritime Cooperation Working Group of the CSCAP, December 1996.