THE IMPORTANCE OF THE STRAITS OF MALACCA AND SINGAPORE

I. INTRODUCTION

INTERNATIONAL straits, including the Malacca and Singapore Straits (referred to henceforth as the Malacca Straits), received special attention in the United Nations Convention on the Law of the Sea (UNCLOS) because of their vital importance to the international shipping community and the navigation of non-mercantile vessels. The regime for the use of international straits balances the interests of the user States with those of the littoral state(s). The Malacca Straits are distinguished by the fact that there are three littoral states, namely, Indonesia, Malaysia and Singapore. One could include Thailand as one of the littoral states because it borders the Straits near its northern entrance, but Thailand is not strictly within the main body of the Straits.

As a measure of the importance of the Malacca Straits, a number of major studies on the waterway have been undertaken. These include interesting observations in the early study by Winstedt (1923), and by Shaw and Thomson (1973), Sen Gupta, et al (1974), Leifer (1978), Finn, et al (1979), Braddell (1980), Vertzberger (1982, 1984), Koh (1982), Schoolman (1991), as well as in academic theses (eg, Zakaria 1983, Jaafar 1984) and in numerous articles (eg, Leifer & Nelson, 1973; Logaraj, 1978; Yu, 1984; Valencia & Jaafar, 1985a,b; Zian, 1992) on aspects including navigation, environment and resources, legal status, strategic importance and management. Over the past few years, a number of conferences have been organised on themes focusing on the Straits. These include conferences organised by the Malaysian Institute of Maritime Affairs (see also Burbridge, et al, 1988).

It is of interest to note, as observed by Lee YL (1982), that some 32 “international straits” that are less than 24 nautical miles (nm) at their narrowest and would therefore have their corridors of “high seas” eliminated if coastal states extended their territorial seas to 12 nm. Of these straits, only eight are not controlled by maritime powers and of these, three are important because they do not permit alternative routes. The remaining five, including the Malacca Straits, have alternative but longer routes. It is obvious that international commerce would be affected if these straits were to be closed for any reason.

The Malacca Straits, the world’s second busiest waterway, have been used by international shipping since time immemorial. The Romans, Chinese, Greeks, Arabs and Indians all used these Straits in the pre-colonial era. With the opening
of the Suez Canal in 1869 and the advent of the iron ships in the mid-1800s, the Malacca Straits have become the vital link for seaborne commerce between the powerful European maritime states and the Old World of East Asia. “Its strategic importance lies in its being the shortest, cheapest and most convenient sea-link between the Pacific and Indian Oceans.” (Sen Gupta, et al, 1974: 1)

The world’s first shipping conference, established in 1879, the western-controlled Far East Shipping Conference (FESC), continues to be a dominant force today. It operates scheduled liner shipping services between Europe and what is still called the “Far East” via the Malacca Straits (see Jennings, 1980). The combined fleets of member shipping lines of over 150 vessels provide scheduled services for all of the major ports in Europe and North Africa and connect them via the Malacca Straits to those in Southeast and East Asia. Over the last thirty years, led by the Japanese economic juggernaut, the East Asian economic miracle has resulted in vastly increased westward flow of valuable manufactured goods. The region is no longer characterised by the eastward flow of manufactured products balanced by a return stream of lower-valued primary commodities wherein shippers in the Asian region complained of having to pay much higher freight rates than their western counterparts.

The Straits are clearly of great strategic importance and serve as the vital link for the carriage of oil from the Persian Gulf to the burgeoning Southeast and East Asian states. Much has been written about the use of the Malacca Straits as the route for oil tankers from the Persian Gulf to East Asia and Southeast Asia, including papers by Sen Gupta (1974: 57ff), Olsen (1992), and Chia (1994). It may be noted that, apart from oil, there is little by way of other bulk cargo that is of any great significance in terms of using the Straits as a conduit. The one other major cargo is the large assortment of valuable manufactured goods in boxes carried on container ships. There are just slightly more container ships serving the Far East-Europe trade than the Far East-North America trade – the two busiest trade routes. The difference is that all of the former is channelled through the narrow Malacca Straits.

Thus far, only international navigation has been mentioned. The Straits are equally important to the littoral states since the Straits serve as the entrance into the internal waters of these states, particularly in the case of Indonesia. Leifer (1978) perceptively pointed out that Indonesia has never taken the nation’s territorial frame for granted, arising out of a sense of vulnerability Indonesia has had since it experienced foreign intervention involving the use of sea power. For Malaysia, the Malacca Straits may also be viewed as the nation’s front courtyard, as is true for the Indonesian provinces on the east coast of Sumatra.

For Singapore, more than either Indonesia or Malaysia, the Straits are her lifeline for trade, food supply and other material needs. The Singapore Strait engulfs the entire state and the country is literally in the Straits. If and when the Malaysian Prime Minister Dr Mahathir’s suggestion of building a bridge to replace the present causeway comes about, this would reinforce the significance
of the Straits for Singapore. It is therefore a matter of psychic importance to
the littoral states on how visitors that come by the front door are behaving
and how they are to be received.

II. STRATEGIC IMPORTANCE

The strategic importance of the Straits has made the Malacca Straits an object
of international rivalry since the 15th century. The Portuguese arrived in Malacca
during 1501-09 and sailed through the Straits to establish their settlement in
Macao. In 1641, the Dutch came through the Straits and settled in Batavia (now
Jakarta). Great Britain saw the necessity to gain control of the Straits in order
to secure for herself safe passage for her merchants ships operating along the
China coast. There was then a strong rivalry between the Dutch and the English,
which ended in 1824 with the Anglo-Dutch Treaty, whereby Britain agreed
to safeguard the Straits and keep them open for the Dutch and other friendly
nations. In 1819, Sir Thomas Stamford Raffles ceded Singapore from the local
rulers. The opening of the Suez Canal in 1869 reduced by one-third the distance
from Europe to the Far East and made a dramatic change to the trade for line
shipping companies (Jennings, 1980: 19). The Suez Canal added to the strategic
importance of the Malacca Straits, since the most direct route for ships coming
from the Arabian Sea would be through the Malacca Straits rather than the
Sunda Straits further south (which was the case prior to the opening of the
Canal).

The strategic importance of the Straits of Malacca lies in their being the
main link between two oceans, namely, the Indian and the Pacific ocean. With
the end of the Cold War and the break up of the Soviet Union, great power
rivalry is no longer of the same overriding importance as it was in the past.
Even then, the US engagement in the Iraq-Kuwait War involved the American
Seventh Fleet steaming from the Pacific, presumably through the Malacca Straits,
and into the Persian Gulf area. As long as the Persian Gulf and, more broadly,
the Middle East continues to be a potential

bone of contention, the Malacca Straits will remain an important sealink between
the two oceans for logistical reasons.

For Japan and all of the East Asian economically-emerging states, their
dependence on the Middle East for oil will also mean that the Malacca Straits,
to the extent that they constitute the shortest and cheapest route between these
nations and the all-important source of energy in the Middle East, will be of
high strategic importance.

Indonesia and Malaysia decided to extend their territorial waters from 3 to
12 miles, and in 1970, signed a treaty to delimit the boundary between them
and to share the seabed in the Straits between them. These countries made a
declaration on 16 November 1971 that the Malacca Straits were not an inter-
national waterway, although they recognised their treatment of international
shipping should be in accordance with the principle of innocent passage. It
is significant that Singapore merely took note of this declaration (see Chia, 1981: 243ff).

In February 1977, the three coastal states agreed to establish the Traffic Separation Scheme to control the use of the Straits for navigation. The Scheme sets an under keel clearance (UKC) limit of not less than 3.5 metres for vessels transiting the Straits. This limit effectively restricts the size of oil tankers using the Straits to those weighing approximately 200,000 to 220,000 deadweight tons (dwt). The declaration of the Scheme brought forth a strong response by the Japanese Government, which insisted on the principle of free passage. Japan objected to the closure of the Straits or the levying of a toll on ships using them. In so doing, Japan in effect reaffirmed the strategic importance of the Straits and the vital interest Japan has in ensuring the unhindered passage of its tankers and of other ships to the country.

The interest of the People’s Republic of China in the Malacca Straits was discussed by Sen Gupta, et al (1974: 80ff). China has a very large merchant fleet (see Table 1) and has built up a strong naval force that has been active in the South China Sea. In the early 1970s, China had already started naval activities in the Indian Ocean near the Andamans and had shown interest in the East African states. China has a strategic interest in having a naval presence in the Andaman Sea in order to protect its southern flanks.

### TABLE 1. MERCHANT SHIPPING AND OIL TANKER FLEETS OF EAST ASIAN STATES, 1992

<table>
<thead>
<tr>
<th>Flag State</th>
<th>Cargo Carrying Ships</th>
<th>Oil Tankers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No '000</td>
<td>GT</td>
</tr>
<tr>
<td>China PR</td>
<td>1,680</td>
<td>20,043</td>
</tr>
<tr>
<td>Japan</td>
<td>5,560</td>
<td>23,687</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>347</td>
<td>12,276</td>
</tr>
<tr>
<td>Korea, S.</td>
<td>755</td>
<td>11,026</td>
</tr>
<tr>
<td>Taiwan</td>
<td>267</td>
<td>9,312</td>
</tr>
<tr>
<td>Vietnam</td>
<td>191</td>
<td>392</td>
</tr>
<tr>
<td>World</td>
<td>41,393</td>
<td>420,806</td>
</tr>
</tbody>
</table>

Source: Lloyds Registry of Shipping, Statistical Tables, 1992

**III. NAVIGATION**
The East Asian states have very considerable oil refining capacities. Japan with a capacity of 4.7 mil b/cd is by far the largest, followed by the People’s Republic of China with 2.2 mil b/cd, South Korea with 1 mil b/cd, and Taiwan with about 0.54 mil b/cd (1993 figures). These states require a continuous stream of tankers to feed their refineries with imports of crude oil, most of which comes from the Middle East. The exception is China, which produces 2.8 mil b/cd of oil and has sufficient domestic supplies to meet her own requirements currently. Singapore, with a refining capacity of about 1 mil b/cd, as well as the Philippines, which has considerable refining capacities, similarly depend on the Malacca Straits as a conduit for crude oil to be brought to their oil terminals. In 1989, Japan imported 129.0 million tonnes of crude oil from the Middle Eastern and a few African states, and this amount increased to 168.3 million tonnes in 1991 (see Chia, 1994).

All of the East Asian states mentioned thus far have become major shipowning nations (Table 1). In terms of beneficial ownership, Japan is ranked number one in the world, China sixth, South Korea eighth, and Taiwan 30th in terms of number of vessels (1992 figures). In terms of cargo-carrying capacity, all of these states rank among the top twenty shipowning nations. China has, over the recent decades, climbed rapidly up the ranks of shipowning nations and has become a major force in merchant shipping world-wide. Hong Kong’s powerful shipowners have a combined fleet of about 80 million gt (gross tons) which is not indicated by the 12.2 million gt shown in Table 1. In terms of the number and capacity of oil tankers, Japan, with over 7.2 million gt together with a very large fleet of tankers registered elsewhere, is well ahead of the others, but all the other East Asian states also possess sizeable oil tanker fleets.

Shipping traffic through the Malacca Straits has been continually on the rise. Table 2 shows that the daily traffic increased from 119 in 1982 to 274 in 1993. The increase over the period is 128.9 percent for all ships, while that for the Malaysian-generated traffic was lower at 52.6 percent. The Malaysian Marine Department reports that the number of vessels passing the One Fathom Bank Lighthouse in 1990, 1991 and 1992 was 31,791, 30,283, and 33,527, respectively, excluding vessels stopping at Port Kelang and fishing vessels (Dow, 1993). Of these, 30 percent were oil tankers, ie, 9,537, 9,085 and 10,058 for the three years, respectively. This works out to 26.1, 24.9 and 27.6 oil tankers passing through the waterway each day at this section of the Straits.

**TABLE 2. SHIPPING TRAFFIC THROUGH THE MALACCA STRAITS, 1982-1993**

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Traffic (est.)</th>
<th>Malaysian Generated Traffic</th>
<th>Daily Traffic</th>
<th>Annual Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>1982</td>
<td>43,633</td>
<td>6,916</td>
<td>119</td>
<td></td>
</tr>
</tbody>
</table>
Earlier records of movements of supertankers navigating the Malacca Straits came from Captain Yoshio Saito, Secretary General of the Malacca Strait Council, who reported that, in May 1972, fifteen tankers of over 200,000 tons crossed the Straits. With respect to movement of all types of ships in the Singapore Straits, the number increased from 129.4 per day in the month of October 1969 to 153.8 per day in September 1978. Among these, the number of tankers and bulk carriers for the same two months were 1,231 and 1,255, respectively (see Chia, 1981: 254ff).

IV. ALTERNATIVE ROUTES

For oil tankers transiting from the Indian Ocean to East Asia, total traffic of all types and sizes averages more than 150 vessels per day, of which half are ships of sizes larger than 5,000 gt whilst those exceeding 30,000 gt make up over 10 percent of the total. The alternative route for VLCCs and ULCCs is through the deep Lombok-Makassar Straits and the Celebes Sea south of Mindanao through the Surigao Strait and along the eastern Philippine waters. The Malacca Straits route is used by 72 percent of the east-bound loaded tankers, while the Lombok-Makassar Straits account for the remaining 28 percent. In terms of dead-weight tonnage as well as the volume of oil carried, however, the share is about even (Olsen, 1992: 110). The return-bound voyage by even the largest ULCC in ballast is possible through the Malacca Straits.

It is reported that the availability of the alternative routes to the Malacca Straits combined with the fear of potential major oil spills in the Malacca Straits prompted a move by Indonesia and Malaysia to consider the feasibility of restricting the use of the Straits by oil tankers and encouraging them to use the Lombok-Makassar route instead. A Japanese study shows that tankers using the Lombok and Makassar Straits would cost Japanese consumers an additional US$0.10 in the price of crude oil in Japan and would cost each tanker an extra 10 million yen for the two additional days required to navigate the Lombok
Lee YL (1982) estimates that the longer route through the Lombok Straits would raise costs by 30 yen/km, which is equivalent to six million yen for a 200,000 dwt tanker. The additional cost for a fleet of 24 tankers exceeding this size would be 1,300 million yen. The return journey by even the largest ULCC in ballast with a much reduced draft is possible through the Malacca Straits. According to a recent report, vessels taking the Lombok-Makassar Straits route instead of the shorter Malacca Straits route would incur an additional estimated total cost of between US$84 billion and US$250 billion a year.

Chia (1995a) examined the alternative routes to the Malacca Straits for deep-draught tankers through the Lombok-Makassar Straits. The study was based on data from industry sources, and assumed an additional three and a half days navigating at full commercial speed of 14-16 knots. The results of this study 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. The average earnings of VLCCs (motor tankers) were 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 renewal of vessels. With the poor tanker markets that have plagued operators since the beginning of the 1980s, it will be most unlikely that tanker operators can be induced to take the longer and more costly Lombok-Makassar Straits route.

In the case of the Sunda Straits as an alternative route to the Malacca Straits, Chia (1995a) similarly provides details of the navigability of the channel and availability of navigational aids and facilities for vessels transiting from the Indian Ocean to the South China Sea and beyond. This study found that the highly irregular bottom topography of the Sunda Straits and the presence of rip tides render them unsuitable for vessels drawing over 18 metres of water. In addition, the numerous oil drilling platforms to the north of Western Java pose hazards to vessels travelling this route as there are no available detailed navigation charts of the Sunda Straits.

V. THE KRA ISTHMUS OPTION

Japan has for a long time been interested in supporting the development of an alternative route across the narrow Kra Isthmus on Thai territory. In February 1971, the first joint Japan-Thai survey team carried out an inspection of the site in the area. The plan was to run a 120-km pipeline across the isthmus. A 1.5 metre diameter pipeline would be capable of pumping 150 to 200 million tons of oil annually in its initial stages. The scheme envisaged employing large super tankers of up to 500,000 tons to transport oil from the Middle East to the western terminal of the pipeline on the Andaman Sea. The oil would be emptied into a Central Transport Station to be built on the isthmus before being sent through the pipeline destined for the eastern end of the pipeline.
The idea of constructing a canal across the Kra Isthmus is an old one and goes back to the 19th Century and the completion of the Suez Canal in 1868. This idea has been revived several times. The earlier proposed scheme was to cut a canal to connect Songkhla Lake to the Indian Ocean. The canal would be about 120 km long and would reduce the shipping distance through the Malacca Straits by some 900 km. The project attracted considerable Japanese interest, which arises from the possibility of reducing Japan’s dependence on the Malacca Straits.

The Kra pipeline or canal, which would be costly to construct, would not save too much in the way of costs because of the relatively short sea journey around the Malaysian Peninsula. The need to double-handle the cargo would also add costs to using the pipeline, while additional time would be taken to transit such a pipeline or canal. An additional concern would be the problem of insurgency in Southern Thailand. Added to these is the increased hazard of oil pollution from the transport of oil through the system.

VI. Seaports in the Malacca Straits

There are, as would be expected, a number of ports, large and small, along the shores of both sides of the Straits. Of these, the port of Singapore is pre-eminent among them and is the world’s busiest port as well as the second largest container port, handling some 12 million TEUs of containers in 1995. By contrast, Port Kelang handled about 1 million TEUs, while Penang port and Pasir Gudang in the Johor Strait loaded and unloaded some 300,000 TEUs each. On the Sumatran side, the largest ports are Belawan port in Medan and the oil terminal of Dumai (see Chia, 1991).

The development of the major ports of Singapore, Kelang and Penang is clearly the result of the large flow of ships and cargo through the Malacca Straits. The number of ships calling at Singapore rose from 34,985 in 1984 to an estimated 101,000 in 1994, representing an almost three-fold increase over the ten-year period. The majority of ships calling at Singapore use the Malacca Straits. A significant number of the vessels are oil tankers that call at the oil terminals operated by major international oil companies in Singapore. In addition, Singapore also has large oil and chemical storage tank farms on several of its offshore islands.

The Malaysian government has made great efforts to invest in and develop Port Kelang, the nation’s premier port located on the west coast of Peninsular Malaysia. Port Kelang is investing RM1 billion (S$563 million) in Westport to increase the number of berths from the present 35 to about 60 by the end of the decade. The government is prepared to inject an additional RM2 billion to further expand the port if necessary. Port tariffs are to be kept low to attract direct services. The objective is to develop Port Kelang to be amongst the top 15 transhipment ports by the year 2,000 and to provide an alternative to Singapore
as a regional hub port. From 1995, determined efforts have been made to induce local shippers to use Port Kelang rather than to send their cargo by feeder vessels to Singapore for transhipment. The port has also become a centre for cruise shipping.

VII. Marine Resources

The marine and coastal environment of the Malacca Straits has been described by Shaw and Thomson (1973), Sen Gupta, *et al* (1974: 10ff), Chia (1981, 1988), and Soegiarto (1981), while Chia, *et al* (1988), Chou and Chia (1991), and Chia (1992) provide an account of Singapore’s marine and coastal environment. Ong WK and Ng (1985), and more recently, Hilton and Manning (1995), have provided accounts of and assessed the changes in Singapore’s coastal and marine environment. The Malacca Straits are rich in fisheries and other natural resources because of the discharge of many rivers from the surrounding land masses carrying abundant nutrients into the water body.

There are large areas of mangrove forests on both sides of the Malacca Straits – those on the Sumatran side are particularly extensive. There are about 110,000 ha of mangroves in Peninsular Malaysia, with 95 percent of these found along the west coast of the peninsula and on the Johor southern coast. There is, however, limited occurrence of coral reefs within the Straits – fringing reefs are found only along the stretch south of Port Dickson to Cape Rachado (see Wong, 1990). Much of the mangroves found around the islands of Singapore have been removed as a result of large-scale land reclamation on the main island and the enlargement and amalgamation of smaller islands. On Peninsular Malaysia, large-scale land reclamation has already begun in Malacca and there are plans to reclaim much more land for a variety of uses.

Fishing is a major occupation for a large proportion of the coastal population. Fish constitutes 65 percent of the animal protein requirement of the Malaysian population as a whole. Estimates for 1977 indicated some 79,000 full-time and 15,000 part-time fishermen for three of the Sumatran provinces, Aceh, North Sumatra, and Riau, along the Malacca Straits. Production was estimated at a total of 265,000 tonnes for the same year. In the case of the Malaysian coastal states along the Malacca Straits coast, there were for the year 1976, an estimated 48,000 fishermen – with production of fish and prawns totalling 338,000 tonnes. These figures are now 20 years old, but they are indicative of the importance of the fishing industry for these two littoral states. There are entire communities, such as in Pulau Ketam (Ketam Island), off the Port Dickson coast that are devoted to fishing.

Mangroves along the Straits nurture and protect rich fisheries, although heavy overfishing, siltation and coastal disturbances affecting the coastal waters have depleted both the demersal and pelagic fisheries (see Chia, 1984). Reports of surveys of demersal fisheries on the Malaysian Peninsula’s west coast have
been given by Chia (1984) and Ooi (1990), Lam, et al (1975), and Mohammed Shaari (1974, 1976a, and 1976b), while Ong, KS & Weber (1977) provide a report on the prawn resources in the same waters. From the review of the fisheries resources, Chia (1984) reported that the waters in the Malacca Straits have been heavily overfished, especially for the demersal species. The situation on the Sumatran side of the Straits is far better due to the lower fishing effort and the presence of extensive mangrove forests along the coast. In Singapore, due to massive land reclamation and disturbance of the coastal habitats, both the fisheries as well as the local fishing fleet have dwindled, although there is still a small local fishery.

Aquaculture has become an important marine industry for most of the Southeast Asian states. The practice is a very old one and prawn ponds are an activity imported from the Chinese. There are maricultures of several valuable commercial fish species as well as the farming of cockles, mussels and other shellfish and the fattening of crabs. Netcage culture of fish has replaced pond farming as the latter tends to decline in productivity over time. These farms are particularly susceptible to water pollution from oil spills, contamination by domestic and commercial sewage, toxic chemical pollution and use of pesticides and fertilisers from agricultural activities and industrial wastes. There have been many reports of deliberate dumping of toxic chemical wastes on islands and coastal areas in Peninsular Malaysia. The proliferation of golf courses along the coast also adds to the discharge of nutrients and herbicides into the coastal water and this may under certain circumstances give rise to algae bloom or “red tide”.

VIII. DEVELOPMENT OF MARINE TOURISM AND RECREATION

There are many excellent sites suitable for developing marine tourism and recreation along the Malacca Straits. Malaysia has a number of long established marine tourism resorts in Pulau Langkawi, Pulau Pangkor, Penang Island, and the stretch of coast from Port Dickson southward to Cape Rachado, as well as a section north of Malacca town. The islands along western Peninsular Malaysia, in particular, possess excellent potential for further development in marine and coastal tourism.

In Singapore, St John’s island has for long time been a quarantine centre, and is now a popular recreational facility for local residents of Singapore. Since the 1970s, Singapore has developed Sentosa Island as a tourism resort and it continues to be developed as such. There are also a number of sandy beaches along the eastern portion of the southern coast, on Sentosa Island and elsewhere. A number of small islands south of Sentosa have been earmarked for leisure development as well as for private seaside housing. It should be noted that in the 1990s, waterfront housing, to be built by both public authority and private enterprises, will be developed in the areas of Pasir Ris and Simpang, while private waterfront housing along the Kallang Basin, on several offshore islands
and elsewhere have made their appearance since the mid-1980s. Clearly, any pollution of the coastal waters will seriously affect the amenity of waterfront living.

IX. THREAT OF MARINE POLLUTION

The problems of marine pollution from ships and land-based sources have already been alluded to. There has been heightened environmental awareness in all three littoral states in recognising the importance of keeping the marine environment clean to safeguard fishing and aquaculture, for protection of public health, and for aesthetic and psychical reasons.

A. Danger of Oil Pollution from Ship Sources

Several notable oil spill incidents in the Malacca Straits are given in the following account. In 1967, the Tokyo Maru of over 150,000 dwt was reported to have scraped its bottom while passing through the Straits. In June 1971, two oil tankers, the 208,000 ton Arabian and the 212,000 ton Eugenie S Niarchos, both grounded in the narrow waters between St. John’s Island and the Riau islands (Sen Gupta, et al, 1974: 37). The grounding of the Japanese supertanker, Showa Maru, off Buffalo Rock in the Straits of Singapore in January 1975, spilled an estimated 3,400 tonnes of crude oil into the surrounding waters. This incident spurred the establishment of the Traffic Separation Scheme (TSS) in the Malacca Straits. In June 1975, the triple collision involving a freighter and two oil tankers, the Vystak and the Diego Selang, spilled 6,000 tonnes of crude oil into the waters off the southern mangrove-fringed coast of Malaysia in the Straits. The incident further hastened the adoption of the TSS in November 1975 (Chia, 1981). The more recent collision of the oil tanker Nagasaki Spirit with the container vessel Ocean Blessing in the northern entrance to the Malacca Straits spilled 13,000 tons of crude oil into the sea and 40 lives were lost. Cleanup operations on Pulau Langkawi yielded 1,380 tons of oil-contaminated debris.

In August 1996, there were reports of thick black oil washed up on the beaches of Sentosa Island that came from an oil tanker anchored outside Singapore’s port limits. Weekend activities on the Island’s beaches were curtailed. The oil spill also adversely affected food and beverage outlets and other businesses – it was feared that the oil would damage the marine environment in the vicinity. A collision between a bulk carrier, Herceg Novi, and a container ship, Ming Galaxy, southwest of Raffles Lighthouse resulted in the sinking of the former. Fortunately, little oil pollution resulted from the accident. These incidents are but some reported in the news which have become a persistent problem, rendering it difficult to maintain a clean and healthy marine environment along parts of the coast of the Malacca Straits and thereby diminishing the value and importance of the tourist and recreational amenities.

A major problem highlighted by the Malaysian environmental authorities
over the past year has been the illegal dumping of sludge by ships in Malaysian waters. A recent case involved the dumping of drums of potassium cyanide on Pangkor Island that seeped into the sea and killed some fish. The Malaysian Government has been vigorously taking action against such polluters. The Government reported 40 cases of illegal ship discharge in both the Malacca Straits and the South China Sea during the first ten months of 1995. The Ministry of Science, Technology and Environment was reported to be seeking the Cabinet’s approval to amend the Environment Quality Act 1974 to raise the maximum fine from RM25,000 to RM500,000 and to increase the jail sentence from two to five years. Malaysia reportedly intends to forward a proposal at the ASEAN Senior Officials on the Environment (ASOEN) Meeting scheduled for early 1996 on common standard operating procedures (SOPs) amongst ASEAN countries against illegal ship discharge and desludging. Malaysia had earlier signed Memoranda of Agreement with Brunei, Indonesia and the Philippines to adopt SOPs to combat oil spills. Also, Malaysia is supporting a Oil Companies International Marine Forum (OCIMF) proposal to extend the TSS to cover the entire length of the Malacca Straits.

Singapore has been quietly going about controlling the problem of ship-source oil pollution. Singapore Cleanseas Pte Ltd, on Pulau Sebarok, operates the only sludge reception and treatment plant in the region. The Port of Singapore Authority (PSA) operates a sophisticated ship monitoring system in its port waters and has developed models to predict the movement of oil spilled in the water. The Maritime and Port Authority (MPA) also vigorously carries out ship inspections in compliance with the country’s legislation and as part of the agreement made under the Asia Pacific MOU on Port State Control which was signed in April 1994 by all the three littoral states (see Chia, 1995b).

Less information is available on Indonesia’s activities along the western part of the Malacca Straits. However, with a major oil port in Dumai, Pertamina, the state oil company, has been active in implementing an oil spill contingency plan as part of the national oil spill response scheme (see Soentoro, 1994).

B. Land-based Sources of Pollution

The problem of land-based sources of pollution of the coastal and marine environment has been reported by Koe and Aziz (1995). They discussed the serious problem caused by industrial and commercial wastes, solid wastes and domestic sewage being discharged untreated into the coastal waters. The level of domestic sewage pollution is high in the Malacca Straits. The problem is fairly general and is due to inadequate provision of sewage treatment facilities and the practice of direct discharge of untreated sewage into rivers and the sea. Dumping of municipal solid wastes has also become a serious problem. The use of these wastes for land reclamation in coastal areas may lead to the leaching of heavy metals and the discarding of plastics into the marine en-
There is also a problem with the disposal of organic wastes from livestock farming. Some 10-25 percent of the agricultural organic waste load in the coastal waters comes from livestock effluent. The widespread use of synthetic fertilisers and pesticides for agriculture has added to the problem.

A Malaysian Department of Environment (DOE) report revealed that Malaysian coastal waters are contaminated with oil and grease, faecal coliform and suspended solids. High levels of oil and grease were found along the coasts of Negri Sembilan, Selangor and Melaka. Substantial faecal coliform levels were found in the coastal waters of Pulau Pinang and Perak located along the Malacca Straits and in the waters of the state of Johor along the southern part of the Malacca Straits and along the Johor coast. Several beaches in Pulau Pinang and Pahang were seriously affected as were a number of river estuaries along the west coast of Peninsular Malaysia. The level of heavy metals found in the marine waters along the coasts of Pulau Pinang, Perak, Kedah and Johor exceeded the permissible standards. Finally, a number of beaches in Johor, Perak and Selangor were found to be seriously affected with tar balls. These problems identified in the DOE report clearly present serious implications for marine recreation as well as for health, the latter through the ingestion of marine food, which is now being increasingly produced. The DOE report also proposed, for each ASEAN nation, a programme entailing monitoring, surveillance, preventive measures, education and training to control land-based sources of pollution.

**X. INTERESTS OF LITTORAL STATES**

While all three littoral states are vitally interested in the Malacca Straits, there are differences in the perceptions and positions taken by each state. Both Indonesia and Malaysia adamantly assert sovereign rights over their territorial waters and tend toward favouring control of navigation in the Straits. Singapore has equally strong interests in maintaining her sovereign rights over her territorial waters but is even more concerned with keeping the waterway free for international navigation.

Indonesia declared, in December 1957, the archipelagic principle claiming as internal waters all of the waters within straight lines drawn between adjacent pairs of outermost islands and 12 nautical miles outwards of these lines. This principle was recognised by the UN Law of the Sea Convention (UNCLOS). Indonesia holds forth the concept of “Nusantara”, which maintains that the interstitial waters among the islands are an integral part of its territory vital to the unity and stability of the archipelagic state. Hence, the Malacca Straits, together with all the other channels of water leading into the archipelagic waters of Indonesia, are vital to the security and sovereignty of the state.
Indonesia has been a major producer of raw materials including timber, rubber, tea, sugar, palm oil, crude oil and natural gas, tin and other minerals, which depend on ships to carry them to foreign markets. More than 70 percent of her oil production comes from offshore wells and the nation depends on ships and oil tankers to transport her commodities within the state as well as outside the state for external trade. It is, therefore, not surprising that Indonesia has built up a sizeable merchant fleet, including oil tankers, to serve both domestic and international trade. Indonesians have in recent decades become an important source of maritime manpower for international, largely European-owned, shipping. Indonesia has also allowed, based upon negotiation, foreign fishing vessels to fish in her waters on a profit-sharing basis. The country has a prestigious and well-established marine science institution, the Lembaga Oceanologi Nasional (LON), which has undertaken many scientific research surveys of her waters. She is in every sense of the word a maritime state. The long-term strategy is to reduce the importance of the Malacca Straits by diverting sea traffic to her other channels such as the Sunda and the Lombok-Makassar.

Malaysia has yet to become a signatory of the Law of the Sea Convention (UNCLOS) but has every intention of doing so. The fact that the two parts of the country, namely, Peninsular and East Malaysia, are physically separated by the South China Sea, emphasises her maritime interests. The strategic importance of the Straits of Malacca to the country can be gauged from the fact that more than half of the vessels and ships belonging to the Royal Malaysian Navy are deployed in the Straits of Malacca. The naval base at Lumut is located to guard the northern entrance to the Straits (Hamzah, 1988, 1993). Raja Malik (1993) has highlighted issues of concern relating to the Straits, including the safety of navigation. The Straits run along the entire western flank of Peninsular Malaysia, and, although a number of east-west roads and rail links have been constructed across its mountain ranges, which run along the length of the Peninsula, movement for seaborne cargo between the eastern and western coasts of Peninsular Malaysia continues to be important.

Malaysia’s rich maritime and coastal resources, which include significant reserves of largely offshore hydrocarbons, reinforce the marine interest of the country. Malaysia declared the 200 nm Exclusive Economic Zone (EEZ) in 1984. In doing so, she has overlapping claims with other countries in the region over the Spratlys and elsewhere, and these waters are a “likely theatre of conflict” (Hamzah, 1988: 5). It was no surprise that Malaysia decided to establish the Malaysian Institute of Maritime Affairs (MIMA) which reports directly to the Prime Minister, to monitor and promote her legitimate maritime interests. It is against this background that the country places the highest priority in the management of her portion of the Malacca Straits and co-operates with her two neighbours in maintaining the proper use of the Straits. To demonstrate the country’s commitment to controlling marine pollution, Malaysia acceded to the MARPOL Convention in early 1997.
The commanding position of Singapore at the southern end of the Malacca Straits makes her the best-located transhipment centre for the entire region. The nation’s economic success can be attributed to her strategic location at the southern gateway of the Straits (Wong, 1978). Building on this advantage, Singapore has developed superb infrastructure in the form of a magnificent seaport to support the nation’s trade, which measures well over three times the value of her Gross Domestic Product (GDP). The advantage is largely based on employing very large crude oil tankers, a product of the closure of the Suez Canal from 1967 to 1976 due to the Arab-Israeli conflict when ships from Europe had to travel long distances around the Cape of Good Hope. The low costs of transporting crude oil, proximity to a growing market, and the country’s logistically superior position attracted major international oil companies to set up oil refineries here. Singapore became a pre-eminent centre for the trade of oil and related products. The products themselves spawned other downstream activities, such as the manufacture of petrochemicals. Recognising the fact that there were large numbers of ships passing by and anchoring within the port waters, economic planners in the early 1960s went about to attract investments in shipbuilding and ship repairing. Today, Singapore is amongst the largest centres for marine industry in the world. The industry supports more than 26,000 jobs and contributes S$3 billion a year to the economy. As much as the Straits of Malacca is the life-line for the Japanese arising from their importance in supplying vital oil to fuel Japan’s vast industrial machinery, the Straits are even more so the life-line of Singapore, as the Prime Minister of Singapore, Goh Chok Tong, has put it.

In addition to the above maritime interests of Singapore, the country has built up a very large merchant shipping fleet. Also, Singapore has, over the last decade, developed a large cruise terminal and the number of passenger ships calling at the terminal has increased greatly. The port of Singapore is regarded as an excellent choice as the hub for passenger shipping in the Southeast Asian waters – these waters offer great potential for leisure cruises. All of these interests can be sustained only if the Malacca Straits is kept free for navigation.

XI. CONCLUSION

The importance of the Straits of Malacca and Singapore has been considered through an examination of the strategic and economic aspects of the Straits; the latter in terms of the navigational, marine resource, and tourism and recreational value. There is conflict among the various uses, especially between navigational and marine resource uses on the one hand, and recreational and tourism uses on the other. Shipping traffic has risen by some 150 percent for the period 1982 to 1993 and this will continue to rise in the foreseeable future. There is also greater utilisation of the marine resources within the Straits. Hence, the pressure on marine and coastal resources will increase and conflicts will
be further intensified. The conflict can in part be resolved if shipping mishaps and oil spill incidents can be prevented or brought to a minimum. The damage that can be created by a major oil spill is only too obvious and every effort must be made to forestall this by all concerned. The Traffic Separation Scheme has helped to prevent serious oil spill incidents from the time of its inception. However, the Nagasaki Spirit incident has brought fresh urgency and renewed efforts to find even more effective measures to prevent similar occurrences from happening and has highlighted the need for closer co-operation among the three littoral states.

The strategic importance of the Malacca Straits, as shown earlier, has prompted the Japanese Government to set up the government-supported but privately-operated Malacca Strait Council in 1968 and to contribute very considerable sums of money to help in conducting hydrographic surveys in the Straits, in installing navigational aids, and in setting up a Revolving Fund to help pay for any claims for environmental damage and for costs of cleaning up oil spills in the Straits. The Petroleum Association of Japan (PAJ) has also donated oil spill combat equipment worth US$10 million to each of the ASEAN countries bordering the Straits (see Malacca Strait Council, 1978; Chia and Sakumoto, 1993; Chia, 1995b; Ono, 1995). However, thus far, Japan remains the only donor country to commit funds to maintain the safety of navigation in the Malacca Straits and to minimise the possibility of oil spills from ships. There have been suggestions that other user states should similarly make appropriate contributions toward, say, the Revolving Fund (Teh, 1994). The balance of interests between the littoral states on the one hand and user states on the other needs to be re-evaluated in the light of the states’ responsibilities and liabilities.

The ball-park figure is that 30 percent of oil pollutants entering the marine environment is derived from ship-sources, with the remaining 70 percent deriving from land-based sources. Even if this ratio is not exactly right, it strongly suggests that much greater attention should be focused on controlling the latter. Nevertheless, the problem of spilled oil in the marine environment must be tackled with vigour to further minimise the occurrence of mishaps that may result in damage to the environment. The spectre of a major oil spill must continue to worry marine authorities in all three coastal states. Oil spill contingency and response plans, however effective, must not detract authorities from the need to continue to find ways and means to remove the possibility of major oil spills. The value and importance of the Straits as a conduit for seaborne cargo, as a producer of food, as a source of recreational and tourism development as well as an outlet for aesthetic and physical satisfaction, would be diminished if the damage to the marine and coastal environment is not controlled, whether such damage comes from ship or land sources or by natural processes.

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