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Balancing shipping and the protection of the marine environment of straits used for international navigation: a study of the straits of Malacca and Singapore

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**Balancing Shipping and the Protection of the Marine Environment of Straits Used for
International Navigation: A Study of the Straits of Malacca and Singapore.**

A thesis submitted in fulfilment of the requirements
for the award of the degree

DOCTOR OF PHILOSOPHY
from the
UNIVERSITY OF WOLLONGONG

By

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Australian National Centre for Ocean Resources and Security
2012

CERTIFICATION

I, Mohd Hazmi bin Mohd Rusli, declare this thesis, submitted in fulfillment of the requirements for the award of Doctor of Philosophy, in the Australian National Centre for Ocean Resources and Security, University of Wollongong, is wholly my own work unless otherwise referenced or acknowledged. This document has not been submitted for qualifications at any other academic institution.

Mohd Hazmi bin Mohd Rusli
14 February 2012

ABSTRACT

The importance of the Straits of Malacca and Singapore for the global shipping industry and world trade can't be underestimated. In 2010, these routes were navigated by more than 74,000 vessels of various types. If the Straits were to be closed to navigation, global trade would be adversely affected, thus, injuring the world's economy. Issues relating to the marine environment of these Straits have always been contentious. The littoral States may enforce marine environmental protection measures to protect the straits under the United Nations Convention on the Law of the Sea 1982 (LOSC), but their powers are limited by the application of internationally accepted regulations. The national laws of the littoral States governing safety of navigation and control of vessel-source pollution must correspond to the LOSC and other International Maritime Organization (IMO) conventions that the littoral States have ratified. This situation makes it difficult for them to effectively manage the marine environment of these shipping routes. Issues relating to vessel-source marine pollution are endemic in the Straits of Malacca and Singapore and with the projected increase of shipping traffic in future years, current protective measures may not be entirely sufficient to safeguard the marine environment of these waterways. This Thesis examines the potential environmental protective measures that the littoral States may, either collectively or individually, adopt in the future. Current and future alternative routes to the Straits of Malacca and Singapore for shipping traffic to use are also identified. The Straits of Malacca and Singapore are collectively a priceless maritime heritage and steps must be taken to ensure the marine environment of these waterways is protected from pollution and degradation.

GLOSSARY

1958 TSC	Geneva Convention on the Territorial Sea and the Contiguous Zone 1958
AD	Anno Domini
AFS	International Convention on the Control of Harmful Anti-Fouling Systems on Ships
AIS	Automatic Identification System
ALKI	Alur Laut Kepulauan Indonesia
AMSA	Australian Maritime Safety Committee
AMSA	Arctic Marine Shipping Assessment
APM	Associated Protective Measure
ASEAN	Association of Southeast Asian Nations
BAKOSURTANAL	Badan Kordinasi Survei dan Pemetaan Nasional
BBC	British Broadcasting Corporation
bpd	Barrels per day
BTA	Border Trade Agreement
BWM	International Convention for the Control and Management of Ship's Ballast Water and Sediments, 2004
CBTA	Cross Border Trade Agreement
CLC	International Convention on Civil Liability for Oil Pollution Damage
COLREG	Convention on the International Regulations for Preventing Collisions At Sea
CSR	Corporate Social Responsibility
DNV	Det Norske Veritas
DWT	Dead Weight Tonne
ECDIS	Electronic Chart Display and Information System
EEZ	Exclusive Economic Zone
EIS	Eyes in the Sky
ENC	Electronic Navigational Charts
EU	European Union
EC	European Commission

GDP	Gross Domestic Product
GEF	Global Environment Facility
ICJ	International Court of Justice
ICS	International Chamber of Shipping
IHO	International Hydrographic Organization
IMB	International Maritime Bureau
IMCO	International Maritime Consultative Committee
IMO	International Maritime Organization
IMS-GT	Indonesia Malaysia Singapore- Growth Triangle
ILC	International Law Commission
IMB	International Maritime Bureau
INTERTANKO	International Association of Independent Tanker Owners
ITOPF	International Tanker Owners Pollution Federation Limited
JTA	Joint Technical Agreement
JWC	Joint War Committee
LNG	Liquefied Natural Gas
LOSC	Law of the Sea Convention 1982
MARISEC	Maritime International Secretariat Services Limited
NAP	Northeast Arctic Passage
NMC	Nippon Maritime Centre
NSR	Northern Sea Route
MARPOL 73	International Conference on Marine Pollution, 1973
MARPOL 73/78	International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978
MALSINDO	Trilateral Coordinated Patrols of the Malacca Strait
MEH	Marine Electronic Highway
MENAS	Middle East Navigation Aids Service
MEPC	Marine Environment Protection Committee
MIMA	Maritime Institute of Malaysia
MMEA	Malaysian Maritime Enforcement Agency
MOH	Marine Operations Headquarters

MOU	Memorandum of Understanding
MPA	Maritime and Port Authority of Singapore
MSC	Malacca Straits Council
MSC	Maritime Safety Committee of the IMO
OCIMF	Oil Companies International Marine Forum
OILPOL	Oil Pollution Convention of 1954
OPRC	International Convention on Oil Pollution Preparedness, Response and Co-operation
PAJ	Petroleum Association of Japan
PAME	Protection of the Arctic Marine Environment
PCC	Project Co-ordination Committee of the Straits of Malacca and Singapore Cooperative Mechanism
PERTAMINA	Perusahaan Tambang Minyak Negara
PETRONAS	Petroleum Nasional Berhad
PMP	Plan Maintenance Programme
PNG	Papua New Guinea
PSSA	Particularly Sensitive Sea Area
RAMSAR	Ramsar Convention (The Convention on Wetlands of International Importance)
RECAAP	Regional Cooperation Agreement on Combating Piracy and Armed Robbery against Ships in Asia
RM	Malaysian Ringgit
Rp	Indonesian Rupiah
RSIS	Rajaratnam School of International Studies
RTisa	Roundtable of International Shipping Association
SOLAS	International Convention for the Safety of Life at Sea 1974
SOMP	Straits of Malacca Partners Sdn. Bhd.
SSCP	Sethusamudram Shipping Canal Project
STCW	International Convention on Standards of Training Certification and Watchkeeping for Seafarers, 1978

STCW 1995	Amendments to the Annex to the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978
SUMED	Suez-Mediterranean Pipeline
SMTC	Straits of Malacca Transit Corridor
STRAITREP	Straits of Malacca and Singapore Mandatory Ship Reporting System
TEU	Twenty-Foot Equivalent Unit
TPP	Transpeninsula Pipeline Project
TSS	Traffic Separation Scheme
TTEG	Tripartite Technical Experts Group on the Safety of Navigation in the Straits of Malacca and Singapore
UAE	United Arab Emirates
UK	United Kingdom
UN	United Nations
UNCLOS I	The First United Nations Conference on the Law of the Sea
UNCLOS II	The Second United Nations Conference on the Law of the Sea
UNCLOS III	The Third United Nations Conference on the Law of the Sea
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNWTO	United Nations World Tourist Organisation
VLCC	Very Large Crude Carrier
ULCC	Ultra Large Crude Carrier
US	United States of America
US\$	American Dollar
USSR	Union of Soviet Socialist Republic
VTs	Vessel Traffic Services
WWF	World Wildlife Fund.

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TABLE OF CONTENTS

CERTIFICATION	I
ABSTRACT.....	II
GLOSSARY	III
ACKNOWLEDGEMENTS.....	VII
TABLE OF CONTENTS.....	VIII
LIST OF TABLES.....	XII
LIST OF MAPS	XIV
LIST OF FIGURES	XVI
CHAPTER 1. INTRODUCTION	1
1.1 BACKGROUND	1
1.2 OBJECTIVES OF THE RESEARCH.....	3
1.3 RESEARCH METHODOLOGY	3
1.4 SIGNIFICANCE OF THE THESIS	4
1.5 THESIS STRUCTURE.....	6
1.6 CONCLUSION.....	8
CHAPTER 2. PRICELESS MARITIME HERITAGE	10
2.1 INTRODUCTION	10
2.2 A HISTORICAL INTRODUCTION	10
2.2.1 Strait of Malacca Region in the Pre-Colonial Period.....	12
2.2.2 Strait of Malacca Region in the Colonial Age	16
2.3 MARITIME BOUNDARY ISSUES.....	23
2.4 DEMOGRAPHIC CHARACTERISTICS	30
2.5 ECONOMIC SIGNIFICANCE OF THE STRAITS OF MALACCA AND SINGAPORE	32
2.5.1 The Fishing Industry.....	32
2.5.2 Coastal Environment and Eco-tourism Industry.....	36
2.5.3 Oil and Gas Mining.....	41
2.5.4 Shipping in the Straits of Malacca and Singapore	42
2.6 CONCLUSION.....	48
CHAPTER 3. THE LEGAL STATUS OF STRAITS USED FOR INTERNATIONAL NAVIGATION	50
3.1 INTRODUCTION	50
3.2 FREEDOM OF THE SEAS VIS-À-VIS CLOSED SEAS	50
3.3 STRAITS USED FOR INTERNATIONAL NAVIGATION	55
3.3.1 The Development towards Creating a Legal Definition of a Strait	55
3.3.1.1 The Period before UNCLOS I	56
3.3.1.1.1 The 1930 Hague Conference	59
3.3.1.1.2 The Corfu Channel Case.....	60

3.3.1.1.3	The International Law Commission.....	63
3.3.1.2	The Legal Status of Straits under UNCLOS I and UNCLOS II	65
3.3.1.3	The Issue of Straits in UNCLOS III	69
3.3.1.4	Transit Passage and Customary International Law.....	75
3.4	CONCLUSION.....	78
CHAPTER 4. NAVIGATIONAL REGIMES THROUGH STRAITS USED FOR INTERNATIONAL NAVIGATION.....		80
4.1	INTRODUCTION	80
4.2	TYPES OF NAVIGATIONAL RIGHTS.....	80
4.2.1	Innocent Passage and Non-Suspendable Innocent Passage	81
4.2.2	Transit Passage.....	84
4.3	CATEGORIES OF STRAITS UNDER THE LOSC.....	88
4.3.1	Straits Used for International Navigation Where Transit Passage Applies	88
4.3.2	Straits Used for International Navigation Where Transit Passage Does Not Apply	89
4.4	CONCLUSION.....	100
CHAPTER 5. MARINE POLLUTION ISSUES IN THE STRAITS OF MALACCA AND SINGAPORE		102
5.1	INTRODUCTION	102
5.2	TYPES OF POLLUTION IN THE STRAITS OF MALACCA AND SINGAPORE	102
5.2.1	Land-Based Sources of Pollution.....	103
5.2.1.1	Land-based Source of Pollution in Malaysia’s Strait of Malacca States	104
5.2.1.2	Land-based Sources of Pollution in Indonesia’s Strait of Malacca Provinces.....	109
5.2.1.3	Land-based Source of Pollution in Singapore	112
5.2.2	Vessel-Source Pollution.....	115
5.2.2.1	Navigational Hazards in the Straits of Malacca and Singapore.....	118
5.2.2.1.1	The Cross Traffic or Coastal Traffic in the Straits of Malacca and Singapore	122
5.2.2.1.2	The Threats of Piracy and Sea Robbery on the Safety of Navigation in the Straits of Malacca and Singapore	126
5.2.2.1.3	The Proposed Strait of Malacca Bridge	130
5.2.2.2	Effects of Vessel-Source Marine Pollution.....	134
5.3	CONCLUSION.....	141
CHAPTER 6. THE INTERNATIONAL LEGAL FRAMEWORK.....		143
6.1	INTRODUCTION	143
6.2	A BRIEF HISTORICAL DEVELOPMENT.....	143
6.3	PART XII OF THE LOSC	148
6.3.1	Port State Jurisdiction	150
6.3.2	Coastal State Jurisdiction.....	154
6.3.3	Flag State Jurisdiction.....	155
6.3.4	IMO Conventions on Control of Vessel-Source Marine Pollution.....	159
6.3.4.1	The International Convention for the Prevention of Pollution from Ships 1973, as Modified by the Protocol of 1978 Relating Thereto (MARPOL 73/78)	160

6.3.4.2	The International Convention on the Control of Harmful Anti-fouling Systems on Ships 2001.....	163
6.3.4.3	The International Convention for the Control and Management of Ships' Ballast Water and Sediments 2004.....	163
6.3.5	IMO Conventions on the Safety of Navigation	164
6.3.6	Article 233 of the LOSC	166
6.3.6.1	The Legal Effect of Article 233 of the LOSC on the Transit Passage Regime	167
6.3.6.2	Interpretation of Article 233	168
6.3.6.2.1	The Application of Article 233 in State Practices	176
6.3.6.2.2	Defining 'Major Damage'.....	178
6.4	THE INCORPORATION OF INTERNATIONAL REGULATIONS INTO DOMESTIC APPLICATIONS	181
6.5	CONCLUSION.....	185
CHAPTER 7. INTERNATIONAL AND REGIONAL CO-OPERATION FRAMEWORKS..		187
7.1	INTRODUCTION	187
7.2	ARTICLE 43 OF THE LOSC	188
7.3	CO-OPERATION MECHANISMS.....	191
7.3.1	Efforts to Ensure Safe Navigation in the Straits of Malacca and Singapore	192
7.3.2	Towards the Creation of a Co-operative Mechanism	197
7.3.2.1	The Co-operative Mechanism.....	201
7.3.2.1.1	The Co-operation Forum.....	202
7.3.2.1.2	The Project Co-ordination Committee.....	204
7.3.2.1.3	The Aids to Navigation Fund.....	208
7.3.3	Developments after the Jakarta, Kuala Lumpur and Singapore Meetings.....	213
7.3.4	The Co-operative Mechanism at the Regional Level	216
7.4	CONCLUSION.....	221
CHAPTER 8. POTENTIAL FUTURE IMO MEASURES ON SAFETY OF NAVIGATION AND THE CONTROL OF VESSEL-SOURCE POLLUTION.....		222
8.1	INTRODUCTION	222
8.2	'SPECIAL AREAS' UNDER MARPOL 73/78.....	224
8.3	PARTICULARLY SENSITIVE SEA AREAS.....	236
8.3.1	The Proposed Straits of Malacca and Singapore PSSA.....	237
8.3.2	Associated Protective Measures	241
8.3.2.1	The Proposed Traffic Limitations on the Straits of Malacca and Singapore..	242
8.3.2.2	The Proposed Cost-Recovery Mechanism in the Straits of Malacca and Singapore	249
8.3.2.3	Proposed Compulsory Pilotage in the Straits of Malacca and Singapore.....	256
8.3.2.3.1	The Application of Compulsory Pilotage in the Torres Strait	256
8.3.2.3.2	Possible Legal and Political Implications	260
8.3.2.3.3	Possible Rebuttals by the Littoral States.....	269
8.3.3	Ship Routeing Measures Outside The PSSA	271
8.4.	CONCLUSION.....	272

CHAPTER 9. POTENTIAL FUTURE UNILATERAL MEASURES ON SAFETY OF NAVIGATION AND THE CONTROL OF VESSEL-SOURCE POLLUTION.....	274
9.1 INTRODUCTION	274
9.2 POSSIBLE UNILATERAL MEASURES BY LITTORAL STATES.....	274
9.2.1 The Application of Non-Suspendable Innocent Passage in the Strait of Malacca .	274
9.2.1.1 Political and Legal Implications	279
9.2.2 The Reversion of Territorial Sea Claims in the Strait of Malacca.....	292
9.2.2.1 The Korea Strait.....	293
9.2.2.2 The Territorial Claims of Japan and South Korea in the Korea Strait.....	296
9.2.2.3 Political and Legal Implications	301
9.3 CONCLUSION.....	311
CHAPTER 10. ALTERNATIVE ROUTES TO THE STRAITS OF MALACCA AND SINGAPORE	313
10.1 INTRODUCTION	313
10.2 ROUTES THROUGH THE INDONESIAN ARCHIPELAGO.....	313
10.3 THE NORTHEAST ARCTIC PASSAGE	320
10.3.1 The NAP Versus the Straits of Malacca and Singapore	328
10.3.2 The Future of the NAP.....	330
10.4 THE THAI CANAL PLAN.....	332
10.5 THE TRANS PENINSULAR PIPELINE PROJECT	340
10.6 CONCLUSION.....	350
CHAPTER 11. CONCLUSION	352
11.1 INTRODUCTION	352
11.2 NAVIGATIONAL REGIMES IN THE STRAITS OF MALACCA AND SINGAPORE	352
11.3 POLLUTION ISSUES	353
11.4 THE INTERNATIONAL LEGAL FRAMEWORK.....	354
11.5 THE CO-OPERATION MECHANISM	355
11.6 POTENTIAL FUTURE MEASURES UNDER THE IMO MECHANISM	356
11.7 POTENTIAL UNILATERAL MEASURES	360
11.8 CONCLUSION.....	362
BIBLIOGRAPHY.....	364

LIST OF TABLES

Table 2-1: Summary of Maritime Boundary Agreements on the Straits of Malacca and Singapore	28
Table 2-2: Population of Indonesian Provinces along the Straits of Malacca and Singapore	31
Table 2-3: Number of Fish Landings in Malaysian States Bordering the Strait of Malacca in 2009	34
Table 2-4: Number of Fish Catch in the Strait of Malacca Provinces of Sumatra in 2009	35
Table 2-5: Traffic Scenario in the Strait of Malacca	44
Table 2-6: Top 10 Transits by Owner Nationality (2007)	44
Table 2-7: Top 10 Transits by Flag (2007).....	45
Table 2-8: Top 10 Eastbound Commodities by Volume (2007).....	45
Table 2-9: Top 10 Westbound Commodities by Value (2007).....	46
Table 2-10: World’s Busiest Ports 2009	47
Table 5-1: Municipal Solid Waste Generation in Malaysian Urban Centres (1990–2006).....	106
Table 5-2: Methods of Waste Disposal in Malaysia	107
Table 5-3: Waste generated and collected in major Indonesian cities in 2006.....	111
Table 5-4: List of the Largest Spills in Maritime History	117
Table 5-5: Approximate Numbers of Barter Traffic Vessels in the Strait of Malacca, 2004–2009.....	123
Table 5-6: Piracy/ Sea Robbery in the Straits of Malacca and Singapore: Actual and Attempted Attacks	129
Table 5-7: Casualty Breakdown in the Straits of Malacca and Singapore (2000–2010).....	135
Table 5-8: Selected Oil and Chemical Spill Incidents	135
Table 6-1: Grouped Flag State Rankings based on Regulatory Capacity.....	158
Table 6-2: Maritime-Related Conventions Ratified by Malaysia, Singapore and Indonesia	183
Table 7-1: Principal Activities Performed by the MSC	193
Table 7-2: The Status of the Six Projects under the Co-operative Mechanism in the Straits of Malacca and Singapore	205
Table 7-3: PMP on the Operations and Maintenance of Aids to Navigation: 10 Year Budget Estimation	210
Table 7-4: Total Contributions to the Aids to Navigation Fund (2008–2011)	212
Table 7-5: Contributions versus Annual Cost of Maintenance of Aid to Navigation Facilities.	213
Table 8-1: The Differences between the Permissible Discharge of Oil by Oil Tankers in Special Areas and Non-Special Areas	227

Table 8-2: VLCC Operating Costs based on a vessel with a capital cost of US \$68 million and a life of 25 years	268
Table 10-1: Indonesian Archipelagic Sea Lanes	314
Table 10-2: Brief Description of Important Sea Lines of Communications in South East Asia	319
Table 10-3: Average Shipping Traffic in Sea Areas within the NAP in 2004	323
Table 10-4: The Length of a Voyage to Rotterdam from Different Ports by the Routes of Malacca–Singapore and the NAP	327

LIST OF MAPS

Map 2-1: Map of the Straits of Malacca and Singapore	11
Map 2-2: The Malacca Sultanate Empire in the Fifteenth Century	15
Map 2-3: The Effect of Anglo-Dutch Treaty of 1824.....	20
Map 2-4: The Potential EEZ Boundary Lines in the Strait of Malacca.....	27
Map 2-5: Areas along the Strait of Malacca with High Cultural, Economic and Historical Importance	39
Map 4-1: The projected beginning/terminating points of transit passage on the Malaysian side of the Strait of Malacca measured from Malaysia's implied normal baseline.....	95
Map 4-2: The projected beginning/terminating points of transit passage on the Malaysian side of the Strait of Malacca measured from Malaysia's proposed straight baselines.	95
Map 4-3: The SSCP Route.....	99
Map 4-4: Melaka and Dumai are two important regional ports along the Strait of Malacca	100
Map 5-1: Critical areas for navigation in the Straits of Malacca and Singapore	120
Map 5-2: Cross Traffic Movements in the Straits of Malacca and Singapore.....	124
Map 5-3: The Proposed Strait of Malacca Bridge Project.....	131
Map 8-1: Compulsory Pilotage Area of the Torres Strait.....	257
Map 9-1: The Straits of Malacca and Singapore	276
Map 9-2: Limits of the Strait of Malacca.....	277
Map 9-3: Limits of the Strait of Singapore.....	277
Map 9-4: The Strait of Malacca Treated Separately from the Strait of Singapore	279
Map 9-5: Strait of Tiran	290
Map 9-6: Strait of Georgia.....	291
Map 9-7: The Korea Strait and its Tributary Channels.....	294
Map 9-8: The Japan-Korea Joint Development Zone in the Korea Strait	296
Map 9-9: The South Korean and Japanese Territorial Sea Claims in the Korea Strait	299
Map 9-10: The Proposed Reversion of Territorial Sea Claims in the Strait of Malacca	302
Map 9-11: The Effect of the Reversion of Territorial Sea Claims	303
Map 9-12: The Malaysia-Indonesia Territorial Sea and EEZ Boundary Demarcation Line in the Strait of Malacca.....	304
Map 9-13: The Adoption of Both Three Nautical Mile and Twelve Nautical Mile Territorial Sea Claims in the Strait of Malacca.....	305
Map 10-1: Illustration of the Designated ALKIs within Indonesian Archipelagic Waters	314

Map 10-2: The Seas within the NAP	321
Map 10-3: Routes via the Suez–Malacca and NAP (Aden-Yokohama).....	331
Map 10-4: Route through the Straits of Malacca and Singapore versus the Thai Canal	337
Map 10-5: Illustration of the Transpeninsula Pipeline Project	341

LIST OF FIGURES

Figure 8-1: The concept of safe distance and separation	248
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CHAPTER 1. INTRODUCTION

1.1 BACKGROUND

The Straits of Malacca and Singapore are two of the most important shipping lanes in the world.¹ These straits were significant in the past as a maritime connector between the two great Asian civilisations at that time, namely India and China, and gave rise to many port-kingdoms in Southeast Asia. The Straits of Malacca and Singapore serve as the shortest route connecting East Asia and the West, facilitating global international trade.² Consequently, these waterways are the preferred sea lines of communication and this is justified by the fact that they were traversed by more than 74,000 vessels in 2010.³ If current trends continue, it is predicted that by 2020 the Straits will be navigated by approximately 150,000 vessels annually; double the current transit rate.⁴

Oil spills are typical with shipping activities, either through operational or accidental discharges, particularly in constricted and congested shipping routes like the Straits of Malacca and Singapore.⁵ Due to heavy shipping activities and the associated marine pollution, it has been estimated that coral reef development in the Strait of Malacca is amongst the lowest in this region.⁶ The mangrove ecosystem along the Strait of Malacca, especially in the south-western corner of the Malaysian state of Johor, is being threatened by constant soil erosion as a result of

¹ Mary George, *Legal Regime of the Straits of Malacca and Singapore* (LexisNexis, 2008), 16-17; See Map 2-1 of Chapter 2 of this Thesis.

² Mat Taib Yasin, 'Security of Sea Lanes of Communication (SLOCS) through the Straits of Malacca: The Need to Secure the Northern Approaches' in Dennis Rumley, Sanjay Chaturvedi and Mat Taib Yasin (eds), *The Security of Sea Lanes of Communication in the Indian Ocean Region* (Maritime Institute of Malaysia, 2007), 225.

³ H.M. Ibrahim and Mansoureh Sh, 'Analysis of Carrying Capacity and Critical Governance Strategies for the Straits of Malacca' (Paper presented at the 6th MIMA International Conference on the Straits of Malacca "Chartering the Future", Kuala Lumpur, Malaysia, 2009), 5.

⁴ Robert Beckman, 'The Establishment of Cooperative Mechanism for the Straits of Malacca and Singapore under Article 43 of the United Nations Convention on the Law of the Sea' in Aldo Chircop, Ted L. McDorman and Susan J. Rolston (eds), *The Future of Ocean Regime-Building-Essays in Tribute to Douglas M. Johnston* (Martinus Nijhoff, 2009), 234-235.

⁵ Mohd Nizam Basiron, 'Anatomy of an Oil Spill' (2010) 17(3) *MIMA Bulletin*, 39.

⁶ Mohd Hazmi bin Mohd Rusli, 'Attempts to Seek Alternative Routes to the Straits of Malacca and Singapore' (2010) 1(1) *Journal of Maritime Geopolitics and Culture*, 1-2.

the increasing density of ships plying this waterway.⁷ Besides oil spills, shipping activities discharge other types of harmful and noxious wastes such as marine debris, sewage, hazardous and noxious substances and greenhouse gases that are sources of atmospheric pollution.⁸ This is further aggravated by the fact that the littoral States' powers to impose environmental protection measures in these waterways are limited to the application of accepted international regulations as enumerated in Part III of the United Nations Convention on the Law of the Sea 1982 (LOSC).⁹ The littoral States are constrained because they cannot act unilaterally on matters related to maritime traffic regulation and protection of the marine environment of the Straits.¹⁰

With the steady increase in shipping traffic each year, the current environmental protection regime may not be sufficient to protect the marine environment of these waterways.¹¹ As more vessels ply the Straits, safety and environmental concerns will become more acute for the littoral States bordering the Straits of Malacca and Singapore.¹² This Thesis examines this situation and proposes possible legal measures for the littoral States to enhance their regulatory and enforcement powers that have been constrained by the application of Part III of the LOSC. The proposed legal measures provide a platform for the littoral States to enhance their regulatory powers to ensure that the marine environment of the Straits of Malacca and Singapore could be protected from vessel-source pollution.

⁷ Mohd Nizam Basiron, 'Sea-Based Sources of Marine Pollution' in H.M. Ibrahim and Hairil Anuar Husin (eds), *Profile of the Straits of Malacca: Malaysia's Perspective* (Maritime Institute of Malaysia, 2008), 120-125.

⁸ Alexander P. Burgel, 'Air Pollution from Ships: Recent Developments' (2007) 6(2) *WMU Journal of Maritime Affairs*, 217-219.

⁹ Robert Beckman, 'Transit Passage Regime in the Straits of Malacca: Issues for Consideration' (Paper presented at the Building A Comprehensive Security Environment in the Straits of Malacca, Kuala Lumpur, 2004), 244-249.

¹⁰ The littoral States can take appropriate enforcement measures against recalcitrant vessels that have violated regulations formulated under Article 42(1) (a) & 42 (1) (b) where this violation has caused or is threatening to cause major damage to the marine environment of the straits. This is further reiterated in Article 233 (Part XII) of the LOSC.

¹¹ Mohd Hazmi bin Mohd Rusli, 'Shipping Controls in Critical Straits: A Study of the Legal Feasibility of the Designation of the Straits of Malacca and Singapore as a Particularly Sensitive Sea Area' (Paper presented at the International Conference on Environment 2010, Penang, Malaysia, 2010).

¹² B.A. Hamzah, 'Straits of Malacca: Burden Sharing, Transit Passage & Sovereignty of Coastal State' (Paper presented at the International Symposium on Safety and Protection of the Marine Environment in the Straits of Malacca and Singapore, Kuala Lumpur, 2008), 77-83.

1.2 OBJECTIVES OF THE RESEARCH

The primary objective of this research is to show that the current international legal framework on marine environmental protection of the Straits of Malacca and Singapore has placed the littoral States in a disadvantaged position, as far as the enforcement jurisdiction is concerned. The current environmental protection measures provided in the LOSC, International Maritime Organization (IMO) and other related international conventions are not sufficient to mitigate the marine pollution and damage to the marine environment which will result from the increasing density of navigational traffic each year. This research is also designed to demonstrate that the provisions of Part III of the LOSC places the protection of the marine environment of straits used for international navigation in a subordinate position to that of navigational rights, and that this balance needs to be altered to enable enhanced protection of the marine environment of such straits.

The third objective of the research is to propose potential legal and policy measures for improving the protection of the marine environment of the Straits of Malacca and Singapore.

1.3 RESEARCH METHODOLOGY

The research is based on a mixture of library study and field work. The library study involved literature reviews of academic writing, official government reports and other related documents, international conventions, case studies and conference papers. Reference was also made to relevant internet sources. The field work component included attending and presenting papers in relevant workshops, seminars, symposiums and conferences relating to maritime matters, especially those involving the Straits of Malacca and Singapore. Figures, data and any related information from relevant government bodies such as the Marine Department of Malaysia, the Survey and Mapping Department of Malaysia and the Maritime Institute of Malaysia (MIMA) that are pertinent to this study were gathered in the course of the research.

The approach applied involved an analysis of the existing national and international laws, regulations and co-operations on the protection of the marine environment of the Straits of

Malacca and Singapore. It included an examination of relevant provisions of the LOSC, Resolutions of the IMO and other related IMO international conventions such as the International Convention for the Prevention of Pollution from Ships (1973) as modified by the Protocol of 1978 relating thereto (MARPOL 73/78), case studies from State practice as well as an examination of the relevant domestic legislation of the three littoral States in regulating safety of navigation and protection of the marine environment of the Straits. An evaluation was carried out to determine if the existing environmental protection measures balance the tension between navigational rights and protection of the marine environment in the Straits of Malacca and Singapore.

1.4 SIGNIFICANCE OF THE THESIS

The significance of the Straits of Malacca and Singapore as two of the world's most important shipping routes has not only prompted many scholars to produce literature on them, but also prompted many national and international organisations to conduct conferences, seminars and symposiums to discuss issues pertaining to these waterways. This shows that issues and developments surrounding the Straits, particularly on the protection of the marine environment of the Straits and safety of navigation, are ongoing. Therefore, research and writing on the Straits' issues should be conducted to continually address new developments on the Straits of Malacca and Singapore.

This research is significant in realising the vision of promoting sustainable development in the Straits of Malacca and Singapore. It is a work that will supplement existing literature relating to legal policies governing the safety of navigation and the protection of the marine environment of the Straits of Malacca and Singapore. It identifies issues that have not yet been addressed and suggests solutions for unresolved issues. Furthermore, this study fills certain of the gaps in the existing knowledge through the contribution of new scholarship and ideas by extending previous research pursued by other scholars in this field.

The issues pertaining to the Straits are perennial and virtually inexhaustible in nature. There is an extensive literature on the Straits of Malacca and Singapore, either in the form of scholarly

books, journal articles, conference proceedings and papers, newspaper articles and online journals. This literature primarily discusses the issues pertaining to the protection of the marine environment and the safety of navigation in the Straits of Malacca and Singapore. Nevertheless, the existing literature has not comprehensively discussed new and/or ongoing developments concerning these Straits, which may include:

- (a) The possibility of ships and global trade using new and future alternative routes to the Straits of Malacca and Singapore, such as through Indonesian archipelagic waters, the Northeast Arctic Passage (NAP), the proposed plans for the Thai Canal and the Trans-Peninsula Pipeline Plan (TPP);
- (b) Proposed future environmental protection measures in the Straits, such as the potential designation of the Straits as a Particularly Sensitive Sea Area (PSSA) with the proposed Associated Protective Measures (APM) and the possible legal and political effects arising out of their implementation;
- (c) The potential unilateral measures to regulate shipping traffic through the Straits that the littoral States could resort to should measures provided by the IMO not prove sufficient; and
- (d) Discussion on the application of transit passage relating to the potential beginning and terminating points of this navigational regime for all vessels in the Straits of Malacca and Singapore.

As such, this research is different from other existing literature as it discusses matters that have yet to be considered; or should these new issues have been previously discussed, it further elaborates them from a legal viewpoint. This study examines developments surrounding the Straits to determine solutions and ways to further improve navigational safety and thereby enhance the protection of the marine environment of these important waterways.

The research is groundbreaking, as evidenced by the fact that several Chapters have been published in international peer-reviewed journals.¹³

¹³ (i) Mohd Hazmi bin Mohd Rusli, 'Attempts to Seek Alternative Routes to the Straits of Malacca and Singapore' (2010) 1(1) *Journal of Maritime Geopolitics and Culture*, 1-21;

1.5 THESIS STRUCTURE

This Thesis is organised into 11 Chapters, including Chapter 1. This introductory Chapter is followed by Chapter 2 which provides a historical background and a current profile of the Straits of Malacca and Singapore. Chapter 2 discusses the history of the Straits, particularly the history of trade and shipping in these vital shipping routes from the earliest kingdoms through colonial times and up until the modern era. The Straits of Malacca and Singapore are jointly bordered by Malaysia, Indonesia, Singapore and Thailand. Therefore, this Chapter briefly examines the associated maritime boundary delimitation issues, and also discusses the role of the Straits as economic lifelines for the littoral States, the region and for global shipping.

The focal point of Chapter 3 is on Part III of the LOSC, where it outlines the history of establishing the legal status of straits used for international navigation. Chapter 3 discusses the evolution of this navigational regime that was mooted from the time United Nations Conference on the Law of the Sea I (UNCLOS I) was convened until it was finally codified in Part III of the

(ii) Mohd Hazmi bin Mohd Rusli, 'The Legal Feasibility of the Imposition of a Traffic Limitation Scheme in Straits Used for International Navigation: A Study of the Straits of Malacca and Singapore' (2011) 1(6) *International Journal of Humanities and Social Science*, 122-130;

(iii) Mohd Hazmi bin Mohd Rusli, 'Balancing the Tensions between Shipping and Marine Environmental Protection in the Straits of Malacca and Singapore: Have the Straits Reached an Environmental Tipping Point' (2011) 7(2) *The International Journal of Environmental, Cultural, Economic and Social Sustainability*, 39-50;

(iv) Mohd Hazmi bin Mohd Rusli, 'Straits of Malacca and Singapore: Ensuring Safe Navigation' (2011) (131/2011) *RSIS Commentaries*, 1-2;

(v) Mohd Hazmi bin Mohd Rusli, 'The Application of Compulsory Pilotage in Straits Used for International Navigation: A Study of the Straits of Malacca and Singapore' (2011) 3(4) *Asian Politics & Policy*, 501-526;

(vi) Mohd Hazmi bin Mohd Rusli, 'The Legal Feasibility of Imposing Shipping Controls in Straits Used for International Navigation: A Study of the Straits of Malacca and Singapore' (2011) 2(9) *OIDA International Journal of Sustainable Development*, 69-82;

(vii) Mohd Hazmi bin Mohd Rusli, 'Protecting Vital Sea Lines of Communication: A Study of the Proposed Designation of the Straits of Malacca and Singapore as a Particularly Sensitive Sea Area' (2012) 57 *Ocean and Coastal Management*, 79-94;

(viii) Mohd Hazmi bin Mohd Rusli, 'Maritime Highways of Southeast Asia: Alternative Straits' (2012) (24/2012) *RSIS Commentaries*, 1-2;

(ix) Mohd Hazmi bin Mohd Rusli, 'The Application of Transit Passage Regime in Straits Used for International Navigation: A Study of the Straits of Malacca and Singapore' (2012) *Asian Politics & Policy* (imprint);

LOSC. This Chapter concludes by discussing whether or not the transit passage regime can be considered as part of customary international law.

Chapter 4 elucidates the special features of the transit passage regime. This Chapter evaluates and appraises the other two navigation regimes available to foreign vessels in navigating through straits, namely non-suspendable innocent passage and freedom of navigation in the Exclusive Economic Zone (EEZ) by comparing and contrasting their features and characteristics. This Chapter concludes by summarising the navigation regimes that are applicable in the Straits of Malacca and Singapore.

Chapter 5 discusses the pollution issues that the Straits are currently facing. Relevant data and statistics are given to illustrate the increasing pollution problem, mainly those relating to vessel-source pollution in the Straits of Malacca and Singapore. This Chapter also discusses the navigational hazards that are generally responsible for enhancing the risks of accidents and maritime casualties in the Straits.

Chapter 6 elaborates the application of the international legal regime on straits used for international navigation to the Straits of Malacca and Singapore, particularly Part III and Part XII of the LOSC. It focuses on the different types of jurisdictions of States; namely the port State, the flag State, the coastal State as well as the jurisdiction of States bordering straits. Chapter 5 also discusses the related IMO Conventions on safety of navigation and control of vessel-source of marine pollution. It further reiterates that Article 233 of Part XII of the LOSC has limited the enforcement jurisdiction of States bordering straits, so much so that the provisions of the related IMO Convention can only be effectively enforced through the port and flag States jurisdiction.

Due to the limited enforcement jurisdiction of States bordering straits, Chapter 7 explains the importance of littoral States and user States co-operating both regionally and internationally for the prevention, reduction and control of pollution from vessels in straits used for international navigation under Article 43 of the LOSC. The main conclusion derived from both Chapters 6 and 7 is that the LOSC has provided an uneven balance between navigational rights and the protection of the marine environment of straits, in favour of the former.

Chapters 8 and 9 discuss the potential future measures that could be taken by the littoral States in regulating shipping, safety of navigation and the protection and preservation of the marine environment of the Straits of Malacca and Singapore; the former ventures into the possible IMO measures while the latter focuses on the potential unilateral means. The IMO measures discussed include the potential designation of the Straits as a Special Area under MARPOL 73/78 or as a PSSA under IMO Guidelines with its ensuing APMs. This Chapter concludes by discussing the possible legal and political ramifications arising from such designations.

Given the fact that the Straits of Malacca and Singapore are busy waterways and will continue to accommodate more shipping traffic in the future, there is a need to seek new and potential alternative routes to the Straits. Chapter 10 discusses the potential alternative shipping routes to the Straits of Malacca and Singapore including the routes through Indonesian archipelagic waters, the NAP and the proposed Thai Canal as well as the proposed TPP. This Chapter concludes by examining routes that are likely to be preferred by the shipping industry in the future and to what extent the use of particular routes will reduce the amount of shipping traffic that plies the Straits of Malacca and Singapore each year.

1.6 CONCLUSION

The overall conclusion drawn from this Thesis is that the current laws, regulations and measures on safety of navigation and the control of vessel-source pollution applicable in the Straits of Malacca and Singapore are not sufficient to protect and preserve the marine environment of the Straits. This conclusion is based on the fact that the traffic density in the Straits is predicted to grow steadily in coming years and will have adverse impacts on the marine environment of the Straits. The littoral States of Malaysia, Indonesia and Singapore are parties to the LOSC and therefore they are bound by the provisions of the LOSC to regulate shipping and the safety of navigation in the Straits of Malacca and Singapore in accordance with its provisions. They cannot unilaterally formulate laws that could have the effect of hampering and impeding the transit of ships through the Straits or that are of a more stringent nature than those prescribed by the competent international organisation.

One option available to the littoral States is to propose additional protective measures within the competence of the IMO such as designating the Straits of Malacca and Singapore as Special Areas under MARPOL 73/78 or as PSSAs. It is also recommended that efforts should be made to further stimulate the development of the co-operative mechanisms that exist between the littoral States and the user States in protecting and preserving the marine environment of the Straits of Malacca and Singapore. The burden of maintaining the Straits from a safety and environmental perspective should not be borne by the littoral States only, as the Straits are jointly used by the littoral States and the user States.

Given that both the Straits are now indispensable for shipping activities, particularly in linking the oil producing States of the Middle East and the oil consumer States of Southeast Asia and East Asia, the proposed future measures will not be entirely viable unless alternative routes can be created to mitigate the shipping dependency on the Straits. Therefore, it is crucial for the littoral and user States to continue supporting the existing plans to create alternative routes so that the traffic density in the Straits of Malacca and Singapore can be relieved. This would ultimately promote a situation which maintains a better balance between navigational rights and the protection and preservation of the marine environment of the Straits of Malacca and Singapore.

CHAPTER 2. PRICELESS MARITIME HERITAGE

2.1 INTRODUCTION

This Chapter provides an introduction to the Straits of Malacca and Singapore and is divided into two parts. The first part focuses on the historical background of the Straits of Malacca and Singapore; from the third century AD to the modern day Malaysia, Indonesia and Singapore. The first part of this Chapter also includes a brief explanation on the maritime boundary delimitation issues pertaining to the Straits. The second part discusses the significance of these waterways as economic lifelines for the large coastal population as well as for international shipping activities. This Chapter concludes that the Straits of Malacca and Singapore were not only important waterways of the past, as they still are significant at present and in the future.

2.2 A HISTORICAL INTRODUCTION

The entrance to the Strait¹ of Malacca is located between Ujung Baka at the northernmost tip of Sumatra, Indonesia to Lem Voalan in Phuket Island in Thailand.² The Strait is very wide at its gateway to the Andaman Sea, which is about 200 nautical miles in breadth.³ It separates mainland Malay Peninsula and the Indonesian island of Sumatra, forming a funnel-shaped waterway as it narrows to the south. From One Fathom Bank (*Permatang Sedepa*) the breadth of the Strait of Malacca on either shore is less than 50 nautical miles and it narrows to only 8.4 nautical miles where it ends between Malaysia's Tanjung Piai and Indonesia's Pulau Karimun Kecil and subsequently joins the Strait of Singapore, which is located between Singapore, the

¹ A strait has never been legally defined in any international legal instrument. However, in geographic terms, a strait is defined as a 'natural passage or arm of water connecting two larger bodies of water'. See Julian Roberts, 'Compulsory Pilotage in International Straits: The Torres Strait PSSA Proposal' (2006) 37(1) *Ocean Development & International Law*, 98; Robert W. Smith, 'An Analysis of the Strategic Attributes of International Straits: A Geographical Perspective' (1974) 2 *Maritime Studies and Management*, 88-89.

² Maritime Institute of Malaysia, 'Executive Summary' in H. M. Ibrahim and Hairil Anuar Husin (eds), *Profile of the Straits of Malacca: Malaysia's Perspective* (Maritime Institute of Malaysia, 2008), xiii-xvi.

³ Amelia Emran, *The Regulation of Vessel-Source Pollution in the Straits of Malacca and Singapore* (Master of Maritime Studies (Research) Thesis, University of Wollongong, 2007), 9.

south coast of Eastern Johor and Riau Islands in Indonesia.⁴ The Strait of Singapore is approximately 60.8 nautical miles in length with a width of not more than 8.6 nautical miles. It opens up to the South China Sea, acting as a connector to the Pacific Ocean.⁵



Map 2-1: Map of the Straits of Malacca and Singapore
(Modified from Google Maps)

The International Hydrographic Organization (IHO) regards the Strait of Malacca and the Strait of Singapore, hydrographically, as separate straits.⁶ The Straits of Malacca and Singapore have been vital shipping routes for international trade for hundreds of years.

The region around the Straits of Malacca and Singapore is steeped in a long and continuous history of trade, shipping, colonisation and the race towards attaining political and economic

⁴ H. M. Ibrahim, Hairil Anuar Husin and Deneswari Sivaguru, 'The Straits of Malacca: Setting the Scene' in H. M. Ibrahim and Hairil Anuar Husin (eds), *Profile of the Straits of Malacca: Malaysia's Perspective* (Maritime Institute of Malaysia, 2008), 32-33; J. Ashley Roach, 'Enhancing Maritime Security in the Straits of Malacca and Singapore' (2005) 59 *Journal of International Affairs*, 97.

⁵ Michael Leifer, 'Malacca, Singapore and Indonesia' in Gerard J. Mangone (ed), *International Straits of the World* (Sijthoff & Noordhoff, 1978), 58-60; M. I. Bird, W. C. Pang and K. Lambeck, 'The Age and Origin of the Strait of Singapore' (2006) 241 *Paleogeography, Paleoclimatology, Palaeocology*, 531; I. M. Andi Arsana and Farid Yuniar Sumaryo, 'Geospatial Aspects of Maritime Boundary Delimitations in the Singapore Strait involving Indonesia, Malaysia and Singapore' (Paper presented at the FIG Congress 2010: Facing the Challenges - Building the Capacity, Sydney, 2010), 8.

⁶ International Hydrographic Organization (IHO), 'Limits of Oceans and Seas' (150-XII-1971, IHO, 1953), 23.

supremacy, both before and during the age of European dominion. The Strait of Malacca was initially known as the 'Sea of Malayu'. The first reference to the 'Sea of Malayu' was from a ninth century AD Arabic document, noting the Malay influence in the region.⁷ This assertion was also supported by Godinho De Eredia, a prominent Portuguese historian who believed that the 'Sea of Malayu' referred to that of the Strait of Malacca.⁸ Both the Straits of Malacca and Singapore were largely responsible for the emergence and downfall of various kingdoms along their length, some of which did develop into regional maritime Empires and important trading centres.⁹ The history of this region can be divided into two eras, the pre-European colonial age and the epoch of European imperialism.

2.2.1 Strait of Malacca Region in the Pre-Colonial Period

The geographical characteristics of the Malay Peninsula as a natural barrier separating the Indian Ocean and the South China Sea, encouraged early ports to flourish along its coasts.¹⁰ These early ports provided convenient transit havens for vessels waiting for the change of the monsoon current to navigate through the Strait of Malacca to continue their voyage to the other side of the ocean or wishing to connect with the overland passage route through the Malay Peninsula.¹¹

On the basis of archaeological findings, the earliest Malay port in the region of the Strait of Malacca was Takuapa, or Langkasuka, which emerged sometime in the third century AD.¹² By the fifth century AD, the Jiecha Kingdom, otherwise known as the Old Kedah was established in

⁷ Leonard Y. Andaya, *Leaves of the Same Tree: Trade and Ethnicity in the Straits of Melaka* (University of Hawai'i Press, 2008), 22-29.

⁸ Ibid.

⁹ Nordin Hussin, 'Historical Development of Coastal Ports and Towns in the Straits of Malacca' in H. M. Ibrahim and Hairil Anuar Husin (eds), *Profile of the Straits of Malacca: Malaysia's Perspective* (Maritime Institute of Malaysia, 2008), 8.

¹⁰ Pierre-Yves Manguin, 'The Archaeology of Early Maritime Polities of Southeast Asia' in Ian Glover and Peter Bellwood (eds), *Southeast Asia: From Prehistory to History* (RoutledgeCurzon, 2004), 294-296.

¹¹ Ibid., 294.

¹² William A. Southworth, 'Langkasuka' in Ooi Keat Gin (ed), *Southeast Asia: A Historical Encyclopedia, From Angkor Wat to East Timor* (ABC-CLIO, 2004), 764-765.

areas south of the modern-day Malaysian state of Kedah.¹³ Jiecha was once a prosperous transit port for ships from Arabia, Persia and India, before continuing their voyage to the East.¹⁴ The people of Jiecha were actively engaged in trade with these foreign merchants.¹⁵

By the seventh century AD, however, Pan-Pan, Langkasuka and Jiecha were subjugated to the dominance of the powerful Malay kingdom of Srivijaya.¹⁶ With Palembang as its capital, situated almost equidistant from the Strait of Malacca and the Strait of Sunda, this was the first empire that managed to control these two maritime choke points in Southeast Asia. The Srivijaya Kingdom controlled the trade activities that took place along the length of these waterways,¹⁷ by compelling passing vessels to call at Srivijayan ports and levying port dues and taxes upon them.¹⁸ Srivijaya, benefiting from its role as the ‘Master of the Strait of Malacca’ participated actively in a growing world economy at that time and prospered well by engaging in extensive commerce in camphor, cloves, sandalwood, nutmegs and other valuable commodities with traders and merchants from different parts of Asia.¹⁹

In about 1293 AD, the core economic and political power in maritime Southeast Asia shifted from Sumatra to the island of Java.²⁰ The territories of the Majapahit Kingdom expanded through various conquering expeditions carried out by its charismatic Prime Minister, Gajah Mada.²¹ Majapahit ruled much of the Malay World which includes several states in Sumatra, the Malay Peninsula, Borneo, Celebes, Moluccas and some parts of the Philippine archipelago.²² Thus, it

¹³ Pierre-Yves Manguin, ‘The Archaeology of Early Maritime Polities of Southeast Asia’ in Ian Glover and Peter Bellwood (eds), *Southeast Asia: From Prehistory to History* (RoutledgeCurzon, 2004), 294.

¹⁴ Ibid.

¹⁵ Dougal J. W. O’Reilly, *Early Civilizations of Southeast Asia* (Rowman and Littlefield, 2007), 54-56.

¹⁶ Lea E. Williams, *Southeast Asia: A History* (Oxford University Press, 1976), 26-35.

¹⁷ D. G. E. Hall, *A History of South-East Asia* (MacMillan, 1960), 38.

¹⁸ B. R. Pearn, *An Introduction to the History of South-East Asia* (Longmans, 1965), 24.

¹⁹ Ibid.

²⁰ D. G. E. Hall, *A History of South-East Asia* (MacMillan, 1960), 72-84.

²¹ B. R. Pearn, *An Introduction to the History of South-East Asia* (Longmans, 1965), 27-28.

²² D. G. E. Hall, *A History of South-East Asia* (MacMillan, 1960), 77.

became the next political power after Srivijaya that managed to take command of the Straits of Malacca and Sunda.

Majapahit generated wealth through agricultural produce, particularly rice production and also through maritime trade that went through the Straits of Malacca and Sunda.²³ With such large territories, Majapahit traders accumulated raw materials from its hinterland to be traded in its ports.²⁴ These included pepper, salt and coconut oil from Java, spices from the Moluccas, ivory from Sumatra, tin and lead from the Malay Peninsula to be exchanged with textiles from India and porcelain products from China.²⁵ Between the twelfth and the thirteenth centuries, Majapahit replaced Srivijaya and became a major centre of commerce in the Strait of Malacca region.²⁶ Majapahit's preeminence did not last long. With Islam gaining influence in Java in the fifteenth century, Majapahit was finally abolished by the Java-based Sultanate of Demak.

Malacca was the next kingdom to take command of the Strait of Malacca after the fall of Majapahit. The profound influence of the Malacca Sultanate, which dominated the Strait for over a century, is evident with the name that the Strait of Malacca carries up to this day.²⁷ In the late fourteenth century, Malacca began to increase in influence and importance, especially in the maritime arena. This was due to its strategic location nestled comfortably along the length of the Strait of Malacca with the advantage of being sheltered from the strong monsoonal currents.²⁸ It consequently had a safe harbour, which made it a perfect haven for seafarers waiting for the change of monsoonal winds to travel eastward or to the west.²⁹ Malacca grew not only into a prosperous international port, but also a regional maritime empire. Possessing strong command over the Strait of Malacca, Malacca controlled all trade passing through this waterway and

²³ M. C. Ricklefs, *A History of Modern Indonesia Since c. 2000* (Stanford University Press, 2001), 20-22.

²⁴ B. R. Pearn, *An Introduction to the History of South-East Asia* (Longmans, 1965), 27-28.

²⁵ Ibid.

²⁶ Ibid.

²⁷ Politecnico Di Milano, *The History of Malacca* (2007) Polo Territoriale di Lecco, Politecnico Di Milano <<http://www.lecco.polimi.it/premiolecco/premiolecco2007/MalaccaHistory.pdf>>.

²⁸ Sarnia Hayes Hoyt, *Old Malacca* (Oxford University Press, 1993), 11.

²⁹ Ibid.

compelled merchant vessels to call at the port of Malacca when passing through.³⁰ As stated by Pearn:

Malacca replaced Majapahit as the principal market at which goods from the archipelago and farther east were traded against goods from India and the farther west; and in this trade the spices of the Moluccas were a major item.³¹

In the mid-fifteenth century, Malaccan territory expanded significantly to cover territories on the Malay Peninsula and the eastern seaboard of Sumatra, commanding over the Strait of Malacca,³² as shown in Map 2-2:



Map 2-2: The Malacca Sultanate Empire in the Fifteenth Century³³
(Modified from Google Maps)

³⁰ Nicholas Tarling, *The Cambridge History of Southeast Asia: From Early Times to c. 1800* (Cambridge University Press, 1992), 175.

³¹ B. R. Pearn, *An Introduction to the History of South-East Asia* (Longmans, 1965), 35.

³² Richard Allen, *A Short Introduction to the History and Politics of Southeast Asia* (Oxford University Press, 1970), 27-28.

³³ *Ibid.*

Malacca prospered until 1511 as a crucial link in world trade.³⁴ The population of the port of Malacca before the fall of the Sultanate was estimated to be around 100,000. Thus, it was as large as other European cities at that time such as Naples and Paris.³⁵ Malacca's glorious moments were short-lived with the arrival of the Portuguese in the region in the early sixteenth century.³⁶

2.2.2 Strait of Malacca Region in the Colonial Age

The Portuguese were the first European power ever to set foot in Malacca. In the fifteenth century, they made voyages to the Indian Ocean via the Cape of Good Hope not only with the intention of crushing the economic monopoly of Muslim traders, but also to expand Christianity.³⁷ They were initially well-received by the Sultan of Malacca, and were granted permission to land and to conduct trade.³⁸ However, the Muslim traders of Gujarat were suspicious of the Portuguese and persuaded the Malay authorities to launch a surprise attack on the Portuguese.³⁹ This angered the Portuguese authorities and war was waged against Malacca.⁴⁰ Malacca itself was weakening at that time as there were quarrels within the royal family and corruption was rampant in its administration.⁴¹ After two attacks on Malacca, the Sultanate was overthrown and the Portuguese established a fort in the new Portuguese-Malacca.⁴² The Portuguese had high hopes that with this new colony, they could establish a stronghold on the Strait of Malacca. By means of their naval power, they managed to gain significant control over the Strait of Malacca and compelled ships to call at Malacca and pay taxes.⁴³ However, the

³⁴ Craig A. Lockard, *Societies, Networks, and Transitions* (Houghton Mifflin Company, 2008), 380.

³⁵ Ibid.

³⁶ Ibid.

³⁷ William Marsden, *The History of Sumatra* (Oxford University Press, 1966), 406.

³⁸ Brian Harrison, *South-East Asia: A Short History* (Macmillan, 1966), 67-68.

³⁹ Ibid.

⁴⁰ Ibid.

⁴¹ Leonard Y. Andaya, *The Kingdom of Johor 1641-1728* (Oxford University Press, 1975), 20-21.

⁴² Lea E. Williams, *Southeast Asia: A History* (Oxford University Press, 1976), 58.

⁴³ B. R. Pearn, *An Introduction to the History of South-East Asia* (Longmans, 1965), 68.

taking of Malacca by the Portuguese did not mean that the Portuguese were free from any opposition from other Malay powers in that region.⁴⁴

The fall of Malacca to the Portuguese, led to the founding of the Johor Sultanate, established by the prince of the ousted Sultan of Malacca. Johor inherited much of the area that used to be under the influence of the Malacca Sultanate, particularly in the southern regions of the Strait of Malacca.⁴⁵ The fall of Malacca also gave rise to the Aceh Sultanate in north Sumatra. The Portuguese anti-Muslim policy in Malacca benefited the Muslim port of Aceh as Muslim traders preferred to call at Aceh over Malacca.⁴⁶ By the mid sixteenth century, Aceh's power grew significantly and it attempted to bring the Strait of Malacca under its influence.⁴⁷ At this time, the tripartite war between Portuguese-Malacca, Aceh and Johor to control the Strait of Malacca erupted and this continued for the next hundred years.⁴⁸ Aceh did launch several attacks on Malacca which managed to weaken the Portuguese, but these ended in vain.⁴⁹ With the demise of Aceh's influential ruler, Sultan Iskandar Thani, the Aceh Empire started to disintegrate.⁵⁰

Johor also made several unsuccessful attempts to re-capture Malacca.⁵¹ The arrival of the Dutch in the seventeenth century in the Malay World gave Johor the opportunity to rise as a supreme local kingdom in the Strait of Malacca region.⁵² Johor started to engage long and friendly relations with the Dutch when Admiral Jacob Heemskerck visited the capital of Johor, Batu Sawar in 1602.⁵³ Both the Dutch and Johorese sought each other's friendship as a counterweight against the Portuguese and the Acehnese. Subsequently, these two powers collaborated in their

⁴⁴ Jorge Santos Alves, 'Aceh through Portuguese Eyes Views of an Indian Ocean Port-State' (Paper presented at the First International Conference of Aceh and Indian Ocean Studies, Banda Aceh, 2007), 2-3.

⁴⁵ B. R. Pearn, *An Introduction to the History of South-East Asia* (Longmans, 1965), 89.

⁴⁶ Leonard Y. Andaya, *The Kingdom of Johor 1641-1728* (Oxford University Press, 1975), 20-22.

⁴⁷ B. R. Pearn, *An Introduction to the History of South-East Asia* (Longmans, 1965), 90-92.

⁴⁸ *Ibid.*, 92.

⁴⁹ D. G. E. Hall, *A History of South-East Asia* (MacMillan, 1960), 199.

⁵⁰ Leonard Y. Andaya, *The Kingdom of Johor 1641-1728*, (Oxford University Press, 1975), 27.

⁵¹ *Ibid.*, 22-23.

⁵² *Ibid.*, 26.

⁵³ *Ibid.*

plan to oust the Portuguese from Malacca. Finally, in 1640-1641, the Portuguese ceased to have control on the Strait of Malacca region permanently.⁵⁴

Before colonising Malacca, the Dutch had established their foothold in Southeast Asia in 1600 by establishing a trading post in Bantam, East Java.⁵⁵ With the capture of Malacca, the Dutch gained control of both the Straits of Malacca and Sunda.⁵⁶ This put them in a good position to monopolise the trade of the archipelago with the West.⁵⁷ The Dutch did not interfere with Johor in exercising its powers to expand its territory over other Malay centres in the Peninsula as they were too pre-occupied with trade.⁵⁸ The Dutch maintained good ties with the Johor Kingdom and engaged in trade with them, as stated by Andaya:

Dutch missions to the various cities on the Johor River and on Riau marveled at the trading activity they found there. Some of the things traded were gold, eaglewood, kelembak, pedro porco, birdsnest, ivory, camphor, tin, rattan, wax, pepper, salt, rice, copper, spiauter, white Chinese silk, porcelain, iron Chinese pans, cloth, red cloth, Japanese gold thread and opium.⁵⁹

During the Dutch era, most trading activities were carried out via the Sunda Strait as it was nearer to the Dutch East Indies Company (*Vereenigde Oost-Indische Compagnie*) headquarters of Batavia in Java.⁶⁰ As a result, Malacca and the Strait of Malacca declined in importance in the maritime trade industry in Southeast Asia at this time.⁶¹ Malacca in the eighteenth century was

⁵⁴ Ibid., 26-27.

⁵⁵ Brian Harrison, *South-East Asia: A Short History* (Macmillan, 1966), 87-88.

⁵⁶ Mark Cleary and Goh Kim Chuan, *Environment and Development in the Straits of Malacca*, Routledge Studies in Development and Society (Routledge, Taylor and Francis, 2000), 96-97.

⁵⁷ Ibid.

⁵⁸ Leonard Y. Andaya, *The Kingdom of Johor 1641-1728*, (Oxford University Press, 1975), 38-39.

⁵⁹ Ibid.

⁶⁰ B. R. Pearn, *An Introduction to the History of South-East Asia* (Longmans, 1965), 75.

⁶¹ Ibid.

overshadowed in importance by Batavia.⁶² Trade was focused principally on monopolising the export of pepper, spices and sugar, and the import of cloth and opium.⁶³

The British were the next European power to expand their influence over the Strait of Malacca region. One of the earliest British trading posts was in Bengkulu, formerly called Bencoolen, but it was not generating profits for the British.⁶⁴ In 1786, the British settled on the island of Penang (*Pulau Pinang*), an island that straddles the northern part of the Strait of Malacca.⁶⁵ In 1819, they occupied the island of Singapore (*Singapura*) near the southern end of the Malay Peninsula, with the permission of the Sultan of Johor.⁶⁶ The Strait of Singapore was named after this island. The presence of the Dutch in the Malay Peninsula was considered by the British authorities to be detrimental to the British policy of maintaining good relations with the Dutch government in Europe.⁶⁷ Consequently, the British and the Dutch entered into the Anglo-Dutch Treaty of London in 1824⁶⁸ under which the Dutch gave up all their territories in mainland Asia to the British, which included Malacca,⁶⁹ and in return the British agreed not to spread its dominions into the Malay Archipelago, south of Singapore.⁷⁰ Map 2-3 shows the spheres of dominance of the British and Dutch in the Strait of Malacca region:

⁶² Brian Harrison, *South-East Asia: A Short History* (Macmillan, 1966), 141.

⁶³ *Ibid.*, 126-131.

⁶⁴ Pierre Van Der Eng, 'Bengkulu (Bencoolen, Benkulen)' in Ooi Keat Gin (ed), *Southeast Asia: A Historical Encyclopedia, from Angkor Wat to East to East Timor* (ABC-CLIO, 2004), 231.

⁶⁵ William Marsden, *The History of Sumatra* (Oxford University Press, 1966), 331.

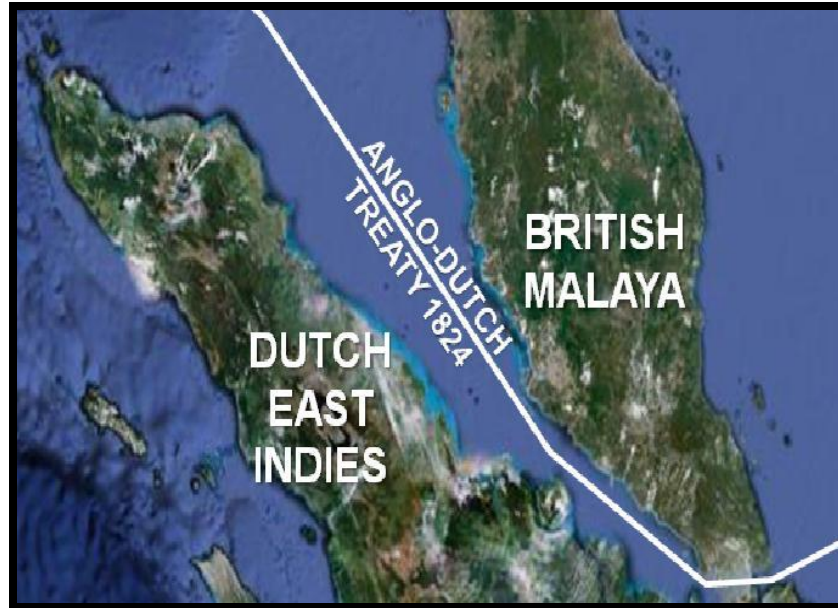
⁶⁶ John F. Cady, *Southeast Asia: Its Historical Development* (McGraw-Hill, 1964), 320-322.

⁶⁷ Joseph Chin Yong Liow, *The Politics of Indonesia-Malaysia Relations: One Kin, Two Nations* (RoutledgeCurzon, 2005), 38-40.

⁶⁸ The Consolidated Treaty Series, 'Treaty of Commerce and Exchange between Great Britain and the Netherlands, signed at London, 17 March 1824' in Clive Parry (ed), *The Consolidated Treaty Series* (Oceana, 1969) vol 74, 88-108.

⁶⁹ Article 10 of the Anglo-Dutch Treaty 1824 states 'The Town and Fort of Malacca, ceded to His Britannick Majesty, and His Netherland Majesty engages for himself and his subjects never to form any establishment in any part of Peninsular of Malacca'. See *Ibid.*

⁷⁰ Article 9 of the Anglo-Dutch Treaty reads 'The Factory of Fort Malborough, and all the English Possession in Sumatra, ceded to His Netherland Majesty.' See *Ibid.*, 88-108; John Anderson, *Acheen and the Ports on the North and East Coasts of Sumatra* (Oxford University Press, 1971), 2; Mark Cleary and Goh Kim Chuan, *Environment and Development in the Straits of Malacca*, Routledge Studies in Development and Society (Routledge, Taylor and Francis, 2000), 145.



Map 2-3: The Effect of Anglo-Dutch Treaty of 1824⁷¹
(Modified from Google Maps)

Under this Treaty, the Dutch were free to exercise their authority in Sumatra and other Indonesian islands and it also enabled the British to expand their influence over Malaya.⁷² This Treaty thus divided the Strait of Malacca region into two spheres which have lasted even until the present.⁷³

The efforts of the British to establish trading posts in Penang in 1786, Malacca in 1824, and Singapore in 1819, were quite timely, as the Suez Canal was opened 5 decades after that in 1869.⁷⁴ The Suez Canal allowed vessels from East Asia to sail to Europe through the Straits of Malacca and Singapore toward the Gulf of Aden and the Red Sea and gain access to the Mediterranean Sea without having to sail around the African continent.⁷⁵ The opening of the

⁷¹ Note: For illustrative purposes only. The line does not depict the exact boundary demarcation line between the two territories.

⁷² John Anderson, *Acheen and the Ports on the North and East Coasts of Sumatra* (Oxford University Press, 1971), 2.

⁷³ Brian Harrison, *South-East Asia: A Short History* (Macmillan, 1966), 176-177.

⁷⁴ Suez Canal Authority, *Canal History* (1975) Suez Canal Authority <<http://www.suezcanal.gov.eg/sc.aspx?show=8>>.

⁷⁵ Suez Canal Authority, *Saving in Distance via SC* (2008) Suez Canal Authority <<http://www.suezcanal.gov.eg/sc.aspx?show=11>>.

Suez Canal on 17 November 1869 meant that the Straits of Malacca and Singapore route again became the shortest route connecting Europe and East Asia.⁷⁶ Hence, the Straits of Malacca and Singapore were revived and regained their position as important waterways for international trade and shipping.⁷⁷

Penang, Malacca and Singapore became British Crown Colonies and other Malay states along the Strait of Malacca, namely Perlis, Kedah, Perak, Selangor and Negeri Sembilan became British protectorates.⁷⁸ While the rest of the Malay states had been colonised, Johor was the only Malay State that remained independent at least until 1914 when the Sultan of Johor eventually accepted a British advisor.⁷⁹ These Malay States were rich in tin deposits, which at that time, was a crucial mineral to support British industrial activities.⁸⁰ In the nineteenth century, British Malaya was also one of the biggest rubber producers in the world.⁸¹ Tin and rubber were among the important commodities being transported through the Strait of Malacca during the British rule in Malaya.⁸² On the other side of the Strait, Sumatra was also eventually colonised by the Dutch. After waging war against the Dutch forces for forty years, the Aceh Sultanate was ultimately annexed as a colony of the Netherlands East Indies in 1913.⁸³

During World War II, the Japanese forces occupied the Strait of Malacca region for a brief period of three years from 1942 to 1945, when Sumatra and the Malay Peninsula were

⁷⁶ Ibid.

⁷⁷ Mohd Hazmi bin Mohd Rusli, 'Straits of Malacca and Singapore: Pride of the Malay Archipelago, Priceless Maritime Heritage of the World' (Paper presented at the International Conference on Islamic Civilization and Malay Identity (ICICMI), Melaka Malaysia, 2011), 89-115.

⁷⁸ Tim Lambert, *A Brief History of Malaysia* (2010) <<http://www.localhistories.org/malaysia.html>>.

⁷⁹ Ibid.

⁸⁰ Hideo Yamada, 'The Origins of British Colonialization of Malaya with Special Reference to Tin' (1971) 9(3) *The Developing Economies*, 225-245.

⁸¹ Zephyr Frank, *The International Natural Rubber Market, 1870-1930* (2010) The Economic History Association <<http://eh.net/encyclopedia/article/frank.international.rubber.market>>.

⁸² Hideo Yamada, 'The Origins of British Colonialization of Malaya with Special Reference to Tin' (1971) 9(3) *The Developing Economies*, 225-245.

⁸³ Uka Tjandrasasmita, 'Aceh (Acheh)' in Ooi Keat Gin (ed), *Southeast Asia: A Historical Encyclopedia, From Angkor Wat to East Timor* (ABC-CLIO, 2004), 118-121.

consolidated under a single administration.⁸⁴ After the end of World War II, the de-colonisation of this region began gradually. This begun with the consolidation of the island of Sumatra into Indonesia (formerly Dutch East Indies) after it gained independence in 1945.⁸⁵ Indonesia as a nation was officially established on 27 December 1949.⁸⁶ Malaya followed suit in 1957.⁸⁷ Upon independence, both Malaya and Indonesia resumed the rights and obligations that Britain and the Netherlands held respectively over the Straits of Malacca and Singapore during the colonial era.⁸⁸ Malaya then merged with Singapore, Sabah and Sarawak to form the Federation of Malaysia in 1963.⁸⁹ On 9 August 1965, Singapore became an independent island republic, subsequent to its separation from the Malaysian Federation.⁹⁰

This historical background shows that the Strait of Malacca played a significant role in shaping the character of this region. The political will to seize dominion over the Strait of Malacca, has always been motivated by the desire to control and monopolise the trade that goes through it.⁹¹ The historical significance of the Strait of Malacca has resulted in Malacca and Georgetown in Penang, two former British Strait Settlements, to be designated as World Heritage Sites by the United Nations Educational, Scientific, and Cultural Organization (UNESCO) in 2008.⁹² At present, both the Straits of Malacca and Singapore remain important for international trade, as discussed in subsequent parts of this Chapter.

⁸⁴ John F. Cady, *Southeast Asia: Its Historical Development* (McGraw-Hill, 1964), 566-574.

⁸⁵ Bruce Grant, *Indonesia* (Melbourne University Press, 1964), 24-25.

⁸⁶ A. Arthur Schiller, *The Formation of Federal Indonesia 1954-1949* (W. van Hoeve, 1955), 337-342.

⁸⁷ N. J. Ryan, *The Making of Modern Malaysia: A History from Earliest Times to 1966* (Oxford University Press, 1967), 228-235.

⁸⁸ Lee Jae-hyung, *China and the Asia-Pacific Region* (iUniverse, 2003), 112-113.

⁸⁹ N. J. Ryan, *The Making of Modern Malaysia: A History from Earliest Times to 1966* (Oxford University Press, 1967), 242-243.

⁹⁰ K. G. Tregonning, *Malaysia and Singapore* (F. W. Cheshire, 1966), 98.

⁹¹ D. G. E. Hall, *A History of South-East Asia* (MacMillan, 1960), 197-198.

⁹² United Nations Educational, Scientific and Cultural Organization (UNESCO), *Melaka and George Town, Historic Cities of the Straits of Malacca* (2011) UNESCO <<http://whc.unesco.org/en/list/1223>>.

In the modern setting, the imperial ambitions of distant States have receded to be replaced by the nationalist aspirations of the littoral States.⁹³ The Straits of Malacca and Singapore belong to the three main littoral States of Malaysia, Singapore and Indonesia. Thailand borders a small fraction of the northern part of the Strait of Malacca. Under international law, the littoral States have sovereignty and sovereign rights over the waters of the Straits of Malacca and Singapore and this must be respected by other States. Article 2(4) of the United Nations Charter provides:

All Members shall refrain in their international relations from the threat or use of force against the territorial integrity or political independence of any State, or in any other manner inconsistent with the Purposes of the United Nations.⁹⁴

As the Straits of Malacca and Singapore are bordered by Malaysia, Indonesia, Singapore and Thailand, it is important to briefly examine to what extent these States have resolved maritime boundary delimitation issues among themselves.

2.3 MARITIME BOUNDARY ISSUES

The history of maritime boundary delimitation in the Straits of Malacca and Singapore goes back to colonial times.⁹⁵ The earliest agreement can be traced to the 1824 Anglo-Dutch Treaty which divided maritime Southeast Asia into two parts: Singapore and the Malay Peninsula were placed under British dominion; while the areas of the Malay Archipelago south of the Strait of Singapore were placed under Dutch control.⁹⁶ However, there was no precise boundary delimitation that divided the Strait of Malacca into the British and the Dutch dominions. The

⁹³ Mohd Hazmi bin Mohd Rusli, 'Straits of Malacca and Singapore: Pride of the Malay Archipelago, Priceless Maritime Heritage of the World' (Paper presented at the International Conference on Islamic Civilization and Malay Identity (ICICMI), Melaka Malaysia, 2011), 89-115.

⁹⁴ United Nations (UN), *Charter of the United Nations* (1985) UN <<http://www.un.org/en/documents/charter/chapter1.shtml>>.

⁹⁵ Mary George, 'Incorporation of Environmental Law Principles in the Boundary Treaties of the Straits of Malacca and Singapore' in Frieda Voo (ed), *Legal Regime of the Straits of Malacca and Singapore* (LexisNexis, 2008) vol 4, 585-592.

⁹⁶ The Consolidated Treaty Series, 'Treaty of Commerce and Exchange between Great Britain and the Netherlands, signed at London, 17 March 1824' in Clive Parry (ed), *The Consolidated Treaty Series* (Oceana, 1969) vol 74, 88-108.

Treaty merely explained the spheres of influence of the Dutch and the British in the Malay World.

As far as Malaysia's northern land and maritime frontiers were concerned, the boundary delimitation was based on the agreement made between the Kingdom of Siam and the British Government in the Anglo-Siamese Treaty of 1909.⁹⁷ Under this treaty, the Kingdom of Siam relinquished its suzerainty over the northern Malay states of Kedah, Perlis, Kelantan and Terengganu to the British.⁹⁸ The present Malaysia-Thailand boundary reflects the delimitation concluded in this Treaty which is still enforced. The boundary extends for 314 miles from the Strait of Malacca across the Peninsula to the Gulf of Siam on the east. On maritime boundaries of the two areas, the 1909 Treaty stated:

The island known as Pulo Langkawi, together with all the islets south of the midchannel between Terutau and Langkawi, and all the islands south of Langkawi shall become British. Terutau and the islets to the north of mid-channel shall remain to Siam.

With regard to the islands close to the west coast, those lying to the north of the parallel of latitude where the most seaward point of the north bank of the estuary of the Perlis River touches the sea shall remain to Siam, and those lying to the south of the parallel shall become British.⁹⁹

Upon independence, Malaysia signed a treaty to delimit its northern territorial boundaries in the Strait of Malacca with Thailand in 1979.¹⁰⁰ This treaty reiterated the colonial treaty concluded in 1909 where straight lines were drawn from the point situated in mid-channel between Ko

⁹⁷ The American Journal of International Law, 'Treaty between Great Britain and Siam 1909' (Oct., 1909) 3(4) *Supplement: Official Document*, 297-304.

⁹⁸ Article 1 of the Anglo-Siamese Treaty 1909 confirmed that the Siamese Government transfers to the British all rights of suzerainty, protection, administration and control over the states of Kelantan, Terengganu, Perlis and Kedah. See *Ibid.*

⁹⁹ *Ibid.*, 297-301; United States of America Department of State, 'International Boundary Study: Malaysia-Thailand Boundary' (No. 57 – November 15, 1965, The Geographer, Office of the Geographer, Bureau of Intelligence and Research, United States of America, 1965), 1-8.

¹⁰⁰ Choon-Ho Park, 'Treaty Between the Kingdom of Thailand and Malaysia Relating to the Delimitation of the Territorial Sea of the Two Countries' in Jonathan I. Charney and Lewis M. Alexander (eds), *International Maritime Boundaries: The American Society of International Law* (Martinus Nijhoff, 1993) vol 1, 1096-1098.

Tarutao, an island of the 'Butang Group' and Pulau Langkawi, separating the territorial seas of the two States.¹⁰¹

Thailand and Indonesia entered an agreement to delimit their continental shelf boundary on 17 December 1971 in the northern part of the Strait of Malacca.¹⁰² This agreement came into force on 16 July 1973.¹⁰³ Both Indonesia and Thailand applied the equidistance method in drawing the line to delimit their continental shelf boundary in the Strait of Malacca towards the opening to the Andaman Sea.¹⁰⁴ Four days later, an agreement between Malaysia, Indonesia and Thailand was concluded to establish a common point, where their tri-junction claims would meet.¹⁰⁵ The common point was agreed as being in a maritime area nearest to Indonesia, thus securing its full entitlement over the North Sumatra Basin which is said to be rich in oil reserves, and furthest from Thailand.¹⁰⁶ With this common point established, the shares of Malaysia, Indonesia and Thailand over the seabed boundary in the northern region of the Strait of Malacca were settled. This trilateral agreement came into force on 16 July 1973.¹⁰⁷

The length of the Strait of Malacca runs mostly between the Malaysian and Indonesian waters. In consideration of this, Malaysia and Indonesia concluded an agreement on 17 March 1970,

¹⁰¹ Choon-Ho Park, 'Malaysia-Thailand (Territorial Sea)' in Jonathan I. Charney and Lewis M Alexander (eds), *International Maritime Boundaries: The American Society of International Law* (Martinus Nijhoff, 1993) vol I, 1091-1098.

¹⁰² J. R. Victor Prescott, 'Indonesia-Thailand (Malacca Strait and Andaman Sea)' in Jonathan I Charney and Lewis M. Alexander (eds), *International Maritime Boundary: The American Society of International Law* (Martinus Nijhoff, 1993) vol II, 1455-1463.

¹⁰³ J. R. Victor Prescott, 'Agreement Between the Government of the Republic of Indonesia and the Government of the Kingdom of Thailand Relating to the Delimitation of a Continental Shelf Boundary Between the Two Countries in the Northern Part of the Strait of Malacca and in the Andaman Sea' in Jonathan I. Charney and Lewis M. Alexander (eds), *International Maritime Boundaries: The American Society of International Law* (Martinus Nijhoff, 1993) vol 1, 1462-1463.

¹⁰⁴ Ibid.

¹⁰⁵ J. R. Victor Prescott, 'Indonesia-Malaysia-Thailand' in Jonathan I. Charney and Lewis M. Alexander (eds), *International Maritime Boundaries: The American Society of International Law* (Martinus Nijhoff, 1993) vol II, 1443-1454.

¹⁰⁶ Ibid.

¹⁰⁷ J. R. Victor Prescott, 'Agreement Between the Governments of the Republic of Indonesia, the Government of Malaysia and the Government of the Kingdom of Thailand Relating to the Delimitation of the Continental Shelf Boundaries in the Northern Part of the Strait of Malacca' in Jonathan I. Charney and Lewis M. Alexander (eds), *International Maritime Boundaries: The American Society of International Law* (Martinus Nijhoff, 1993) vol 1, 1452-1454.

drawing a boundary between the territorial seas of both countries in the Strait of Malacca.¹⁰⁸ Prior to this, an agreement was signed between both nations which delineated the continental shelf boundaries in the Strait of Malacca in 1969.¹⁰⁹ The seabed boundary line between the two nations coincides with the territorial sea boundary line in most sections of the waterway.¹¹⁰ It continues in a northerly direction to converge with the common point between Indonesia, Malaysia and Thailand.¹¹¹ To the south, the territorial sea boundary line slightly deviates from the seabed boundary limits in favour of Malaysia.¹¹² The existing agreements only delimit the continental shelf and the territorial sea boundaries between the two States covering the southern end of the Strait of Malacca.¹¹³ There is yet to be an agreement between Indonesia and Malaysia on the delimitation of their exclusive economic zone (EEZ) boundary in the northern part of the Strait of Malacca.¹¹⁴ Negotiations on the maritime delimitation of their EEZ in the Strait is still ongoing.¹¹⁵

¹⁰⁸ Choon-Ho Park, 'Indonesia-Malaysia (Territorial Sea)' in Jonathan I. Charney and Lewis M. Alexander (eds), *International Maritime Boundaries: The American Society of International Law* (Martinus Nijhoff, 1993) vol 1, 1029-1038.

¹⁰⁹ Choon-Ho Park, 'Indonesia-Malaysia (Continental Shelf)' in Jonathan I. Charney and Lewis M. Alexander (eds), *International Maritime Boundaries: The American Society of International Law* (Martinus Nijhoff, 1993) vol 1, 1019-1028.

¹¹⁰ Choon-Ho Park, 'Agreement Between the Government of Malaysia and the Government of Indonesia on the Delimitation of the Continental Shelves Between the Two Countries' in Jonathan I. Charney and Lewis M. Alexander (eds), *International Maritime Boundaries: The American Society of International Law* (Martinus Nijhoff, 1993) vol 1, 1025-1027.

¹¹¹ Ibid.

¹¹² Choon-Ho Park, 'Treaty Between the Republic of Indonesia and Malaysia Relating to the Delimitation of the Territorial Sea of the Two Countries in the Strait of Malacca' in Jonathan I. Charney and Lewis M. Alexander (eds), *International Maritime Boundaries: The American Society of International Law* (Martinus Nijhoff, 1993) vol 1, 1029-1034.

¹¹³ Mak Joon Num, 'Pirates, Barter Traders, and Fishers: Whose Rights, Whose Security? User Conflicts and Maritime Nontraditional Security in Malaysian Waters' (2009) *The Indian Ocean: Resource and Governance Challenges* <[http://www.stimson.org/rv/pdf/Indian_Ocean\(PDF\)/Indian_Ocean-Chapter_2_Mak.pdf](http://www.stimson.org/rv/pdf/Indian_Ocean(PDF)/Indian_Ocean-Chapter_2_Mak.pdf)>, 21.

¹¹⁴ M. J. Valencia, 'Validity of Malaysia's Baselines and Territorial Sea Claim in the Northern Malacca Strait' (2003) *27 Marine Policy*, 367-373; Badan Koordinasi Survei dan Pemetaan Nasional (BAKOSURTANAL), 'Peta Negara Kesatuan Republik Indonesia' (BAKOSURTANAL, 2009); Max Herriman and Raja Petra Mohamed, 'A Malacca Strait Boundary: Factors for Consideration' in M. Shariff et al (eds), *Towards Sustainable Management of the Straits of Malacca* (Malacca Straits Research and Development Centre, 2000), 755-764.

¹¹⁵ The Star, 'Shock over Jail Sentence: Malaysia Protests Against Indonesian Court's Decision on Fishermen', *The Star* (Kuala Lumpur), 2011.

Map 2-4 illustrates the unresolved EEZ boundary delimitation between Malaysia and Indonesia in the Strait of Malacca.



Map 2-4: The Potential EEZ Boundary Lines in the Strait of Malacca
(Modified from Google Maps)

At the southern sector of the Strait of Malacca, the earliest maritime boundary delimitation agreement related to the division of the Johor Strait was concluded between the British Government and the Sultan of Johor in the Straits Settlements and Johor Territorial Waters Agreement of 1927.¹¹⁶

The present maritime boundary between Malaysia and Singapore in the Johor Strait is based on this 1927 Agreement, under which all the islets within the Johor Strait belong to Singapore. With

¹¹⁶ Article I of the 1927 Treaty states that there ‘...shall be an imaginary line following the centre of the deep-water channel in Johor Strait, between the mainland of the State and Territory of Johor on the other side, and the Northern shores of the islands of Singapore, Pulau Ubin, Pulau Tekong Kechil and Pulau Tekong Besar on the other side’. See Maritime Institute of Malaysia, ‘Agreement Between the Government of Malaysia and the Government of the Republic of Singapore to Delimit Precisely the Territorial Waters Boundary in Accordance with the Straits Settlements and Johore Territorial Waters Agreement 1927’ in Vivian Louis Forbes and Mohd Nizam Basiron (eds), *Malaysia’s Maritime Space: An Analytical Atlas of the Environments and Resources* (Maritime Institute of Malaysia, 1998), 107-109; Mary George, *Legal Regime of the Straits of Malacca and Singapore* (LexisNexis Malaysia, 2008), 590-592.

the consolidation of Johor into Malaysia upon independence in 1957 and the separation of Singapore in 1965, both governments entered into another agreement relating to the territorial sea limits in the Strait of Johor in 1995. The 1995 Agreement intended to revise the territorial sea boundary previously made between the two States made previously in the 1927 Treaty.¹¹⁷

The maritime boundary delimitation in the Strait of Singapore between Indonesia and Singapore has been defined in the ‘Agreement Stipulating the Territorial Sea Boundary Lines between Indonesia and the Republic of Singapore in the Strait of Singapore’,¹¹⁸ which was signed in 1973 and entered into force in 1974.¹¹⁹ The following Table 2-1 summarises the maritime boundary agreements among the littoral States of the Straits of Malacca and Singapore:

Parties	Type of Boundary	Date Signed	Entry into force	Regional Sea
Indonesia-Malaysia	Continental Shelf	27 October 1969	7 November 1969	Strait of Malacca and South China Sea
Indonesia-Malaysia	Territorial Sea	17 March 1970	8 October 1971	Strait of Malacca
Indonesia-Singapore	Territorial Sea	25 May 1973	29 August 1974	Strait of Singapore
Indonesia-Malaysia-Thailand	Continental Shelf	21 December 1971	16 July 1973	Strait of Malacca
Indonesia-Thailand	Continental Shelf	17 December 1971	16 July 1973	Strait of Malacca
Malaysia-Singapore	Territorial Sea	7 August 1995	7 August 1995	Strait of Johor
Indonesia-Singapore	Territorial Sea	20 May 2009	NIL	Western approaches to the Strait of Singapore

Table 2-1: Summary of Maritime Boundary Agreements on the Straits of Malacca and Singapore
(Source: MIMA)¹²⁰

¹¹⁷ Maritime Institute of Malaysia, ‘Agreement Between the Government of Malaysia and the Government of the Republic of Singapore to Delimit Precisely the Territorial Waters Boundary in Accordance with the Straits Settlements and Johore Territorial Waters Agreement 1927’ in Vivian Louis Forbes and Mohd Nizam Basiron (eds), *Malaysia’s Maritime Space: An Analytical Atlas of the Environments and Resources* (Maritime Institute of Malaysia, 1998), 107-109.

¹¹⁸ Choon-Ho Park, ‘Agreement Stipulating the Territorial Sea Boundary Lines Between Indonesia and the Republic of Singapore in the Strait of Singapore’ in Jonathan I. Charney and Lewis M. Alexander (eds), *International Maritime Boundaries: The American Society of International Law* (Martinus Nijhoff, 1993) vol 1, 1049-1054.

¹¹⁹ Choon-Ho Park, ‘Indonesia-Singapore’ in Jonathan I. Charney and Lewis M. Alexander (eds), *International Maritime Boundaries: The American Society of International Law* (Martinus Nijhoff, 1993) vol 1, 1049-1056.

¹²⁰ Vivian L Forbes and Mohd Nizam Basiron, ‘Unresolved Maritime Boundaries and Implications for Maritime Security in Southeast Asia’ (2010) 17(1) *MIMA Bulletin*, 9.

Notwithstanding the agreements already described, there are many unsettled matters relating to boundary delimitation in the Strait of Malacca. Besides the unresolved EEZ boundary delimitation in the Strait between Malaysia and Indonesia, Malaysia has also yet to finalise and submit a map specifying its straight baselines defining its internal waters and territorial sea on its side of the Strait of Malacca to the United Nations (UN).¹²¹ In the two maps officially released in 1979 by Malaysia's Directorate of National Mapping, entitled Territorial Waters and Continental Shelf Boundaries, Malaysia did not make a formal declaration or publicly identify the exact coordinates of its straight baselines from which these claims are measured, as required by Article 4(6) of the 1958 Geneva Convention on the Territorial Sea and the Contiguous Zone¹²² and Article 16 (2) of the 1982 United Nations Convention on the Law of the Sea (LOSC). Article 16 (2) of LOSC reads:

The coastal State shall give due publicity to such charts or lists of geographical coordinates (on the drawings of baselines) and shall deposit a copy of each such chart or list with the Secretary-General of the United Nations.

In addition, Malaysia and Indonesia have yet to delimit their territorial seas in the waters of the Strait of Singapore.¹²³

The Malaysia-Singapore dispute on sovereignty over Pedra Branca and the small rock islets of *Batuan Tengah* (Middle Rocks) and South Ledge was decided by the International Court of Justice (ICJ) in 2008.¹²⁴ The court awarded sovereignty over Pedra Branca to Singapore while *Batuan Tengah* was awarded to Malaysia. The ICJ left the question of South Ledge to be settled amicably by the two countries.¹²⁵ Consequently, the three littoral States now have their

¹²¹ M. J. Valencia, 'Validity of Malaysia's Baselines and Territorial Sea Claim in the Northern Malacca Strait' (2003) 27 *Marine Policy*, 367-373.

¹²² United Nations (UN), 'Convention on the Territorial Sea and Contiguous Zone 1958' (Treaty Series, UN, 2005).

¹²³ Choon-Ho Park, 'Indonesia-Singapore' in Jonathan I. Charney and Lewis M. Alexander (eds), *International Maritime Boundaries: The American Society of International Law* (Martinus Nijhoff, 1993) vol 1, 1049-1056.

¹²⁴ International Court of Justice (ICJ), 'Sovereignty over Pedra Branca/ Pulau Batu Puteh, Middle Rocks and South Ledge (Malaysia/Singapore)' (ICJ, 2008) <<http://www.icj-cij.org/docket/files/130/14492.pdf?PHPSESSID=e5dc0baf91086da004883db261c90796>>, 93-94.

¹²⁵ *Ibid.*

respective maritime areas in the eastern opening of the Strait of Singapore towards the South China Sea.¹²⁶ Negotiations between Malaysia and Singapore on this issue are still ongoing. Once sovereignty over the islands/rocks is established, maritime delimitation can proceed among Malaysia, Indonesia and Singapore.¹²⁷

The problems of maritime boundary delimitation, as the discussions above clearly show, have not been entirely settled among Malaysia, Indonesia and Singapore as far as the Straits of Malacca and Singapore are concerned. This issue is critical for important maritime chokepoints such as the Straits of Malacca and Singapore, especially with respect to ongoing cooperative activities between the littoral States. The absence of territorial sea delimitations in the Strait of Singapore between Malaysia, Indonesia and Singapore and the unresolved EEZ boundary between Malaysia and Indonesia in the Strait of Malacca would make it complicated, jurisdictional-wise, for these littoral States to exercise their sovereignty and/or sovereign rights over the disputed or overlapping maritime areas. It is also expected that legal difficulties may also arise in determining the appropriate types of navigational rights applicable to vessels navigating through the different areas of the Strait of Malacca. This matter will be further discussed in Chapter 4.¹²⁸ The issue of overlapping maritime claims in the Straits of Malacca and Singapore could only be resolved with the eventual conclusion of maritime boundary delimitation agreements negotiated amicably among the three littoral States.

2.4 DEMOGRAPHIC CHARACTERISTICS

The west coast of Peninsular Malaysia is highly urbanised with large cities such as Kuala Lumpur and the Klang Valley, Georgetown, Malacca and Johor Bahru scattered along the coastal areas of the Strait of Malacca. The population of the west coast states of Peninsular Malaysia

¹²⁶ I Made Andi Arsana, *Good Fences Make Good Neighbours* (2010) *The Malaysian Insider* <<http://www.themalaysianinsider.com/breakingviews/article/good-fences-make-good-neighbors-i-made-andi-arsana/>>; Robert Beckman and Clive Schofield, 'Moving Beyond Disputes Over Island Sovereignty: ICJ Decision Sets Stage for Maritime Boundary Delimitation in the Singapore Strait' (2009) 40(1) *Ocean Development and International Law*, 1-35.

¹²⁷ Robert Beckman and Clive Schofield, 'Moving Beyond Disputes Over Island Sovereignty: ICJ Decision Sets Stage for Maritime Boundary Delimitation in the Singapore Strait' (2009) 40(1) *Ocean Development and International Law*, 1-35.

¹²⁸ See Section 4.3.2 of Chapter 4 of this Thesis.

increased from 9.19 million in 1980 to 15.0 million in 2000.¹²⁹ It is projected that by 2020, 80.32 per cent of the Malaysian population will be living in the urban areas of Malaysia.¹³⁰

The population of Indonesian provinces located along the Straits of Malacca and Singapore is also relatively high. These provinces are Aceh, Riau, Riau Islands, and North Sumatra. Medan, Dumai, Lhokseumawe and Tanjung Pinang are among the major cities and ports that are located on the Indonesian side of the Straits of Malacca and Singapore. The population of the Indonesian provinces that border the Straits is summarised in Table 2-2:

Provinces (Coastal Districts)	Population
North Sumatra (Langkat, Medan, Deli Serdang, Asahan, Labuhan Batu, Tanjung Balai, Tebing Tinggi)	6, 904, 290 (2008) ¹³¹
Aceh (Aceh Besar, Pidie, Bireuen, Aceh Utara, Aceh Timur, Aceh Tamiang)	2, 416, 805 (2009) ¹³²
Riau Islands (Tanjung Pinang, Batam, Bintan, Karimun, Lingga)	1, 226, 676 (2006) ¹³³
Riau (Rokan Hilir, Dumai, Bengkalis, Pelalawan, Inderagiri Hilir)	2, 410, 715 (2007) ¹³⁴

Table 2-2: Population of Indonesian Provinces along the Straits of Malacca and Singapore (Source: The Indonesian Government)

Despite its small land area of 710 square kilometers (km²), Singapore has a population density of 6,814 per km² which is one of the highest in Asia.¹³⁵ The population of Singapore has increased

¹²⁹ H. M. Ibrahim, Hairil Anuar Husin and Deneswari Sivaguru, 'The Straits of Malacca: Setting the Scene' in H.M. Ibrahim and Hairil Anuar Husin (eds), *Profile of the Straits of Malacca: Malaysia's Perspective* (Maritime Institute of Malaysia, 2008), 62.

¹³⁰ Ibid.

¹³¹ Badan Pusat Statistik, 'Luas Wilayah, Jumlah Penduduk dan Kepadatan Penduduk Menurut Kabupaten/Kota Tahun 2008' (Badan Pusat Statistik Provinsi Sumatera Utara, 2008) <<http://sumut.bps.go.id/indexh.php?kdx=tstasek&kd=353>>.

¹³² Biro Tata Pemerintahan Sekretariat Daerah Aceh, 'Laporan Realisasi Kartu Tanda Penduduk (KTP) Standar Nasional' (Nip. 195110105 197204 1 001, Biro Tata Pemerintahan Sekretariat Daerah Aceh, 2009).

¹³³ Pemerintah Provinsi Kepulauan Riau, *Sosial: Penduduk dan Tenaga Kerja* (2006) Pemerintah Provinsi Kepulauan Riau <http://kepriprov.go.id/id/index.php?option=com_content&task=view&id=37&Itemid=47>.

¹³⁴ Pemerintah Provinsi Riau, *Kependudukan* (2009) Pemerintah Provinsi Riau <<http://riauprov.go.id/index.php?mod=halutama&link=kependudukan>>.

from around 2 million in 1970 to approximately 5.1 million in 2010.¹³⁶ Singapore aims to have a population of about 6.5 million in decades to come.¹³⁷

2.5 ECONOMIC SIGNIFICANCE OF THE STRAITS OF MALACCA AND SINGAPORE

The preceding facts show that the coastal areas along the Straits of Malacca and Singapore, particularly northern Sumatra, the west coast of Peninsular Malaysia as well as Singapore, are densely populated. The main reason for this is that the Straits of Malacca and Singapore are important economic lifelines for the coastal populations who engage in economic activities such as fisheries, marine tourism and oil and gas mining.

2.5.1 The Fishing Industry

The western coastline of Peninsular Malaysia and the eastern seaboard of Sumatra facing the Strait of Malacca are, predominantly made up of mangroves and mudflats.¹³⁸ Mangroves have a diverse group of vegetation including trees, shrubs, palms and ground ferns which have adapted to the extreme salinity of the coastal environment.¹³⁹ They are breeding grounds and feeding habitats for many commercially important fishes, prawns, crabs and other fish and seafood species.¹⁴⁰ The waters of the Straits of Malacca and Singapore are part of the Sunda Continental

¹³⁵ John Jeffery et al, 'New Mosquito Species Records (Diptera: Culicidae) from Singapore' (2010) 27(1) *Tropical Biomedicine*, 138.

¹³⁶ Singapore Government, *Statistic Singapore* (2009) Singapore Government <<http://www.singstat.gov.sg/stats/keyind.html#popnarea>>.

¹³⁷ Kathleen Kingsbury, *Singapore Soars* (2007) TIME <<http://www.time.com/time/magazine/article/0,9171,1624897,00.html>>.

¹³⁸ Tan Kim Hooi, 'Natural Resources Exploitation and Utilisation' in H. M. Ibrahim and Hairil Anuar Husin (eds), *Profile of the Straits of Malacca: Malaysia's Perspective* (Maritime Institute of Malaysia, 2008), 72.

¹³⁹ Tan Kim Hooi and Jurgenne H. Primavera, 'Conservation and Managements of Mangroves in Southeast Asia' (Paper presented at the International Conference and Exhibition on Mangroves of Indian and Western Pacific Oceans, Kuala Lumpur, 2006), 39.

¹⁴⁰ Tan Kim Hooi, 'Natural Resources Exploitation and Utilisation' in H.M. Ibrahim and Hairil Anuar Husin (eds), *Profile of the Straits of Malacca: Malaysia's Perspective* (Maritime Institute of Malaysia, 2008), 72.

Plate.¹⁴¹ As such, the Straits are shallow in depth which allows the rays of the sun to penetrate the waters, generating the growth of plankton, a natural diet for many types of fish.¹⁴² The temperature of these waterways is relatively warm, recorded to be around 29.8 °C with an average salinity of 31.17 per cent.¹⁴³ These hospitable features enhance the waters of the Straits of Malacca and Singapore; making these waters conducive to various types of marine life, which are important sources of food and nutrition especially for the three littoral States.¹⁴⁴

The marine fisheries industry in Malaysia contributes considerably to the national economy in terms of income, foreign exchange and employment.¹⁴⁵ Fish represents the main source of animal protein and supplies up to 60 per cent of total protein consumption in Malaysia.¹⁴⁶ In 2005, almost 44 per cent of the total fish landings in Malaysia, valued at RM 1,745.55 million, came from the Strait of Malacca.¹⁴⁷ Between 2001 and 2005, the number of fish landings in West Coast Peninsular Malaysia increased from 489,026 tonnes to 525,906 tonnes.¹⁴⁸ In 2007, the fisheries industries contributed about 1.4 million metric tonnes valued at RM 6.298 billion or roughly 1 per cent of Malaysia's GDP in 2007.¹⁴⁹ In the same year, the total number of fish landings in Peninsular Malaysia's West Coast states was around 692,985 tonnes valued at RM

¹⁴¹ H. Rezai et al, 'Zooplankton biomass in the Straits of Malacca' (2003) 32(3) *Indian Journal of Marine Sciences*, 222-225; Julius A. N. Masrikat, 'Distribusi, Densitas Ikan dan Kondisi Fisik Oseanografi di Selat Malaka' (2003) *Makalah Pribadi Pengantar Ke Falsafah Sains*.

¹⁴² H. Rezai et al, 'Zooplankton biomass in the Straits of Malacca' (2003) 32(3) *Indian Journal of Marine Sciences*, 222-225.

¹⁴³ Ibid.

¹⁴⁴ Amelia Emran, *The Regulation of Vessel-Source Pollution in the Straits of Malacca and Singapore* (Master of Maritime Studies (Research) Thesis, University of Wollongong, 2007), 17-18.

¹⁴⁵ Siti Nazatul Izura bt Mohd Ishak and Tan Kim Hooi, 'Fisheries in the Straits of Malacca' in H.M. Ibrahim and Hairil Anuar Husin (eds), *Profile of the Straits of Malacca: Malaysia's Perspective* (Maritime Institute of Malaysia, 2008), 88; Mahyam Mohammad-Isa, Abu-Talib Ahmad and Sharum Yusof, 'Fisheries and Exploitation Status of the Marine Resources in the Straits of Malacca' (Paper presented at the International Conference on the Straits of Malacca: Towards Sustainable Management of the Straits of Malacca, Malacca, 1999), 643-646.

¹⁴⁶ Mahyam Mohammad-Isa, Abu-Talib Ahmad and Sharum Yusof, 'Fisheries and Exploitation Status of the Marine Resources in the Straits of Malacca' (Paper presented at the International Conference on the Straits of Malacca: Towards Sustainable Management of the Straits of Malacca, Malacca, 1999), 643-646.

¹⁴⁷ Siti Nazatul Izura bt Mohd Ishak and Tan Kim Hooi, 'Fisheries in the Straits of Malacca' in H.M. Ibrahim and Hairil Anuar Husin (eds), *Profile of the Straits of Malacca: Malaysia's Perspective* (Maritime Institute of Malaysia, 2008), 88.

¹⁴⁸ Ibid., 89.

¹⁴⁹ Sutarji Kasmin, 'Enforcing Ship-Based Marine Pollution for Cleaner Sea in the Strait of Malacca' (2010) 3 (Special Issue) *EnvironmentAsia*, 61-65.

2.263 billion, a significant increase from the total fish catch in 2005.¹⁵⁰ The number of fish landings in fishing ports along the Malaysian side of the Strait of Malacca was even bigger in 2009, as shown in the following Table 2-3:

State	Fish Landings (Tonnes)
Perlis	178,247
Kedah	106,486
Pulau Pinang	42,790
Perak	258,086
Selangor	131,350
Negeri Sembilan	610
Malacca	1,691
West Johor	10, 298
TOTAL	729, 558

Table 2-3: Number of Fish Landings in Malaysian States
 Bordering the Strait of Malacca in 2009
 (Source: Department of Fisheries, Malaysia)¹⁵¹

Fisheries industries are also booming on the other side of the Strait. The three main Indonesian provinces bordering the Strait of Malacca, namely Riau, Aceh and North Sumatra depend heavily on this vital waterway to support their fishery industries.¹⁵² An Indonesian study conducted in 2001 revealed that fisheries exploitation in the Indonesian segment of the Strait had reached 389,280 tonnes per annum, more than its sustainable potential of 276,030 tonnes per year.¹⁵³ This raised concerns of overfishing and the depletion of resources.¹⁵⁴ Despite this, fisheries industries continue to be one of the main economic activities for the population of the three main Strait of Malacca provinces of Sumatra as illustrated in the following Table 2-4:

¹⁵⁰ Ibid.

¹⁵¹ Fisheries Department of Malaysia, 'Landings of Marine Fish by State and Fishing Gear Group, 2009' (Table 4.1, Fisheries Department of Malaysia, 2009).

¹⁵² Yuri Gunadi, 'The Straits of Malacca and the Indonesian Economy' (Paper presented at the MIMA International Conference on the Straits of Malacca, Kuala Lumpur, 2006), 189.

¹⁵³ Amelia Emran, *The Regulation of Vessel-Source Pollution in the Straits of Malacca and Singapore* (Master of Maritime Studies (Research) Thesis, University of Wollongong, 2007), 17-18.

¹⁵⁴ Ibid.

Strait of Malacca Provinces of Sumatra	2009 Fish Catch (unit)
Aceh	19,547
North Sumatra	67,215
Riau	14,326
Riau Islands	26,647

Table 2-4: Number of Fish Catch in the Strait of Malacca Provinces of Sumatra in 2009
(Source: Kementerian Kelautan dan Perikanan, Indonesia)¹⁵⁵

The Straits of Malacca and Singapore form just a fraction of Indonesia's huge fisheries potential.¹⁵⁶ The fishery potential for all the waters under Indonesian jurisdiction has been estimated at 6.4 million tonnes per year.¹⁵⁷ As far as the Indonesian side of the Strait of Malacca is concerned, it is approximately 276,030 tonnes per year.¹⁵⁸ Indonesia is the ninth largest producer of fish in the world and exports fisheries products to more than 210 countries.¹⁵⁹ In 2003, fisheries and aquaculture generated foreign exchange earnings of over US\$1.6 billion for the economy of Indonesia.¹⁶⁰

Singapore relies on the Straits of Malacca and Singapore to supply its populations with their protein needs. Possessing a coastline of only 268km, a limited territorial sea and lacking an EEZ, Singapore does not participate in the fisheries industries as actively as its neighbours.¹⁶¹ The Jurong Fishery Port is the main fish landing and distribution point in Singapore and it has handled about 64,209 tonnes of fish in 2009, most of which were imported. In the Southeast Asian region, Singapore has always been regarded as a major consumer State with respect to fish

¹⁵⁵ Sistem Informasi Data Statistik, *View Data Statistik Perairan Laut* (2009) Kementerian Kelautan dan Perikanan <<http://statistik.kkp.go.id/index.php?start=search&mod=0>>.

¹⁵⁶ Anugerah Nontji, 'Managing the Marine Environment of the Straits of Malacca' (Paper presented at the Building a Comprehensive Security Environment in the Straits of Malacca, Kuala Lumpur, 2004), 152.

¹⁵⁷ Ibid.

¹⁵⁸ Ibid.

¹⁵⁹ Food and Agriculture Organization (FAO), *National Aquaculture Sector Overview: Indonesia* (2011) FAO <http://www.fao.org/fishery/countrysector/naso_indonesia/en>.

¹⁶⁰ Ibid.

¹⁶¹ EarthTrends, 'Coastal and Marine Ecosystems-- Singapore' (2003) *EarthTrends: The Environmental Information Portal* <http://earthtrends.wri.org/pdf_library/country_profiles/coa_cou_702.pdf>.

and relies heavily on fish imported from Malaysia, Indonesia and Thailand for local consumption.¹⁶²

Based on these facts, it is clear that both Straits of Malacca and Singapore are important fishing grounds for the coastal population of the three littoral States of Malaysia, Indonesia and Singapore. The increasing number of fish catch as shown in Table 2-3 and Table 2-4 indicate that the fisheries industries in the Straits of Malacca and Singapore region are thriving and developing.

2.5.2 Coastal Environment and Eco-tourism Industry

The coastal beaches and islands along the length of the Straits of Malacca and Singapore have considerable natural beauty; possessing pristine white sandy beaches, coral reefs teeming with marine life and vast mangrove forests, mudflats and other natural attractions.¹⁶³

The Malaysian coastline is about 4,809 km. in length, with muddy coast dominating the western shoreline and sandy beaches on the east.¹⁶⁴ The Malaysian islands of Langkawi, Payar, Penang, Pangkor and Besar are considered significant to the country's tourism industry.¹⁶⁵ Despite the limited distribution of coral reef in the Strait, Pulau Payar, which is located in the northern part of the Strait, is nevertheless rich in coral reef concentration.¹⁶⁶ In 1994, Pulau Payar was designated as a Marine Park. It has attracted an increasing number of local and foreign tourists from only 1,373 visitors in 1988 to 112, 648 visitors in 2006.¹⁶⁷

¹⁶² Government of the Republic of Singapore, 'Agriculture, Animal Production and Fisheries' (Singapore Statistics, 2010) <<http://www.singstat.gov.sg/pubn/reference/yos10/statsT-agriculture.pdf>>.

¹⁶³ Mohd Hazmi bin Mohd Rusli, 'Balancing Navigational Rights and Marine Environmental Protection in Straits Used for International Navigation: A Study on the Straits of Malacca and Singapore' (Paper presented at the 3rd International Conference on Southeast Asia, Kuala Lumpur, 2009).

¹⁶⁴ Keizrul Abdullah, Tan King Seng and Nor Hisham Mohd Ghazali, 'Protecting Coastal and Marine Tourism Assets' (2007) 14(3) 2007 *MIMA Bulletin*, 41-52.

¹⁶⁵ Chua Thia-Eng, S. Adrian Ross and Huming Yu, *Malacca Straits Environmental Profile* (GEF/UNDP/IMO Regional Programme for the Prevention and Management of Marine Pollution in East Asian Seas, 1997), 85-92.

¹⁶⁶ Tan Kim Hooi, 'Natural Resources Exploitation and Utilisation' in H.M. Ibrahim and Hairil Anuar Husin (eds), *Profile of the Straits of Malacca: Malaysia's Perspective* (Maritime Institute of Malaysia, 2008), 78-79.

¹⁶⁷ *Ibid.*, 84.

Coastal beaches like those in Port Dickson, Tanjung Tuan, Tanjung Bidara and Lumut have many natural features and possess sensitive marine environments.¹⁶⁸ Pulau Langkawi is one of the islands along the Strait of Malacca that is rich in biodiversity, as it has numerous sandy beaches, mangrove forests, tropical rainforests and natural caves which are habitats for many species of flora and fauna. Because of these characteristics, UNESCO designated Pulau Langkawi as a Global Geopark in 2007.¹⁶⁹ The following three areas within the island are considered to possess geological significance: Gunung Mat Chincang, Kilim and Pulau Dayang Bunting.¹⁷⁰ As a result of this designation, Langkawi continues to be a prime tourist destination in Malaysia, receiving more than 2 million tourists each year.¹⁷¹

The coastal areas of the west coast of Peninsular Malaysia are rich in mangrove vegetation, peat swamp forests and mudflats. Malaysia's mangroves are among the richest, rarest and most diverse in the world.¹⁷² There is a high concentration of mangrove forests in areas such as Matang, Kukup Island, Tanjung Piai and Sungai Pulai,¹⁷³ which have been designated as RAMSAR sites.¹⁷⁴ Mangrove ecosystems provide habitats for many rare and endangered animal

¹⁶⁸ Chua Thia-Eng, S. Adrian Ross and Huming Yu, *Malacca Straits Environmental Profile* (GEF/UNDP/IMO Regional Programme for the Prevention and Management of Marine Pollution in East Asian Seas, 1997), 85-92.

¹⁶⁹ UNESCO defines a Geopark as a nationally protected area containing a number of geological heritage sites of particular importance, rarity or aesthetic appeal. These Earth heritage sites are part of an integrated concept of protection, education and sustainable development. See United Nations Educational Scientific and Cultural Organization (UNESCO), 'Global Geopark Networks' (UNESCO, 2006), 2.

¹⁷⁰ Langkawi Geopark, *Langkawi Geopark: 99 Magical Islands in the Sun* (2011) Langkawi Geopark <<http://www.langkawigeopark.com>>.

¹⁷¹ Langkawi Tour Guide Association, *Statistik Pelancong ke Langkawi-2009* (2010) Langkawi Tour Guide Association <<http://ltganews.com/?p=734>>.

¹⁷² Mohd Nizam Basiron, Tan Kim Hooi and Zahaitun Mahani Zakariah, 'Wither Our Ecosystems?' (2007) 14(1) *MIMA Bulletin*, 4.

¹⁷³ Tan Kim Hooi, 'Natural Resources Exploitation and Utilisation' in H.M. Ibrahim and Hairil Anuar Husin (eds), *Profile of the Straits of Malacca: Malaysia's Perspective* (Maritime Institute of Malaysia, 2008), 72-79.

¹⁷⁴ The Convention on Wetlands of International Importance, called the Ramsar Convention, is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. The mission of the Convention is to conserve and to wisely use all wetlands through local and national actions and international cooperation, towards achieving the goal of development sustainability. See The Ramsar Convention on Wetlands, *The Annotated Ramsar List: Malaysia* (2008) Ramsar <http://www.ramsar.org/cda/en/ramsar-pubs-annolist-annotated-ramsar-16529/main/ramsar/1-30-168%5E16529_4000_0__>.

species such as migratory birds, monkeys, fruit bats, estuarine crocodiles and many others.¹⁷⁵ These unique flora and fauna have contributed to the tourism economy of Malaysia.¹⁷⁶

Some areas of the Malaysian coast facing the Strait of Malacca possess extensive areas of mudflats. These mudflats form natural habitats for shellfishes, residential and migratory waterbirds and also act as important cockle breeding grounds.¹⁷⁷ The prominent mudflat sites along the Peninsula are Kuala Gula, Kuala Merbok, Kuala Selangor, Pontian and Tanjung Piai.¹⁷⁸ These sites attract local as well as international tourists and nature lovers from all around the world, supporting the local eco-tourism industry.¹⁷⁹ The following Map 2-5 shows the coastal areas along the Strait of Malacca having high cultural, economic and historical importance:

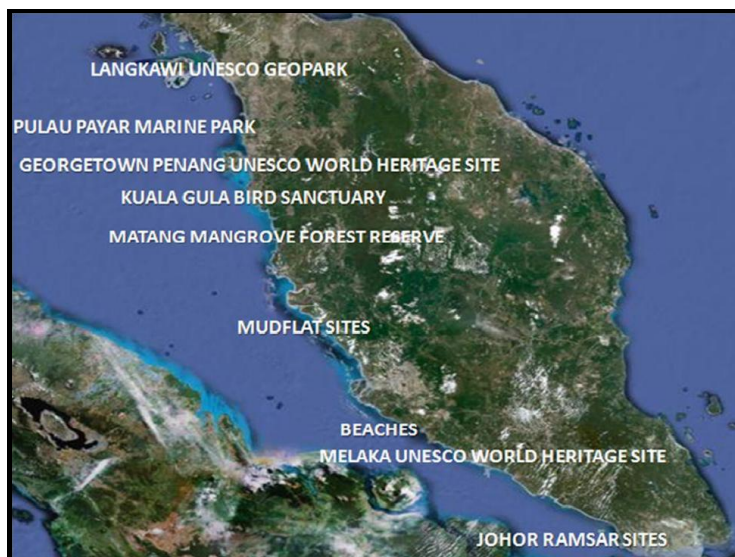
¹⁷⁵ Tan Kim Hooi, 'Natural Resources Exploitation and Utilisation' in H.M. Ibrahim and Hairil Anuar Husin (eds), *Profile of the Straits of Malacca: Malaysia's Perspective* (Maritime Institute of Malaysia, 2008), 75.

¹⁷⁶ Tourism Malaysia, *Destinations: Langkawi Mangroves* (2010) Tourism Malaysia <<http://www.tourism.gov.my/en/destinations/item.asp?item=langkawimangroves>>.

¹⁷⁷ Siti Nazatul Izura Mohamed Ishak and Tan Kim Hooi, 'Shaping the Future of the Cockle Industry in Malaysia' (2008) 15(3) *MIMA Bulletin*, 18-20.

¹⁷⁸ Tan Kim Hooi, 'Natural Resources Exploitation and Utilisation' in H.M. Ibrahim and Hairil Anuar Husin (eds), *Profile of the Straits of Malacca: Malaysia's Perspective* (Maritime Institute of Malaysia, 2008), 72-81.

¹⁷⁹ Tourism Malaysia, *Destinations: Pulau Kukup Johor National Park* (2010) Tourism Malaysia <<http://www.tourismmalaysia.gov.my/en/destinations/item.asp?item=pulaukukup>>.



Map 2-5: Areas along the Strait of Malacca with High Cultural, Economic and Historical Importance¹⁸⁰
(Modified from Google Maps)

The tourism industry is considered a lucrative business in Malaysia. In 2007, the contribution of the entire tourism industry to the Malaysian economy amounted to US\$14.37 billion.¹⁸¹ It was the sector with the second highest contribution to the Malaysian economy for that year.¹⁸² Tourist arrivals in Malaysia increased from 20 million in 2007 to 22 million in 2008.¹⁸³ Based on data collected in 2010, Malaysia is the ninth most visited country in the world and the most visited country in Southeast Asia.¹⁸⁴

The Indonesian provinces that border the Straits of Malacca and Singapore also depend on these waterways for tourism. The eastern coast of Sumatra is rich in concentrations of sandy

¹⁸⁰ Mohd Hazmi bin Mohd Rusli, 'Protecting Vital Sea Lines of Communication: A Study of the Proposed Designation of the Straits of Malacca and Singapore as a Particularly Sensitive Sea Area' (2012) 57 *Ocean and Coastal Management*, 80.

¹⁸¹ Business Monitor, *Summary: Malaysia Tourism Report Q2 2008* (2008) Business Monitor <http://www.reportbuyer.com/leisure_media/tourism_travel/malaysia_tourism_report_q2_2008.html>.

¹⁸² Editor, *Tourism is Second Biggest Contributor to Economy* (2009) Malaysiainfocus.com <<http://malysiainfocus.com/news/tourism-is-second-biggest-contributor-to-economy/>>.

¹⁸³ Ibid.

¹⁸⁴ United Nations World Tourism Organization (UNTWO), 'UNTWO World Tourism Barometer: Committed to Tourism, Travel and the Millenium Development Goals' (2010), 7.

beaches,¹⁸⁵ mangrove swamps¹⁸⁶ and tropical rainforests,¹⁸⁷ with one of the most diverse examples of flora and fauna in the world.¹⁸⁸ The islands of Batam and Bintan in the Strait of Singapore are among Indonesia's most popular tourist destinations in this region.¹⁸⁹ These islands have been successful in generating the tourism industry in the Riau Islands province, recording more than 1.5 million tourist arrivals each year.¹⁹⁰

There are also many tourist attractions in the other Strait of Malacca provinces of Indonesia. For example, the province of Riau has beautiful beaches in Dumai¹⁹¹ and Aceh has pristine islands and scenic beaches in the Sabang district, at the northern tip of Sumatra.¹⁹² In 2008, the tourism industry in Indonesia contributed around Rp 80 trillion (US\$7.1 billion) to the national economy.¹⁹³

Singapore's coastal areas have diverse features, including cliffs, steep coasts, sandy beaches, stony coasts, mangrove swamps, coral and artificial coasts.¹⁹⁴ Sentosa Island, an islet off the Strait of Singapore, is renowned for various attractions, including natural environmental

¹⁸⁵ Anthony J. Whitten et al, *The Ecology of Sumatra* (Gajah Mada University Press, 1987), 89-92.

¹⁸⁶ *Ibid.*, 150-155.

¹⁸⁷ *Ibid.*, 249-252.

¹⁸⁸ Chua Thia-Eng, S. Adrian Ross and Huming Yu, *Malacca Straits Environmental Profile* (GEF/UNDP/IMO Regional Programme for the Prevention and Management of Marine Pollution in East Asian Seas, 1997), 17-33.

¹⁸⁹ *Ibid.*, 86-88.

¹⁹⁰ Yuri Gunadi, 'The Straits of Malacca and the Indonesian Economy' (Paper presented at the MIMA International Conference on the Straits of Malacca, Kuala Lumpur, 2006), 189.

¹⁹¹ Pemerintah Provinsi Riau, *Potensi Daerah Riau Dalam Bidang Pariwisata* (2009) Pemerintah Provinsi Riau <http://www.riau.go.id/index.php?mod=halutama&link=potensi_daerah_pariwisata>.

¹⁹² Portal Nasional Republik Indonesia, *Selamat Datang di Pariwisata Provinsi Nanggroe Aceh Darussalam* (2008) Portal Nasional Republik Indonesia <http://www.indonesia.go.id/id/index.php?task=view&option=com_content&id=3014&Itemid=1582&limit=5&limitstart=5>.

¹⁹³ Ni Komang Erviani, *Bali Wants More in Tourism Revenue* (2009) The Jakarta Post <<http://www.thejakartapost.com/news/2009/04/08/bali-wants-more-tourism-revenue.html-0>>, 16.

¹⁹⁴ Chia Lin Sien, Habibullah Khan and Chou Loke Ming, *The Coastal Environmental Profile of Singapore*, Association of Southeast Asian Nations/United States Coastal Resources Management Project Technical Publications Series 3 (International Center for Living Aquatic Resources Management on behalf of the Association of Southeast Asian Nations/United States Coastal Resources Management Project, 1988), 16.

attributes.¹⁹⁵ According to the Singapore Tourism Board, between July 2010 to February 2011, Singapore received an average of 1 million visitors every month, who come mainly from Indonesia, Australia, China, India and Malaysia.¹⁹⁶ The tourism industry contributes three per cent to Singapore's GDP.¹⁹⁷ By 2015, it is anticipated that Singapore's tourism receipts will be around S\$30 billion, generating an additional 100,000 employment opportunities in the services sector.¹⁹⁸

2.5.3 Oil and Gas Mining

The northwestern corner of the Strait of Malacca is rich in oil and gas reserves. Oil was discovered as early as 1885 in Telaga Said in the North Sumatran village of Pengkalan Brandan and was exploited even before the formation of Indonesia.¹⁹⁹ Just after World War II, Indonesia's most important oil fields, the Duri and Minas fields in Riau were discovered by Caltex.²⁰⁰ By 1963, these fields, which are located adjacent to the town of Dumai, accounted for 50 per cent of the national oil production.²⁰¹ Aceh also has extensive oil fields. Since 1980, the province has contributed 30 per cent to the national oil and gas production of Indonesia.²⁰² Sumatra's offshore oilfields produce up to 55,000 barrels of oil per day. Arun field in Aceh is rich in concentrations of Liquefied Natural Gas (LNG), and reputed to be the biggest producer of LNG in Southeast Asia.²⁰³ Indonesia's national petroleum company, *Perusahaan Tambang Minyak Negara*

¹⁹⁵ Asia Web Direct, *Sentosa-Singapore: Everything you Need to Know about Sentosa Island* (2010) singapore.com <<http://www-singapore.com/sentosa.htm>>.

¹⁹⁶ Singapore Tourism Board, 'Fact Sheet Tourism Sector Performance for July 2010' (Singapore Tourism Board, 2010), 1-8; Singapore Tourism Board, 'Fact Sheet Tourism Sector Performance for February 2011' (Singapore Tourism Board, 2011), 1-5.

¹⁹⁷ Singapore Tourism Board, *Singapore Mirror: Singapore at your Fingertips* (2009) Mirror Media <http://www.singaporemirror.com.sg/co_singtourism.htm>.

¹⁹⁸ Ibid.

¹⁹⁹ John Clure, 'Fuel Resources: Oil and Gas' in Michael J A.J. Barber, Crow, John Milsom (ed), *Sumatra: Geology, Resources and Tectonic Evolution* (The Geological Society, 2005), 131-133.

²⁰⁰ Ibid., 135.

²⁰¹ William H. Frederick and Robert L. Worden, *Indonesia: A Country Study* (1993) US Library of Congress <<http://countrystudies.us/indonesia/>>.

²⁰² Tim Kell, *The Roots of Acehnese Rebellion, 1989-1992* (Cornell Modern Indonesia Project, 1995), 31-34.

²⁰³ Amelia Emran, *The Regulation of Vessel-Source Pollution in the Straits of Malacca and Singapore* (Master of Maritime Studies (Research) Thesis, University of Wollongong, 2007), 19.

(PERTAMINA) has established four main oil refineries along the Strait of Malacca, namely Musi, Dumai, Sungai Pakning and Pengkalan Brandan Refineries.²⁰⁴ In 2007, it was estimated that Indonesia had 4.3 billion barrels of proven oil reserves. However, since 1996, Indonesia's oil production output has dropped by 32 per cent owing to declines in production and unsuccessful exploration activities.²⁰⁵

Oil refineries have been built in coastal areas of Malaysia and Singapore along the length of the waterway. Malaysia's national oil company, *Petroleum Nasional Berhad* (PETRONAS) owns oil refineries in Tangga Batu, Malacca while both Shell and ExxonMobil operate oil refineries in Port Dickson in Negeri Sembilan.²⁰⁶ Singapore currently has three oil refineries. Singapore Refining Company Private Limited operates a refinery on Jurong Island capable of processing 290,000 barrels per day (bpd) of crude oil.²⁰⁷ The other two refineries, operated by ExxonMobil, are located on Jurong Island which is capable of processing 605,000 bpd; and the Pulau Bukom Refinery, owned and managed by Royal Dutch Shell, capable of refining 500,000 bpd.²⁰⁸ At present, there is a plan to build another refinery in Singapore with the capacity to process up to 500,000 bpd of crude oil.²⁰⁹

2.5.4 Shipping in the Straits of Malacca and Singapore

In the eyes of the international shipping community, the Straits of Malacca and Singapore are seen as strategic sea lines of communication that facilitate global trade. The Straits form the shortest route connecting the oil suppliers from the Middle East with the East Asian economies

²⁰⁴ Intellasia News Services, *FACTBOX-Indonesia Plans to Upgrade Ageing Oil Refineries* (2009) Intellasia News Services <<http://www.intellasia.net/news/articles/resources/111267566.shtml>>.

²⁰⁵ US Energy Information Administration, *Indonesia: Oil Energy Information Administration* (2009) US Energy Information Administration <<http://www.eia.doe.gov/emeu/cabs/Indonesia/Oil.html>>.

²⁰⁶ Malaysian Industrial Development Authority (MIDA), 'Profit from Malaysia's Petrochemical Industry' (Petrochemical & Polymer Industries Division, 2004), 1-12.

²⁰⁷ Singapore Refining Company, *Welcome to Singapore Refining Company* (2011) Singapore Refining Company <<http://www.src.com.sg>>.

²⁰⁸ Reuters.com, *Oil Trader Hin Leong to set up Singapore's 4th Refinery* (2010) Reuters <<http://www.reuters.com/article/idUSL3E6NM00B20101222>>.

²⁰⁹ Ibid.

of China, Japan and South Korea.²¹⁰ In 2000, an average of 399 vessels passed through the Straits of Malacca and Singapore every day which translates to one vessel every 3.6 minutes.²¹¹ In 2004, it was reported that more than 900 ships sail the Strait of Singapore every day, which means that one ship passes the Strait of Singapore every 1.6 minutes.²¹² In 2010, the British Broadcasting Corporation (BBC) News reported that the Straits of Malacca and Singapore accommodate almost six times the volume of navigational traffic that goes through the Suez Canal every year.²¹³

In terms of navigational traffic, the Straits of Malacca and Singapore come second only to the Dover Strait, a crucial European chokepoint bordered by the United Kingdom, France and Belgium.²¹⁴ It is estimated that 11 million barrels of oil pass through the Straits of Malacca and Singapore daily.²¹⁵ Tankers and bulk carriers transport vast quantities of oil, coal, iron ore and minerals to the economic centres of Southeast and Northeast Asia; while on the other direction, millions of containers are carried to consumer markets from all over the globe.²¹⁶ Oil tankers constitute the second biggest type of vessel plying the Straits of Malacca and Singapore, after container vessels, as shown in Table 2-5:

²¹⁰ About two thirds of Middle-Eastern or Gulf oil exports go to Asian countries namely Japan, China and South Korea. See Michael Richardson, 'The Sea Lane and Energy Security Lifeline between the Persian Gulf and Asia' in Andrew Forbes (ed), *Asian Energy Security: Regional Cooperation in the Malacca Strait* (Sea Power Centre-Australia, 2008), 118-119.

²¹¹ Shigeki Sakamoto, 'Non-State Actors' Role in the Co-operative Mechanism for the Straits of Malacca and Singapore- Seeking to Substantiate UNCLOS Article 43' (Paper presented at the International Symposium on Safety and Protection of the Marine Environment in the Straits of Malacca and Singapore, Kuala Lumpur, 2008), 2.

²¹² International Court of Justice (ICJ), 'Case Concerning Sovereignty over Pedra Branca/ Pulau Batu Puteh, Middle Rocks and South Ledge (Malaysia/ Singapore): Memorial of Singapore' (Government of Singapore, 2004) <<http://www.icj-cij.org/docket/files/130/14133.pdf>>, 10-11.

²¹³ BBC News, *Singapore Warns of Threat to Tankers in Malacca Strait* (2010) BBC News <<http://news.bbc.co.uk/2/hi/asia-pacific/8549053.stm>>.

²¹⁴ Euan Graham, *Japan's Sea Lane Security, 1940-2004: A Matter of Life and Death* (Nissan Institute, Routledge Japanese Studies Series, 2006), 26-27.

²¹⁵ International Institute for Strategic Studies, 'Energy and Maritime Security' (Paper presented at the 3rd IISS Regional Security Summit: The Manama Dialogue, Manama, Bahrain, 2006), 46.

²¹⁶ Joshua H. Ho, 'Enhancing Safety, Security and Environmental Protection of the Straits of Malacca and Singapore: The Co-operative Mechanism' (2009) 40(2) *Ocean Development and International Law*, 233-234.

Type	2005	2006	2007	2008	2009	2010
VLCC/ Deep Draft CR	3, 788	3, 851	3, 753	4, 040	4, 221	4, 329
Oil Tanker Vessel	14, 759	14, 784	14, 391	15, 894	16, 398	16, 250
LNG/ LPG Carrier	3, 099	3, 297	3, 413	3, 726	3, 330	3, 581
Cargo Vessel	63, 40	6, 477	8, 467	8, 794	8, 560	8, 444
Container Vessel	20, 818	22, 615	23, 736	26, 359	22, 310	24, 805
Bulk Carrier	7, 394	8, 129	9, 684	10, 256	11, 186	11, 639
Others	6, 423	6, 496	6, 734	7, 312	5, 354	5, 085
Total	62, 621	65, 649	70, 178	76, 381	71, 359	74, 133

Table 2-5: Traffic Scenario in the Strait of Malacca
(Source: VTS Port Klang & MIMA)²¹⁷

Despite the dip in shipping traffic in 2009, the number of transiting tankers remained steady, indicating the importance of the Straits for oil transportation. The vessels that ply the Straits of Malacca and Singapore fly various flags from numerous countries. This is illustrated in the following Table 2-6 and 2-7:

Country	Number of Transits (Approximate)	DWT (Mil) (Approximate)
Japan	12, 000	900
Germany	9, 000	400
Greece	7, 000	600
Singapore	4, 500	150
China	4, 500	300
Indonesia	4, 300	100
Malaysia	4, 200	120
Taiwan	3, 000	150
Hong Kong	2, 000	250
South Korea	1, 800	220

Table 2-6: Top 10 Transits by Owner Nationality (2007)²¹⁸
(Source: Lloyd's MIU)²¹⁹

²¹⁷ H. M. Ibrahim and Mansoureh Sh, 'Analysis of Carrying Capacity and Critical Governance Strategies for the Straits of Malacca' (Paper presented at the 6th MIMA International Conference on the Straits of Malacca "Chartering the Future", Kuala Lumpur, Malaysia, 2009); Mansoureh Shahryari and Mohd Arshad Atta Mohamed, 'Tipping Points in the Strait of Malacca' (2011) 18(1) *MIMA Bulletin*, 5.

²¹⁸ This is the most current data retrieved from Lloyd's MIU which was presented at the Symposium on Safety and Protection of the Marine Environment in the Straits of Malacca and Singapore held in Kuala Lumpur, Malaysia in 2008. See Note 215.

Country	Number of Transits (Approximate)	DWT (Mil) (Approximate)
Panama	19, 000	1, 400
Liberia	7, 000	600
Singapore	6, 500	350
Indonesia	5, 000	50
Malaysia	4, 500	120
Hong Kong	3, 000	300
Marshall Islands	2, 500	200
Bahamas	2, 000	180
Germany	1, 000	100
Malta	1, 000	100

Table 2-7: Top 10 Transits by Flag (2007)
(Source: Lloyd's MIU)²²⁰

The following Tables 2-8 and 2-9 show the types of commodities carried by vessels that ply the Straits of Malacca and Singapore both eastbound and westbound:

Commodities	Tonnes (Mil)
Crude Oil	679
Ores	278
Petroleum Products	79
Grain	30
LNG	29
Organic/ Inorganic Chemicals	27
Iron and Steel	22
LPG	21
Forest Products	15
Miscellaneous	10

Table 2-8: Top 10 Eastbound Commodities by Volume (2007)
(Source: Lloyd's MIU)²²¹

²¹⁹ Wally Mandryk, 'Lloyd's Marine Intelligence Unit: Strategic Importance of Trade and Shipping in the Straits of Malacca and Singapore' (Paper presented at the Symposium on Safety and Protection of the Marine Environment in the Straits of Malacca and Singapore, Kuala Lumpur, Malaysia, 2008).

²²⁰ Ibid.

²²¹ Ibid.

Commodities	Value US\$ (bil)
Electronic/ Electric Goods	136
Consumer Goods	112
Office/ Computing Materials	94
Machinery	86
Motor Vehicles	62
Miscellaneous Liner	52
Wearing Apparels	40
Organic/Inorganic Chemicals	36
Iron and Steel	29
Semi-conductors	28

Table 2-9: Top 10 Westbound Commodities by Value (2007)
(Source: Lloyd's MIU)²²²

These Tables confirm that the Straits of Malacca and Singapore are indispensable to global shipping given the wide range of commodities shipped through these routes. As indicated in Table 2-6, with the exception of Singapore, the littoral States are not the main users of the Straits of Malacca and Singapore; but rather industrialised States with large economies, such as Japan, Germany and China, are the key users. Nevertheless, as three of the largest economies in East Asia, the littoral States do rely on the Straits of Malacca and Singapore for their trade activities.²²³

Alongside the US, China is now one of the world's largest consumers of oil.²²⁴ With the rise of China as the world's new economic power, it is predicted that transiting traffic in the Straits of Malacca and Singapore will continue to increase at an average rate of 9 per cent annually.²²⁵ This represents an increase of about 150,000 annual ship movements by the year 2020.²²⁶ Besides

²²² Ibid.

²²³ World Trade Organization (WTO), 'International Trade Statistics: Trade to Expand by 9.5 Per Cent in 2010 After a Dismal 2009, WTO Reports' (2010) <http://www.wto.org/english/news_e/pres10_e/pr598_e.htm>.

²²⁴ US Energy Information Administration, *US Energy Information Administration Independent Statistics and Analysis: China* (2009) US Energy Information Administration <<http://www.eia.doe.gov/cabs/China/Background.html>>.

²²⁵ Muhammad Razif bin Ahmad, 'The Financial Cost of Risk Management in the Straits of Malacca' in Hamzah Ahmad (ed), *The Straits of Malacca: International Co-operation In Trade, Funding & Navigational Safety* (Pelanduk, 1997), 187.

²²⁶ Vijay Sakhujia, *Malacca: Who's to Pay for Smooth Sailing?* (2007) Asia Times Online <http://www.atimes.com/atimes/Southeast_Asia/IE16Ae01.html>; Robert Beckman, 'The Establishment of Cooperative Mechanism for the Straits of Malacca and Singapore under Article 43 of the United Nations

China, the other East Asian economies of Japan and South Korea rely heavily on the Straits of Malacca and Singapore for their oil needs which come from their Middle Eastern suppliers.²²⁷ According to an international study, nearly 20 million barrels of oil are expected to pass through the Straits of Malacca and Singapore by the year 2020.²²⁸ Statistical data have shown that most of the world's busiest ports are located in East Asian countries including China and South Korea, with Singapore ranked as the busiest, as shown in the following Table 2-10:

Container Traffic (TEU- Twenty-Foot Equivalent Units) 2009			
Rank	Port	Country	TEUs
1.	Singapore	Singapore	25, 866, 600
2.	Shanghai	China	25, 002, 000
3.	Hong Kong	China	21, 040, 096
4.	Shenzhen	China	18, 250, 100
5.	Busan	South Korea	11, 954, 861
6.	Guangzhou	China	11, 190, 000
7.	Dubai Ports	United Arab Emirates	11, 124, 082
8.	Ningbo	China	10, 502, 800
9.	Qingdao	China	10, 280, 000
10.	Rotterdam	Netherlands	9, 743, 290
11.	Tianjin	China	8, 700, 000
12.	Kaohsiung	Taiwan	8, 581, 273
13.	Port Kelang	Malaysia	7, 309, 779
14.	Antwerp	Belgium	7, 309, 639
15.	Hamburg	Germany	7, 007, 704
16.	Los Angeles	US	6, 748, 994
17.	Tanjung Pelepas	Malaysia	5, 835, 085
18.	Long Beach	US	5, 067, 597
19.	Xiamen	China	4, 680, 355
20.	Bremen/ Bremerhaven	Germany	4, 578, 642

Table 2-10: World's Busiest Ports 2009

Note: Ports in bold are those located along the Straits of Malacca and Singapore
(Source: American Association Port Authorities)²²⁹

Convention on the Law of the Sea' in Aldo Chircop, Ted L. McDorman and Susan J. Rolston (eds), *The Future of Ocean Regime-Building-Essays in Tribute to Douglas M. Johnston* (Martinus Nijhoff, 2009), 234-235.

²²⁷ Tetsuo Hamazu, 'The Changing Structure of Oil Connections' in Kaoru Sugihara and John Anthony Allan (eds), *Japan in the Contemporary Middle East* (Routledge, 2005), 50-52.

²²⁸ S. Ramesh, 'Malaysia, Indonesia and Singapore Set Up to Co-operative Mechanism' (2007) *Channel News Asia* <<http://www.channelnewsasia.com/stories/singaporelocalnews/view/297801/1/.html>>.

²²⁹ American Association of Port Authority (AAPA), *World Port Ranking- 2009* (2009) AAPA <<http://aapa.files.cms-plus.com/PDFs/WORLD%20PORT%20RANKINGS%202009.pdf>>.

These waterways bear strategic importance to countries in Southeast Asia and the surrounding sub-regions, based on their dominant role as the main sea lines of communication in this part of the world.²³⁰ Due to the maritime geographical features of Southeast Asia, shipping provides the most convenient way to conduct trade across the vast expanse of the region.²³¹ If these Straits were closed to navigation, ships will be forced to traverse the longer Lombok and Makassar routes through Indonesian archipelagic waters, inevitably increasing shipping costs.²³² In this scenario, the navigational distance for ships would be extended by 1000 nautical miles.²³³ After the 2008 spikes in crude oil prices, this would mean an additional shipping cost of US\$500,000 per ship per transit for a large vessel such as a Very Large Crude Carrier (VLCC).²³⁴ Thus, the Straits of Malacca and Singapore are important for reducing transportation costs.²³⁵ In effect, any interference with the free flow of maritime traffic through these waterways would be detrimental for international trade and the global economy.²³⁶

2.6 CONCLUSION

This Chapter discussed the historical significance of the Straits of Malacca and Singapore. Their importance as strategic sea lines of communication can be traced as early as the third century

²³⁰ Johannes Sarsito, 'Coastal Management in an Enclosed Sea Environment: A Case Study on the Malacca Strait' in Sam Bateman and Stephen Bates (eds), *Shipping and Regional Security* (Strategic and Defence Studies Center, Research School of Pacific and Asian Studies, The Australian National University, 2005), 55-57.

²³¹ Nazery Khalid, 'Ports in South East Asia: Issues and Challenges' (2008) 13 *Jurnal Jabatan Pengajian Asia Tenggara (JATI)*, 23.

²³² B. K. Sondakh, 'National Sovereignty and Security in the Straits of Malacca' (Paper presented at the MIMA International Conference on the Straits of Malacca, Kuala Lumpur, 2004), 79-80; John H. Noer and David Gregory, 'Chokepoints: Maritime Economic Concerns in Southeast Asia' (National Defense University & Institute for National Strategic Studies, 1996), 4-31.

²³³ Yann-huei Song, 'Regional Maritime Security Initiative (RMSI) and Enhancing Security in the Straits of Malacca: Littoral States and Regional Responses' in Shicun Wu and Keyuan Zou (eds), *Maritime Security in the South China Sea: Regional Implications and International Cooperation* (Ashgate, 2009), 84.

²³⁴ Shigeki Sakamoto, 'Non-State Actors' Role in the Co-operative Mechanism for the Straits of Malacca and Singapore- Seeking to Substantiate UNCLOS Article 43' (Paper presented at the International Symposium on Safety and Protection of the Marine Environment in the Straits of Malacca and Singapore, Kuala Lumpur, 2008), 1-3.

²³⁵ Mohd Hazmi bin Mohd Rusli, 'Straits of Malacca and Singapore: Pride of the Malay Archipelago, Priceless Maritime Heritage of the World' (Paper presented at the International Conference on Islamic Civilization and Malay Identity (ICICMI), Melaka Malaysia, 2011), 89-115.

²³⁶ H. M. Ibrahim, Hairil Anuar Husin and Deneswari Sivaguru, 'The Straits of Malacca: Setting the Scene' in H. M. Ibrahim and Hairil Anuar Husin (eds), *Profile of the Straits of Malacca: Malaysia's Perspective* (Maritime Institute of Malaysia, 2008), 31-38.

AD, and continues to the present. The discussion in Part One of this Chapter showed that before the era of Western colonisation, the Straits were dominated by a succession of Empires, beginning with Srivijaya, followed by Majapahit and finally, by Malacca, upon which the Strait of Malacca took its name. The region around the Straits survived, thrived and flourished by regulating and exploiting trade flows within the Malay Archipelago itself, and more importantly, between the East and the West. In 1511, after the fall of the Malacca Sultanate, the competition for supremacy in the Strait of Malacca continued between the regional Empires and the Western colonisers until eventually, the latter emerged victorious.

At present, the Straits of Malacca and Singapore are jointly shared by Malaysia, Indonesia, Singapore, and Thailand. This Chapter in Section 2.3 discussed in detail the issue of maritime boundary delimitation in the Straits. It traced the various maritime boundary agreements negotiated among the littoral States with respect to the waters of the Straits, as well as ongoing negotiations that seek to delimit unresolved maritime jurisdictional zones among the littoral States. While maritime boundary delimitation issues still exist, substantial progress has been made in this area, with most of the potential maritime boundaries settled amicably by the countries that share the Straits.

The second part of this Chapter focused on the role of the Straits of Malacca and Singapore highlighted the economic importance of the Straits, in particular by providing employment opportunities to millions of people through fisheries industries, tourism activities and oil and gas enterprises. However, to the international maritime community, the greatest significance of the Straits of Malacca and Singapore to the global economy lies in their role in facilitating international shipping activities. The designation of several areas along the Straits of Malacca and Singapore as RAMSAR and World Heritage Sites demonstrates that these Straits are more than just important shipping routes. Indeed, these waterways possess invaluable cultural, historical and socio-economic significance. Thus, it is clear that collectively, the Straits of Malacca and Singapore are undeniably a priceless maritime heritage.

CHAPTER 3. THE LEGAL STATUS OF STRAITS USED FOR INTERNATIONAL NAVIGATION

3.1 INTRODUCTION

This Chapter examines the legal status of straits used for international navigation under international law. The discussion of the legal status of straits originated from the question on whether or not freedom of navigation should apply to vessels navigating through straits. The first part of this Chapter discusses the debate between freedom of the sea *vis-à-vis* closed sea. The latter part of this Chapter discusses the efforts of the global community to formulate an acceptable legal status of straits. This section considers arguments put forward by jurists in early seventeenth century until the transit passage regime was officially accepted as the navigational regime applicable in straits used for international navigation in 1982. This Chapter concludes by observing whether or not the transit passage regime has achieved the status of customary international law.

3.2 FREEDOM OF THE SEAS VIS-À-VIS CLOSED SEAS

Since time immemorial, the ocean has been inseparable from human civilisations and traditionally exploited for its abundance of wealth, opportunities and resources.¹ The word ‘ocean’ originated from the Greek word ‘*okeanos*’, which refers to the whole body of salt water covering nearly three-fourths of the earth’s surface.² In ancient Rome, the sea was described as ‘*commune omnium*,’ or property common to all.³ The doctrine of the freedom of the seas was accepted as a binding principle under Roman Law. It was also one of the earliest concepts in

¹ Jack N. Barkenbus, ‘The Politics of Ocean Resource Exploitation’ (1977) 21(4) *International Studies Quarterly*, 675-677; Iskandar Sazlan, *Lautan Masa Depan Kita: Laporan Suruhanjaya Bebas Kelautan Dunia* (Maritime Institute of Malaysia, 2000), 17; International Maritime Organization (IMO), *Overview of Shipping and Navigation History* (1998) IMO <http://www.imo.org/includes/blastDataOnly.asp/data_id%3D21794/Overviewofshippingandnavigationhistory.pdf>

² Merriam-Webster Online Dictionary, *Ocean* (2009) Merriam-Webster Online Dictionary <<http://www.merriam-webster.com/dictionary/ocean>>.

³ Ram P. Anand, ‘Freedom of the Seas: Past, Present and Future’ in Hugo Caminos (ed), *Law of the Sea* (Dartmouth, 2001), 216; R. P. Anand, ‘Changing Concepts of Freedom of the Seas: A Historical Perspective’ in Jon M. Van Dyke, Durwood Zaelke and Grant Hewison (eds), *Freedom of the Seas in the 21st Century: Ocean Governance and Environmental Harmony* (Greenpeace, 1993), 72.

international law. While the doctrine of freedom of the seas disappeared in Europe after the disintegration of the Roman Empire,⁴ it is now accepted as a fundamental principle of ocean governance.⁵

The Portuguese and the Spanish were the great maritime superpowers in the sixteenth century.⁶ Both powers were enthusiastic to expand their influence through trade and colonisation.⁷ In order to avoid disputes and clashes between these two powers, Pope Alexander VI divided the world into two spheres via the Papal Bull of Demarcation of 1493.⁸ The Papal Bull drew a line 483 km west of Azores and Cape Verde Islands dividing the Atlantic Ocean and the New World. All new lands to the East of this line were allocated to Portugal while lands to the West of the line were placed under Spanish dominion.⁹ In 1494, both powers negotiated the Treaty of Tordesillas, which shifted the delineation line 1,185 miles westward of Cape Verde Islands.¹⁰ The Treaty was sanctioned by Pope Julius II in 1506 but was not well received by other European sovereigns such as the British and the French.¹¹

The Treaty of Tordesillas propagated the concept of ‘ownership of the seas’ as opposed to ‘freedom of the seas’. The advent of the great period of maritime exploration in the seventeenth century by other European powers particularly the British and the Dutch sparked criticism

⁴ Ram Prakash Anand, *Origin and Development of the Law of the Sea*, Publications on Ocean Development (Martinus Nijhoff, 1982), 3.

⁵ Ram P. Anand, ‘Freedom of the Seas: Past, Present and Future’ in Hugo Caminos (ed), *Law of the Sea* (Dartmouth, 2001), 216; Bo Johnson Theutenberg, ‘Mare Clausum et Mare Liberum’ (1984) 37(4) *Arctic*, 481-492.

⁶ Jackson J. Spielvogel, *Western Civilization, Volume II: Since 1500* (Thomson Wadsworth, 2009), 410-442.

⁷ Rit Nosotro, *Portuguese and Spanish Methods of Exploration and Trade* (2010) Hyperhistory.net <<http://www.hyperhistory.net/apwh/essays/comp/cw25portugalspainexplortrade.htm>>.

⁸ Alexander VI, ‘The Bull Eximiae Devotionis’ in Frances Gardiner Davenport (ed), *European Treaties bearing on the History of the United States and its Dependencies to 1648* (Lawbook Exchange, 2004), 64-70.

⁹ United Nations (UN), *The United Nations Convention on the Law of the Sea (A Historical Perspective)* (2011) Oceans and Law of the Sea Division for Ocean Affairs and Law of the Sea <http://www.un.org/Depts/los/convention_agreements/convention_historical_perspective.htm#Historical%20Perspective>.

¹⁰ Mary Wilhelmine Willams, ‘The Treaty of Tordesillas and the Argentine-Brazilian Boundary Settlement’ (1922) 5(1) *The Hispanic American Historical Review*, 3-6; Encyclopedia Britannica, *Treaty of Tordesillas* (2009) Encyclopedia Britannica <<http://www.britannica.com/EBchecked/topic/599856/Treaty-of-Tordesillas>>.

¹¹ Encyclopedia Britannica, *Treaty of Tordesillas* (2009) Encyclopedia Britannica <<http://www.britannica.com/EBchecked/topic/599856/Treaty-of-Tordesillas>>.

against the concept of ‘ownership of the seas’.¹² The Dutch jurist Hugo Grotius was the leading proponent of the concept of the ‘freedom of the seas’. In his treatise, *Mare Liberum* (literally meaning, ‘The Freedom of the Seas’) published in 1609, he advocated that no ocean can be the property of a nation.¹³ Grotius asserted that “...the subjects of the United Netherlands- have the right to sail to the East Indies, as they are now doing, and to engage in trade with the people there...Every nation is free to travel to every other nation, and to trade with it.”¹⁴

Grotius argued that vessels of all flags should be allowed to enter the territorial waters of any State for purposes of trade and transportation.¹⁵ This concept of ‘free seas’ advocated by Grotius provided a suitable ideological justification for the Dutch to challenge Portugal and Spain’s naval monopolies.¹⁶ Despite advocating freedom of the seas, Grotius recognised a nation’s jurisdiction over coastal waters nearest to its shores.¹⁷

¹² Jon M. Van Dyke, ‘International Governance and Stewardship of the High Seas and Its Resources’ in Jon M. Van Dyke, Durwood Zaelke and Grant Hewison (eds), *Freedom for the Seas in the 21st Century: Ocean Governance and Environmental Harmony* (Greenpeace, 1993), 14.

¹³ Benedict Kingsbury, ‘Gentili, Grotius and the Extra-European World’ in Harry N. Schneiber (ed), *Law of the Sea: The Common Heritage and Emerging Challenges* (Martinus Nijhoff, 2000) vol 34, 53-57; Garry R. Russ and Dirk C. Zeller, ‘From Mare Liberum to Mare Reservarum’ (2003) (27) *Marine Policy*, 76; Bernard H Oxman, ‘The Territorial Temptation: A Siren Song At Sea’ (2006) 100 *The American Journal of International Law*, 830.

¹⁴ Hugo Grotius, *The Freedom of the Seas or the Right Which Belongs to the Dutch to take Part in the East Indian Trade: A Dissertation by Hugo Grotius (Translated by Ralph Van Deman Magoffin)* (Lawbook Exchange, 2001), 7.

¹⁵ Andre-Louis Sanguin, ‘Geopolitical Scenarios, From the Mare Liberum to the Mare Clausum: The High Sea and the Case of the Mediterranean Basin’ (1997) <<http://hrcak.srce.hr/file/15005>>. In challenging the claims of sovereignty by the Portuguese over East Indies, Grotius wrote in his book:

‘This I prove by the incontrovertible argument that no one is sovereign of a thing which he himself has never possessed, and which no one has held in his name. These islands of which we speak, now have and always have their own king, their own government, their own laws and their own legal systems. The inhabitants allow the Portuguese to trade with them, just as they allow other nation the same privilege’.

See Hugo Grotius, *The Freedom of the Seas or the Right Which Belongs to the Dutch to take Part in the East Indian Trade: A Dissertation by Hugo Grotius (Translated by Ralph Van Deman Magoffin)* (Lawbook Exchange, 2001), 11-14; Markus J. Kachel, *Particularly Sensitive Sea Areas: The IMO’s Role in Protecting Vulnerable Marine Areas* (Springer-Verlag, 2008), 54-55.

¹⁶ Mark Beaufoy, ‘Is the Law of the Sea Ready for Nuclear Leasing’ (2006) 3 *Macquarie Journal of International and Comparative Environmental Law*, 93-96.

¹⁷ Office of Coast Survey, *Law of the Sea: History of the Maritime Zones Under International Law* (2011) Office of Coast Survey <http://www.nauticalcharts.noaa.gov/staff/law_of_sea.html>. Traditionally, a State may claim up to three-nautical miles of territorial sea limits. This was not an arbitrary designation as it was based on the canon-shot rule; a nation could own maritime areas closest to its shore based on the range of a canon shot. See Peter Jacques and Zachary A. Smith, *Ocean Politics and Policy: A Reference Handbook* (ABC-CLIO, Inc, 2003), 7-8; Henry Philip Farnham, *The Law of Waters and Water Rights* (Lawbook Exchange, 1904), 11-14.

The Europeans were not the only ones who pioneered the development of the concept of freedom of the seas. In fact, this concept has been practiced in the Strait of Malacca region as early as the third century AD when the kingdom of Langkasuka was established.¹⁸ As previously explained in Chapter 2, after the fall of Langkasuka, Srivijaya emerged as the biggest maritime empire in Southeast Asia in the seventh century AD. The Srivijaya Empire was replaced by Majapahit, which was succeeded by the Malacca Empire.¹⁹ The succession of Kingdoms which ruled Southeast Asia did not disrupt trading activities among these kingdoms and other Asian territories.²⁰ The active trading activities within this region show that besides the Europeans, the Asians, namely the Chinese, Indians, Arabs and the Malays, also practiced the concept of freedom of the seas.²¹ When the Dutch penetrated into the East Indies and tried to monopolise the spice trade in the Spice Islands in the seventeenth century, the Ruler of Makassar is reported to have said that the sea is open to all and that there was no such concept as anyone being forbidden to sail the seas.²²

During the colonial age, many States in Africa, Asia, America and Australasia were colonised by Europe.²³ With fewer independent sovereign States, there were less conflicting interests between

¹⁸ Pierre-Yves Manguin, 'The Archaeology of Early Maritime Polities of Southeast Asia' in Ian Glover and Peter Bellwood (eds), *Southeast Asia: From Prehistory to History* (RoutledgeCurzon, 2004), 294; See Section 2.2.1 of Chapter 2 of this Thesis.

¹⁹ Philip J. Adler and Randall L. Pouwels, *World Civilizations* (Thomson Wadsworth, 2008), 238-239; See Section 2.2.1 of Chapter 2 of this Thesis.

²⁰ Lea E. Williams, *Southeast Asia: A History* (Oxford University Press, 1976), 26-35; See Section 2.2.1 of Chapter 2 of this Thesis.

²¹ Ram P. Anand, 'Freedom of the Seas: Past, Present and Future' in Hugo Caminos (ed), *Law of the Sea* (Dartmouth, 2001), 262-264; R.P. Anand, 'Changing Concepts of Freedom of the Seas: A Historical Perspective' in Jon M. Van Dyke, Durwood Zaelke and Grant Hewison (eds), *Freedom of the Seas in the 21st Century: Ocean Governance and Environmental Harmony* (Greenpeace, 1993), 72-73.

²² Sultan Hasanudin, the Sultan of Gowa, a sultanate that was based in Makassar has always been rebellious against the Dutch monopoly of trade in the East Indies. He believed that in the mind of God, there was no predestination of the East Indies to be exploited and monopolised by the European commercial interests only. The order by the Dutch forbidding the Makassarese to sail the seas was a matter unheard of in the eyes of the Sultan. See D. Teeuwen MSC & H. Doorn, *The Conquest of Makassar by the Dutch (1596-1800)* (2006) <http://www.rendez-vous-batavia.nl/history_former_dutch_east_india/makassar/the%20conquest%20of%20makassar%20by%20the%20dutch%201596-1800.pdf>.

²³ Taufik Abdullah, 'Asia and European Colonialism' (2003) 1 *Asia Europe Journal*, 61-62; R. Hunt Davis, 'Interpreting the Colonial Period in African History' (1973) 72(289) *African Affairs*, 383-400; Karin Wulf, 'No Boundaries?: New Terrain in Colonial American History' (2011) 25(1) *OAH Magazine of History*, 7-12; Australian War Memorial, *Colonial Period, 1788-1901* (2010) Australian War Memorial <<http://www.awm.gov.au/atwar/colonial.asp>>.

nations during the colonial period.²⁴ The gradual but constant process of decolonisation especially after World War II initiated more disagreements among States over many issues relating to the law of the sea particularly between the developed and the developing nations.²⁵ In the years following World War II, international society was transformed and was no longer centred on European States or States of European origin.²⁶ Most maritime States wanted to secure navigational freedoms for their large naval fleets. On the other hand, their developing counterparts, remembering the dark history of colonisation, were more enthusiastic about safeguarding their territorial sovereignty and the natural resources off their coasts.²⁷ These conflicting and multifaceted interests created a complex new situation for the law of the sea.²⁸ A former United Nations (UN) chief legal counsel, Constantin A. Stavropoulos commented,

²⁴ The development of law governing oceans in the late eighteenth century was geared to accommodate European interests and to the protection of European rights. Europe began to lose its hegemony after the conclusion of World War II and many countries in Asia became independent and were accepted as full-fledged members of international society. See Ram Prakash Anand, *Origin and Development of the Law of the Sea*, Publications on Ocean Development (Martinus Nijhoff, 1982), 5-6.

²⁵ R. P. Anand, *Confrontation or Cooperation: International Law and the Developing Countries* (Martinus Nijhoff Publishers, 1987), 64-66; Office of Coast Survey, *Law of the Sea: History of the Maritime Zones Under International Law* (2011) Office of Coast Survey <http://www.nauticalcharts.noaa.gov/staff/law_of_sea.html>.

²⁶ R. P. Anand, *Confrontation or Cooperation: International Law and the Developing Countries* (Martinus Nijhoff Publishers, 1987), 5-6. Before World War I and World War II, Europe's power and prestige were at its epitome of glory as it led many spheres of knowledge namely science, culture, economics and fashion. Through their colonial empires sprawling across the globe, European powers dominated the world. By 1945, subsequent to the conclusion of World War II, European political power was greatly diminished and European colonial powers were no longer sustainable, as their colonies in Asia and Africa started fighting for independence. See Norman Davies, *Europe: A History* (Oxford University Press, 1996), 897-900.

²⁷ M. H. Mendelson, 'The Flux and Reflux of the Law of the Sea' (1985) 5(2) *Oxford Journal of Legal Studies*, 286-287.

²⁸ A tangle of conflicting claims on maritime jurisdiction was prevalent in the mid-twentieth century. The former President of the United States of America, Harry S. Truman in 1945 unilaterally extended the American jurisdiction over all natural resources on that nation's continental shelf. See US Commission on Ocean Policy, 'Proclamation 2667 of September 28, 1945 Policy of the United States With Respect to the Natural Resources of the Subsoil and Sea Bed of the Continental Shelf' (10 Fed. Reg. 12,305 (1945), US Commission on Ocean Policy, 1945), 66-68. Chile, Peru and Ecuador asserted sovereign rights over a 200-mile zone and some other States laid claim to a twelve-nautical mile territorial sea, as opposed to the traditional three-nautical mile limit. See United Nations (UN), *The United Nations Convention on the Law of the Sea (A Historical Perspective)* (2011) Oceans and Law of the Sea Division for Ocean Affairs and Law of the Sea <http://www.un.org/Depts/los/convention_agreements/convention_historical_perspective.htm#Historical%20Perspective>; Jack N. Barkenbus, 'The Politics of Ocean Resource Exploitation' (1977) 21(4) *International Studies Quarterly*, 677.

Because of the manifold and complex problems which it confronts, the law of the sea is now one of the most interesting and challenging areas of growth in the body of international law.²⁹

The concepts of freedom of the seas and closed seas were much deliberated when it came to the legal status of straits used for international navigation. As most straits in the world are important maritime waterways, creating a legal definition of a strait was a timely effort in balancing the needs of the developing and developed States as discussed in subsequent parts of this Chapter.

3.3 STRAITS USED FOR INTERNATIONAL NAVIGATION

A strait, from a geographical point of view, is a narrow stretch of sea connecting two extensive areas of seas.³⁰ The legal definition of a strait is ‘any passage whose minimum breadth is equal to or less than, the combined territorial sea claim of the bordering State or States’.³¹ However, the term ‘strait’ is not defined in any conventions or treaties of the UN.

3.3.1 The Development towards Creating a Legal Definition of a Strait

Establishing the legal definition of straits was one of the most important subject matter of discussion during the development of the modern law of the sea.³² This section will examine the development of the legal definition of straits prior to 1958 when the First United Nations Conference on the Law of the Sea (UNCLOS I) was convened, until the adoption of the United Nations Convention on the Law of the Sea 1982 (LOSC) in 1982.

²⁹ Constantin A. Stavropoulos, ‘Procedural Problems of the Third Conference on the Law of the Sea’ in Myron H. Nordquist (ed), *United Nation Convention on the Law of the Sea: A Commentary* (Martinus Nijhoff, 1985) vol I, vii.

³⁰ Bing Bing Jia, *The Regime of Straits In International Law* (Clarendon Press Oxford, 1998), 3; Robin Rolf Churchill and Alan Vaughan Lowe, *The Law of the Sea* (Manchester University Press, 1988), 62-63.

³¹ Robert W. Smith, ‘An Analysis of the Strategic Attributes of International Straits: A Geographical Perspective’ (1974) 2 *Maritime Studies and Management*, 88-89.

³² Robin Rolf Churchill and Alan Vaughan Lowe, *The Law of the Sea* (Manchester University Press, 1988), 87-92.

3.3.1.1 The Period before UNCLOS I

The recognition of the international community of the importance of straits, especially for maritime communications and trade,³³ resulted in a number of multilateral and bilateral treaties on matters relating to straits. Some examples include the Montreux Convention Regarding the Regime of the Turkish Straits of 1936,³⁴ a multilateral treaty governing matters relating to navigation through the Sea of Marmara, the Bosphorus and Dardanelles Strait,³⁵ and the Copenhagen Convention on the Sound and the Belts of 1857 between Denmark and other European nations and the United States of America (US) which governs matters pertaining to toll collection for foreign vessels sailing through the Danish Straits.³⁶ These treaties are further discussed in Chapter 8 of this thesis.³⁷ There were very few treaties regulating straits. There have never been any bilateral or multilateral treaty that specifically govern navigation in the Straits of Malacca and Singapore, the Strait of Hormuz, the Strait of Tiran and the Torres Strait.

³³ Emer de Vattel, Joseph Chitty and Edward D. Ingraham, *The Law of Nations or Principles of the Law of Nature, Applied to the Conduct and Affairs of Nations and Sovereigns* (The Lawbook Exchange, Ltd, 2005), 130-131.

³⁴ Natalino Ronzitti, '1936 Montreux Convention Regarding the Regime of the Straits' in Natalino Ronzitti (ed), *The Law of Naval Warfare: A Collection of Agreements and Documents with Commentaries* (Martinus Nijhoff, 1988), 435-468.

³⁵ The Montreux Conference held in Switzerland was attended by a number of maritime States namely Australia, Bulgaria, France, Germany, Japan, the United Soviet Socialist Republic, Turkey, the United Kingdom and Yugoslavia. It was signed on 20 July 1936 and came into effect on 9 November 1936, and subsequently reaffirmed by the United Nations. See Christos L. Rozakis and Petros N. Stagos, 'The Turkish Straits' in Gerard J. Mangone (ed), *International Straits of the World* (Martinus Nijhoff, 1987) vol 9, 101-124; Walter John Raymond, *Dictionary of Politics* (Brunswick, 1992), 314.

³⁶ The Consolidated Treaty Series, 'Treaty for the Redemption of Sound Dues between Austria, Belgium, France, Great Britain, Hanover, the Hanse Towns, Mecklenburg-Schwerin, the Netherlands, Oldenburg, Prussia, Russia, Sweden-Norway and Denmark' in Clive Parry (ed), *The Consolidated Treaty Series (1648-1918)* (Oceana, 1969) vol 116, 357; The Consolidated Treaty Series, 'Convention between Denmark and Great Britain to Complete the Arrangements for the Redemption of the Sound Dues Signed at Copenhagen, 14 March 1857' in Clive Parry (ed), *The Consolidated Treaty Series (1648-1918)* (Oceana, 1969) vol 116, 347-348; The Consolidated Treaty Series, 'Convention for the Discontinuance of the Sound Dues between Denmark and the United States signed at Washington, 11 April 1857' in Clive Parry (ed), *The Consolidated Treaty Series (1648-1918)* (Oceana, 1969) vol 116, 465-466; Hugo Caminos, 'Categories of International Straits Excluded From the Transit Passage Regime Under Part III of the United Nations Convention on the Law of the Sea' in Tafsir Malick Ndiaye and Rudiger Wolfrum (eds), *Law of the Sea, Environmental Law and Settlement of Disputes: Liber Amicorum Judge Thomas A. Mensah* (Martinus Nijhoff, 2007), 583-589.

³⁷ See Sections 8.3.2.1 and 8.3.2.2 of Chapter 8 of this Thesis.

The issue of freedom of navigation through straits has been a matter of debate since the seventeenth century. Pufendorf, a renowned German jurist in international law, supported the Grotian notion of freedom of the seas. In his words:

From what we have observed, it is clear that to sail the Ocean in a peaceful manner both is and ought to be free Privilege of all Nations. It is, because no one people have attained such a right over the Ocean, as will justify them in shutting out all others from the same benefit.³⁸

Pufendorf also stressed the importance of the coastal States to enforce control over the part of the straits nearest to their coasts.³⁹

Vattel, one of the most influential writers in the eighteenth century, argued that navigation through straits connecting two seas cannot be hampered.⁴⁰ In addition, unlike Pufendorf and Grotius, Vattel did assert that the coastal State has the right to impose moderate toll payments on vessels that sail through the straits.⁴¹

Godey on the other hand, opined that straits are part of the territorial sea, but as far as navigation is concerned, they are to be regarded as high seas.⁴² Godey argued that States were permitted to

³⁸ Samuel Pufendorf, 'Book 4 Chapter V: Of the Object of Dominion and Property' in *Of the Law of Nature and Nations* (Lawbook Exchange, 2007), 384.

³⁹ Ibid.; Thomas Behme, *Pufendorf and Universal Jurisprudence* (2009) The Online Library of Liberty <http://oll.libertyfund.org/index.php?option=com_content&task=view&id=1458&Itemid=284>.

⁴⁰ With regard to straits, Vattel mentioned that '...when they serve for a communication between two seas, the navigation of which is common to all, or several nations, the nation which possesses the strait cannot refuse the others a passage through it, provided that passage be innocent and attend with no danger to herself.' See Emer de Vattel, Joseph Chitty and Edward D. Ingraham, *The Law of Nations or Principles of the Law of Nature, Applied to the Conduct and Affairs of Nations and Sovereigns* (Lawbook Exchange, 2005), 130-131.

⁴¹ Hugo Caminos, 'The Legal Regime of Straits in the 1982 United Nations Convention on the Law of the Sea' in Academie de Droit International de la Haye (ed), *Rescueil Des Cours, 1987-V* (Kluwer, 1989), 25-28.

⁴² Bulent Gokcicek, *The Montreux Convention Regarding the Turkish Straits and Its Importance After the South Ossetia War* (Master's Thesis, Naval Postgraduate School, Monterey, California, 2009), 8-9; Hugo Caminos, 'The Legal Regime of Straits in the 1982 United Nations Convention on the Law of the Sea' in Academie de Droit International de la Haye (ed), *Rescueil Des Cours, 1987-V* (Kluwer, 1989), 25-28; R. Palmer Cundick, 'International Straits: The Right of Access' (1975) 5 *Georgia Journal of International & Comparative Law*, 117.

regulate the passage of ships but not to prohibit such passage.⁴³ Oppenheim, who is regarded by many as the father of the modern discipline of international law, agreed with Vattel that foreign merchants cannot be excluded from passage through territorial straits only when the straits connect two parts of the open sea.⁴⁴ However, the passage of foreign vessels may be excluded in a territorial strait that connects one area of the open sea bordering a State to a land-locked sea belonging to that same State.⁴⁵ One similar point that could be derived from these scholarly views is that straits that connect one ocean to another ocean have to remain open for navigation.

These views later formed the foundation of subsequent attempts in defining the legal status of straits. The Institut de Droit International attempted to formulate an autonomous legal regime of passage through straits as early as 1894.⁴⁶ It recognised that straits could be part of the territorial waters of the coastal States. However, coastal States do not necessarily possess jurisdiction over straits to the extent of hampering or impeding passage therein. In its view, passage can never be refused and transiting traffic must always be free to sail through straits.⁴⁷ In addition, in contrast to the territorial sea, straits possess a *sui generis* legal position.⁴⁸ Thus., as far as maritime navigation is concerned, navigational regimes in straits should be treated separately from the law of innocent passage through the territorial sea.⁴⁹ As straits may fall within the territorial sea of a coastal State, it is imperative to examine the development of international law governing the regime of innocent passage.

⁴³ Hugo Caminos, 'The Legal Regime of Straits in the 1982 United Nations Convention on the Law of the Sea' in Academie de Droit International de la Haye (ed), *Rescueil Des Cours, 1987-V* (Kluwer, 1989), 25-28.

⁴⁴ Lassa Oppenheim, *International Law: A Treatise* (Lawbook Exchange, 2008), 347-352.

⁴⁵ *Ibid.*, 349.

⁴⁶ United Nations (UN), *The Law of the Sea: Straits Used for International Navigation: Legislative History of Part III of the United Nations Convention on the Law of the Sea Volume I* (United Nations, 1992), 1-3; Mibi B. Moser, 'A Survey of the Definition of International Straits and the Issue of "Status Mixtus"' (1968) 3 *Israel Law Review*, 51-55.

⁴⁷ Hugo Caminos, 'The Legal Regime of Straits in the 1982 United Nations Convention on the Law of the Sea' in Academie de Droit International de la Haye (ed), *Rescueil Des Cours, 1987-V* (Kluwer, 1989), 25-28.

⁴⁸ Christos L. Rozakis and Petros N. Stagos, 'The Turkish Straits' in Gerard J Mangone (ed), *International Straits of the World* (Martinus Nijhoff, 1987) vol 9, 73; Thomas A. Clingan Jr., 'The Law of the Sea Convention: International Obligations and Stewardship Responsibilities of Coastal Nations' (1992) 17 *Ocean and Coastal Management*, 203-204.

⁴⁹ S. N. Nandan and D. H. Anderson, 'Straits Used for International Navigation: A Commentary on Part III of the United Nations Convention on the Law of the Sea 1982' in Hugo Caminos (ed), *Law of the Sea* (Dartmouth, 2001), 67-69.

3.3.1.1.1 The 1930 Hague Conference

Innocent passage has always been regarded by many as part of customary international law even prior to the 1930 Hague Conference on the progressive Codification of International Law. Innocent passage obliges coastal States to allow ships of all countries to sail through their territorial sea in times of peace.⁵⁰ The legal regimes of passage through straits were discussed in detail during the 1930 Hague Conference, along with interpretation of the meaning of ‘innocent passage’.

In understanding the term innocent passage, the meanings of the words ‘passage’ and ‘innocent’ have to be ascertained first. The earliest attempt to define the term ‘passage’ was made by the Supreme Court of New Brunswick, Canada where the Court stated that a foreign vessel is not said to practice ‘passage’ through the territorial waters of a coastal State if it is navigating towards a port or anchoring or cruising in such waters.⁵¹ The term passage is defined by Nathan Shaw as:

‘Navigation through the territorial sea for the purpose of crossing that sea without entering internal waters or of proceeding to or from that sea without entering internal waters or of proceeding to or from internal waters. It may include temporary stoppages, but only if they are incidental to ordinary navigation or necessitated by distress or *force majeure*.’⁵²

⁵⁰ O. G. de Vries Reilingh, ‘Warships in Territorial Waters, Their Right of Innocent Passage’ (1971) 2 *Netherlands Yearbook of International Law*, 29-30. The Netherlands regards the right of innocent passage as part of customary international law. See Harm M. Dottinga and Alfred H. A. Soons, ‘The Netherlands and the Law of the Sea’ in Tullio Treves (ed), *The Law of the Sea: The European Union and its Member States* (Kluwer, 1997), 371. The regime of innocent passage significantly developed from the provisions of the 1958 Convention on the Territorial Sea and the Contiguous Zone and customary international law. See Boleslaw A. Boczek, *International Law: A Dictionary* (Scarecrow Press, 2005), 287-288. Beginning the twentieth century, there were two groups of commentators; the ‘territorialists’ who viewed that passage by warships could be denied by coastal States and ‘jurisdictionalists’ who contended that it was the customary right for a coastal State to grant warships to exercise innocent passage rights through its territorial waters. See James C. F. Wang, *Handbook on Ocean Politics & Law* (Greenword Press, 1992), 84.

⁵¹ *R v Flahaut*, 9 Oct. 1934 (1935) 2 DLR 685, as quoted in Bing Bing Jia, *The Regime of Straits In International Law* (Clarendon Press, 1998), 79-80.

⁵² Malcolm Shaw, *International Law: Fifth Edition* (Cambridge University Press, 2003), 508.

Prior to the Hague Conference, the term ‘innocent’ did not have a proper meaning, except that it was referred to as ‘inoffensive’.⁵³ Britain filled this gap by asserting that ‘passage is not innocent when a vessel makes use of the territorial sea of a coastal State for the purpose of doing any act prejudicial to the security, public policy or to the fiscal interests of that State’.⁵⁴ This definition was advocated by Britain during the Hague Conference.⁵⁵

The legal definition or legal concept of ‘straits’ was clarified by the International Court of Justice (ICJ) in the *Corfu Channel Case* decided in 1949.⁵⁶

3.3.1.1.2 The *Corfu Channel Case*

Corfu is an island in the Mediterranean Sea under the sovereignty of Greece. The Corfu Channel lies between the island of Corfu and the European mainland and is bordered by Albania and Greece. On 22 October 1946, two British military vessels, *Saumarez* and *Volage* struck mines in the Corfu Channel within the territorial waters of Albania resulting in the death and injuries of British naval officers onboard the vessels.⁵⁷ Subsequently, Britain sent a diplomatic Note asking Albania to remove the mines within its side of the channel.⁵⁸ The Albanian Government refused to remove the mines but the British forces continued with their military arrangements to sweep the mine-stricken waters through an operation they named ‘Operation Retail’ on 12 and 13 November 1946.⁵⁹

⁵³ Bing Bing Jia, *The Regime of Straits In International Law* (Clarendon Press Oxford, 1998), 79-80.

⁵⁴ *Ibid.*

⁵⁵ *Ibid.*

⁵⁶ E. D. Brown, *The International Law of the Sea: Documents, Cases and Tables* (Dartmouth, 1994), 71-78.

⁵⁷ International Court of Justice (ICJ), ‘The *Corfu Channel Case* (Merits) Judgment of April 9th, 1949’ (ICJ Reports 1949, P. 4), 9-11; Mohammad Taghi Karoubi, *Just or Unjust War: International Law and Unilateral Use of Armed Force by States at the Turn of the 20th Century* (Ashgate, 2004), 127-130; William W. Bishop, ‘The *Corfu Channel Case* (Merits)’ (1949) 43(3) *The American Journal of International Law*, 561-562.

⁵⁸ International Court of Justice (ICJ), ‘The *Corfu Channel Case* (Merits) Judgment of April 9th, 1949’ (ICJ Reports 1949, P. 4), 27-28.

⁵⁹ Amelia Emran, *The Regulation of Vessel-Source Pollution in the Straits of Malacca and Singapore* (Master of Maritime Studies (Research) Thesis, University of Wollongong, 2007), 45-46; Mary George, *Legal Regime of the Straits of Malacca and Singapore* (LexisNexis, 2008), 27-29.

In addition, the British Government demanded reparation from Albania to compensate for its losses in the incident amounting to £875,000, which Albania refused to provide.⁶⁰ Albania, on the other hand, claimed that the passage of British vessels constituted a breach of international law as it was exercised without previous authorisation.⁶¹ Consequently, both countries agreed to settle their dispute in the ICJ. In delivering its judgments, the ICJ *inter alia* considered the following matters:

- (a) Whether the Albanian government was responsible for the explosion that took place on 22 October 1946?⁶²
- (b) Whether or not British military activities in clearing mines within Albanian waters constituted a breach of Albania's sovereignty;⁶³
- (c) Whether or not the military vessels of a foreign country may traverse through a strait connecting two larger bodies of water without prior authorisation from the State bordering the strait;⁶⁴

On the first issue, due to Albania's omission in publicising the danger that lay beneath the waters of the Corfu Channel to the British warships, the ICJ decided that the Albanian Government to pay reparation to the British Government.⁶⁵

On the second issue, the ICJ decided that Britain had violated Albania's sovereignty by sweeping the mines in Albanian waters during the commencement of 'Operation Retail' without prior

⁶⁰ International Court of Justice (ICJ), 'The *Corfu Channel Case (Merits)* Judgment of April 9th, 1949' (ICJ Reports 1949, P. 4), 9-11; William W. Bishop, 'The *Corfu Channel Case (Merits)*' (1949) 43(3) *The American Journal of International Law*, 559-560.

⁶¹ International Court of Justice (ICJ), 'The *Corfu Channel Case (Merits)* Judgment of April 9th, 1949' (ICJ Reports 1949, P. 4), 11-12.

⁶² *Ibid.*, 6.

⁶³ *Ibid.*

⁶⁴ *Ibid.*, 11-12.

⁶⁵ *Ibid.*, 36.

permission from Albania.⁶⁶ Even though the Corfu Channel was a strait used for international navigation, Albania still had the right to exercise sovereignty over it.⁶⁷

Finally, on the third issue, the ICJ contended that States in times of peace, have the right to send their warships through straits used for international navigation between two parts of the high seas without the prior authorisation of the coastal States, as long as the passage is innocent.⁶⁸ The ICJ rejected the notion submitted by Albania that the Corfu Channel was a waterway of secondary importance and, hence not subject to the regime of innocent passage.⁶⁹ The ICJ did not refer to the volume of traffic as the yardstick to determine whether a certain waterway is a strait used for international navigation or otherwise.⁷⁰ Instead, the ICJ relied on the geographical location of the strait and reiterated that as long as the waterway connects two areas of the high seas, it will be regarded as a strait that is used for international navigation.⁷¹

The *Corfu Channel Case* established the nature of the legal status of straits used for international navigation in customary international law. It expounded that the right of innocent passage cannot be prohibited by a coastal State in times of peace.⁷² The subsequent endeavour to establish the legal status of straits was pursued by the International Law Commission.

⁶⁶ William W. Bishop, 'The *Corfu Channel Case* (Merits)' (1949) 43(3) *The American Journal of International Law*, 580-583; Mohammad Taghi Karoubi, *Just or Unjust War: International Law and Unilateral Use of Armed Force by States at the Turn of the 20th Century* (Ashgate, 2004), 129.

⁶⁷ International Court of Justice (ICJ), 'The *Corfu Channel Case* (Merits) Judgment of April 9th, 1949' (ICJ Reports 1949, P. 4), 36.

⁶⁸ *Ibid.*

⁶⁹ William W. Bishop, 'The *Corfu Channel Case* (Merits)' (1949) 43(3) *The American Journal of International Law*, 576-580; Mohammad Taghi Karoubi, *Just or Unjust War: International Law and Unilateral Use of Armed Force by States at the Turn of the 20th Century* (Ashgate, 2004), 129.

⁷⁰ International Court of Justice (ICJ), 'The *Corfu Channel Case* (Merits) Judgment of April 9th, 1949' (ICJ Reports 1949, P. 4), 28-29.

⁷¹ *Ibid.*

⁷² *Ibid.*

3.3.1.1.3 The International Law Commission

The 1930 Hague Codification Conference failed to formulate the regime of the territorial sea including the regime of straits largely because of disagreement over the question of the breadth of the territorial sea.⁷³ Up until 1946, a major part of international law was still to be found in the practice of States, mostly uncollated.⁷⁴ This situation prompted the UN to establish the International Law Commission (ILC) in 1947 to promote the progressive development and codification of international law.⁷⁵

In 1954, the ILC commenced its discussion on the articles relating to the question of straits.⁷⁶ There were two draft articles relevant to straits: Article 14 on the delimitation of the territorial sea and paragraph 4 of Article 26 on the passage of warships in straits used for international navigation.⁷⁷ In 1956, the ILC during its eighth session presented to the UN General Assembly ‘Draft Articles Concerning the Law of the Sea’ (Draft Articles) together with commentaries. On the question of passage of vessels through straits, the ILC restated the decision of the ICJ in the *Corfu Channel Case*, as evident in Article 17(4) and Article 24 of the Draft Articles. Article 17(4) reads:

There must be no suspension of the innocent passage of foreign ships through straits normally used for international navigation between two parts of the High Seas.⁷⁸

⁷³ Gerard J. Mangone, ‘Straits used for International Navigation’ (1987) 18(4) *Ocean Development and International Law*, 394-395.

⁷⁴ United Nations (UN), *The Law of the Sea: Straits Used for International Navigation: Legislative History of Part III of the United Nations Convention on the Law of the Sea Volume I* (United Nations, 1992), 4.

⁷⁵ Article 1 of the Statute of the ILC stipulates that the ILC shall have for its object the promotion of the progressive development of international law and its codification. See United Nations (UN), ‘Resolution 174(II): Establishment of an International Law Commission’ (174 (II), UN, 1947), 105-110.

⁷⁶ United Nations (UN), *The Law of the Sea: Straits Used for International Navigation: Legislative History of Part III of the United Nations Convention on the Law of the Sea Volume I* (United Nations, 1992), 4.

⁷⁷ *Ibid.*, 4-5.

⁷⁸ United Nations (UN), ‘Articles concerning the Law of the Sea’ (Yearbook of the International Law Commission, Vol. II, UN, 1956), 256-264.

The word ‘normally’ was inserted before the word ‘used’ in Article 17(4) to make it consistent with the decision of the ICJ in the *Corfu Channel Case*.⁷⁹ In addition, the word ‘foreign ships’ in Article 17(4) also includes warships. Therefore, the innocent passage of warships through straits used for international navigation between two parts of the high seas cannot be suspended.⁸⁰ The ILC contended that this was the principle formulated by the ICJ in the *Corfu Channel Case*.⁸¹

Article 24⁸² of the Draft Articles suggests that, even though the State may require passage of warships through the territorial sea to be subjected to previous authorisation or notification, Article 24 has to be read together with Article 17⁸³ and Article 18⁸⁴ of the Draft Articles. These articles, when read together, suggest that a coastal State has the option to make the passage of warships through its territorial sea subject to prior authorisation or notification.⁸⁵

⁷⁹ United Nations (UN), *The Law of the Sea: Straits Used for International Navigation: Legislative History of Part III of the United Nations Convention on the Law of the Sea Volume I* (United Nations, 1992), 13-14.

⁸⁰ In determining the rights of warship to sail through straits on whether or not prior authorisation from the coastal State is needed, the ILC relied heavily on the judgment given by the ICJ in the *Corfu Channel Case*. As discussed earlier, the ICJ contended that ‘it is generally recognised and in accordance with international custom that States in time of peace have a right to send their warships through straits used for international navigation as long as the passage is innocent.’ See International Court of Justice (ICJ), ‘The *Corfu Channel Case* (Merits) Judgment of April 9th, 1949’ (ICJ Reports 1949, P. 4), 36; United Nations (UN), *The Law of the Sea: Straits Used for International Navigation: Legislative History of Part III of the United Nations Convention on the Law of the Sea Volume I* (United Nations, 1992), 13-14. As a result of the decision of the ICJ on the *Corfu Channel Case*, there existed three main blocs of States in determining the status of passage of warships. The first was a group of States that recognised an unqualified right of warship to innocent passage during peacetime (for example, France, the UK and the US) while the second bloc was a group of States that categorically deny such a right (for example Oman, Malaysia, Morocco and Yemen). The third group of States was of the opinion that such a passage is recognised subject to previous authorisation or notification (for example Indonesia and the Philippines). See Charles E. Pirtle, ‘Transit Rights and US Security Interests in International Straits: The “Straits Debate” Revisited’ (1978) 5(4) *Ocean Development and International Law*, 481-482.

⁸¹ United Nations (UN), *The Law of the Sea: Straits Used for International Navigation: Legislative History of Part III of the United Nations Convention on the Law of the Sea Volume I* (United Nations, 1992), 13-14.

⁸² Article 24 of the Draft Articles reads ‘The coastal State may make the passage of warships through the territorial sea subject to previous authorisation or notification. Normally it shall grant innocent passage subject to the observance of the provisions of Articles 17 and 18. See United Nations (UN), ‘Articles concerning the Law of the Sea’ (Yearbook of the International Law Commission, Vol. II, UN, 1956), 259.

⁸³ Article 17 of the Draft Articles dealt on matters pertaining to the rights of protection of the coastal State. Article 17(1) enumerated that ‘The coastal State may take the necessary steps in its territorial sea to protect itself against any act prejudicial to its security or to such other of its interests as it is authorised to protect under the present rules and other rules of international law. See *Ibid.*, 258.

⁸⁴ Article 18 of the Draft Articles stated that ‘Foreign ships exercising the right of passage shall comply with the laws and regulations enacted by the coastal State in conformity with the present rules and other rules of international law and, in particular, with the laws and regulations relating to transport and navigation’. See *Ibid.*

⁸⁵ United Nations (UN), *The Law of the Sea: Straits Used for International Navigation: Legislative History of Part III of the United Nations Convention on the Law of the Sea Volume I* (United Nations, 1992), 13-14.

This effort on creating a legal regime for vessels navigating through territorial seas could be regarded as a starting point of defining the legal status of straits used for international navigation, initiated by the ILC.⁸⁶ In its report to the UN General Assembly in 1956, the ILC recommended that the Assembly convene an international conference for the global community to work together in establishing the law of the sea which would be applicable universally.⁸⁷

3.3.1.2 The Legal Status of Straits under UNCLOS I and UNCLOS II

UNCLOS I was initiated pursuant to the recommendation by the ILC and by the UN General Assembly in its Resolution 1105 (XI) which states:

The General Assembly...that an international conference of plenipotentiaries should be convoked to examine the law of the sea...⁸⁸

When UNCLOS I was convened in 1958, it had before it the text of a Convention which had been previously drafted by the ILC⁸⁹ and the comments of various governments on the Draft Articles prepared by the ILC.⁹⁰ At that time, two of the States bordering the Straits of Malacca and Singapore had achieved independence, Malaya (now Malaysia), and Indonesia. Singapore was still a British colony at that time.⁹¹

⁸⁶ Bernard H. Oxman, 'The Territorial Temptation: A Siren Song At Sea' (2006) 100 *The American Journal of International Law*, 832-833.

⁸⁷ United Nations (UN), 'Articles concerning the Law of the Sea' (Yearbook of the International Law Commission, Vol. II, UN, 1956), 14.

⁸⁸ United Nations (UN), 'Resolution 1105 (XI) of the General Assembly of the United Nations Convening the Conference: International conference of plenipotentiaries to examine the law of the sea' (658th plenary meeting, 1105 (XI), UN, 1957), xi.

⁸⁹ United Nations (UN), *The Law of the Sea: Straits Used for International Navigation: Legislative History of Part III of the United Nations Convention on the Law of the Sea Volume I* (United Nations, 1992), 14-15; Tommy T.B. Koh and Shanmugam Jayakumar, 'The Negotiating Process Of The Third United Nations Conference On The Law Of The Sea' in Myron H. Nordquist (ed), *United Nations Convention on the Law of the Sea 1982: A Commentary* (Martinus Nijhoff, 1985) vol 1, 30.

⁹⁰ Tommy T.B. Koh and Shanmugam Jayakumar, 'The Negotiating Process Of The Third United Nations Conference On The Law Of The Sea' in Myron H. Nordquist (ed), *United Nations Convention on the Law of the Sea 1982: A Commentary* (Martinus Nijhoff, 1985) vol 1, 30.

⁹¹ Mary George, *Legal Regime of the Straits of Malacca and Singapore* (LexisNexis, 2008), 33.

The First Committee of the Conference examined and evaluated the articles dealing with the territorial sea and contiguous zone. One of the articles that were critically discussed was Article 17(4) of the Draft Articles relating to the right of foreign ships to sail through straits used for international navigation. There were five amendments submitted to revise the text of this article drafted by the ILC. The amendments by Chile⁹² and the US⁹³ were subsequently withdrawn. Meanwhile, the amendments submitted by the United Kingdom (UK), Portugal and the Netherlands were combined and received support from the US, which suggested modification to Article 17(4) of the Draft Articles as follows:

4. There shall be no suspension of the innocent passage of foreign ships through straits or other sea lanes which are used for international navigation between a part of the high seas and another part of the high seas or the territorial waters of a foreign State.⁹⁴

This amendment proposal provoked various reactions from participating States at UNCLOS I. The representatives of Saudi Arabia and the United Socialist Soviet Republic (USSR) raised concerns over the use of the phrase 'sea lanes'. The reason behind this was that there has never been a clear definition of the phrase 'sea lanes' and the insertion of such a phrase may give rise to controversy in the future.⁹⁵ The representative from the Netherlands commented that there was a need to include such a phrase, as the term 'straits' connotes a narrow meaning, which may not take into account sea lanes other than straits which are used for international navigation.⁹⁶ The insertion of the word 'normally' after the word 'straits' in Article 17(4) of the Draft Articles was opposed by the Netherlands and the UK. They contended that such a word had vague meanings and may incite future arguments between States especially when it comes to legal interpretation.

⁹² Chile suggested that the word 'and channels' to be included after the word 'straits' in Article 17(4) of the Draft Articles. In addition, the Chilean delegation proposed that the phrase 'except when the safety of navigation so requires' to be added after the end of the paragraph of Article 17(4) of the Draft Articles. See United Nations (UN), *The Law of the Sea: Straits Used for International Navigation: Legislative History of Part III of the United Nations Convention on the Law of the Sea Volume I* (United Nations, 1992), 15.

⁹³ The amendment of the US reads 'The coastal State must not prohibit innocent passage through straits used for international navigation between two parts of the high seas'. See *Ibid.*

⁹⁴ *Ibid.*, 15-18.

⁹⁵ *Ibid.*

⁹⁶ *Ibid.*

Saudi Arabia and the USSR, on the other hand, supported the retention of the word ‘normally’ to ensure that the right of innocent passage can only be exercised in recognised international seaways.⁹⁷

In addition, the Indonesian and the Saudi Arabian representatives contested the insertion of the words ‘or the territorial waters of a foreign State’ in Article 17(4) of the Draft Articles as proposed by the Netherlands, Portugal and UK.⁹⁸ They asserted that international law only provides for innocent passage in straits that connect two parts of the high seas and not in straits that link the high seas and the territorial waters of a coastal State.⁹⁹ Ultimately, the joint proposal for amendment of Article 17(4) was accepted with modification, where the term ‘other sea lanes’ was deleted and the phrase ‘territorial waters’ was replaced with ‘territorial sea’.¹⁰⁰

Article 24 of the Draft Articles was also discussed in UNCLOS I. The issue of the right of passage of warships through straits used for international navigation was highlighted. The UK proposed the addition of a new paragraph 2 to Article 24, stipulating the following:

2. The right of warships to innocent passage through straits used for international navigation between two parts of the high seas may not be made subject to previous authorisation or notification.¹⁰¹

This proposal was welcomed by various participating States but ultimately rejected. Having failed to obtain a two-thirds majority, Article 24 was omitted from the Draft Articles prepared by the ILC.¹⁰² UNCLOS I led to the adoption of the first codification of the law of the sea the Convention on the Territorial Sea and the Contiguous Zone (1958 TSC) in 1958. Article 16(4) of the 1958 TSC deals with the issue of passage of foreign vessels through straits used for international navigation and reads:

⁹⁷ Ibid.

⁹⁸ Ibid.

⁹⁹ Ibid.

¹⁰⁰ Ibid.

¹⁰¹ Ibid.

¹⁰² Shao Jin, ‘The Question of Innocent Passage of Warships’ (1989) 13(1) *Marine Policy*, 60-61.

There shall be no suspension of the innocent passage of foreign ships through straits which are used for international navigation between one part of the high seas and another part of the high seas or the territorial sea of a foreign State.¹⁰³

The 1958 TSC did not have any specific provisions pertaining to the passage rights of warships through straits used for international navigation between two parts of the high seas.¹⁰⁴ Nevertheless, it reaffirmed the ruling laid out by the ICJ in the *Corfu Channel Case* that the passage rights of warships and merchant vessels through such a strait should be dealt with collectively.¹⁰⁵ Article 16(4) was described as a ‘universally recognised’ rule of international law.¹⁰⁶ The question of passage through straits was assumed as an incidental aspect of the right of innocent passage through the territorial sea.¹⁰⁷

In 1960, the Second Conference on the Law of the Sea (UNCLOS II) was convened to deal with unresolved matters from the previous Conference.¹⁰⁸ Due to many disagreements, UNCLOS II failed to resolve the outstanding issues from UNCLOS I including issues pertaining to the legal status of straits used for international navigation.¹⁰⁹

¹⁰³ United Nations (UN), ‘Convention on the Territorial Sea and Contiguous Zone 1958’ (UN Treaty Series, 2005), 6.

¹⁰⁴ A. V. Lowe, ‘The Laws of War at Sea and the 1958 and 1982 Conventions’ (1988) 12(3) *Marine Policy*, 289-292.

¹⁰⁵ United Nations (UN), *The Law of the Sea: Straits Used for International Navigation: Legislative History of Part III of the United Nations Convention on the Law of the Sea Volume I* (United Nations, 1992), 15-20. The 1958 TSC has conferred the right of innocent passage to all ships regardless merchant ships or warships. Article 14(1) of the 1958 TSC reads ‘Subject to the provisions of these articles, ships of all States...shall enjoy the right of innocent passage through the territorial sea’. See United Nations (UN), ‘Convention on the Territorial Sea and Contiguous Zone 1958’ (Treaty Series, UN, 2005), 5.

¹⁰⁶ S. N. Nandan and D. H. Anderson, ‘Straits Used for International Navigation: A Commentary on Part III of the United Nations Convention on the Law of the Sea 1982’ in Hugo Caminos (ed), *Law of the Sea* (Dartmouth, 2001), 67-69; A.V. Lowe, ‘The Laws of War at Sea and the 1958 and 1982 Conventions’ (1988) July 1988 *Marine Policy*, 291-292.

¹⁰⁷ S. N. Nandan and D. H. Anderson, ‘Straits Used for International Navigation: A Commentary on Part III of the United Nations Convention on the Law of the Sea 1982’ in Hugo Caminos (ed), *Law of the Sea* (Dartmouth, 2001), 67-69.

¹⁰⁸ Luc Cuyvers, ‘The Strait of Dover’ in Gerard J. Mangone (ed), *International Straits of the World* (Martinus Nijhoff, 1986), 47-49.

¹⁰⁹ Yucel Acer, *The Aegean Maritime Disputes and International Law* (Dartmouth, 2003), 72.

3.3.1.3 The Issue of Straits in UNCLOS III

The world had high hopes on UNCLOS III when it commenced in 1974 in Caracas, Venezuela. UNCLOS III was held in the era where the world was heavily influenced by the ‘New International Economic Order’, which called for a fairer distribution of wealth between the developed and the developing nations.¹¹⁰ Among other things, it was convened with a view to balancing the needs of the developed and the developing countries in matters relating to ocean governance.¹¹¹ The preparatory work for UNCLOS III was undertaken by the Committee on the Peaceful Uses of the Seabed and the Ocean Floor beyond the Limits of National Jurisdiction (otherwise referred to as the Seabed Committee) which had three subcommittees.¹¹² In 1973, the Conference decided to form three main committees to handle matters covered by the three subcommittees under the Seabed Committee. The Second Committee was mandated to discuss questions relating to straits used for international navigation.¹¹³ The decision of the ICJ in the *Corfu Channel Case* and the 1958 TSC had previously clarified a number of rules governing passage through straits, but there were still discrepancies in the activities qualified as ‘innocent’ and the question of the applicability of the innocent passage regime to warships.¹¹⁴

Prior to LOSC, 3 nautical miles was the generally accepted maximum breadth of the territorial sea. When applied, the three-nautical mile territorial sea limit will create high seas corridors in more than 100 straits across the world.¹¹⁵ Through these high seas corridors within the straits,

¹¹⁰ David A. Ridenour, *Ratification of the Law of the Sea Treaty: A Not-So-Innocent Passage* (2006) National Center for Public Policy Research <<http://www.nationalcenter.org/NPA542LawoftheSeaTreaty.html>>.

¹¹¹ Ibid.

¹¹² Mary George, *Legal Regime of the Straits of Malacca and Singapore* (LexisNexis), 35-36; United Nations (UN), *The Law of the Sea: Straits Used for International Navigation: Legislative History of Part III of the United Nations Convention on the Law of the Sea Volume I* (United Nations, 1992), 21.

¹¹³ United Nations (UN), *The Law of the Sea: Straits Used for International Navigation: Legislative History of Part III of the United Nations Convention on the Law of the Sea Volume II* (United Nations, 1992), 1.

¹¹⁴ Jon M. Van Dyke, ‘Transit Passage Through International Straits’ in Aldo Chircop, Ted L. McDorman and Susan J. Rolston (eds), *The Future of Ocean Regime-Building: Essays in Tribute to Douglas M. Johnston* (Martinus Nijhoff, 2009), 181; Rene-Jean Dupuy and Daniel Vignes, *A Handbook on the New Law of the Sea- Volume 2* (Academie De Droit International, 1991), 929-935.

¹¹⁵ R.W. Smith and J.A. Roach, ‘Navigation Rights and Responsibilities in International Straits: A Focus on the Straits of Malacca’ (Paper presented at the International Conference on the Straits of Malacca: Meeting the Challenges of the 21st Century, Kuala Lumpur, 1994), 2-3; Bruce A. Harlow, ‘UNCLOS III and Conflict Management in Straits’ (1985) 15(2) *Ocean Development and International Law*, 199-200; Charles E. Pirtle,

ships and aircraft of all States had the unqualified freedom of passage. This would apply to critical chokepoints such as the Straits of Malacca and Singapore, the Strait of Hormuz and the Strait of Dover through the high seas corridors within the straits.¹¹⁶

The issue of passage of vessels through straits used for international navigation became more apparent at UNCLOS III, primarily because of the wider acceptance of the twelve nautical mile limit for the territorial sea.¹¹⁷ This new territorial sea limit would mean that many high seas routes within some of the world's important maritime chokepoints would be subsumed into the territorial seas of the coastal State, resulting in passage through such straits being dependent on the discretion of States bordering straits.¹¹⁸ The anticipation of the global community was that UNCLOS III could amicably resolve the shortcomings of UNCLOS I and UNCLOS II. As noted by Moore:

...one of the greatest shortcomings of the 1958 Geneva Convention on the Territorial Sea and the Contiguous Zone is that with the exception of a single clause providing for 'no suspension' of innocent passage in the straits; it fails to differentiate meaningfully between passage through the territorial sea in general and transit of straits.¹¹⁹

'Transit Rights and US Security Interests in International Straits: The "Straits Debate" Revisited' (1978) 5(4) *Ocean Development and International Law*, 478-480.

¹¹⁶ R. W. Smith and J. A. Roach, 'Navigation Rights and Responsibilities in International Straits: A Focus on the Straits of Malacca' (Paper presented at the International Conference on the Straits of Malacca: Meeting the Challenges of the 21st Century, Kuala Lumpur, 1994), 2-3; Rene-Jean Dupuy and Daniel Vignes, *A Handbook on the New Law of the Sea- Volume 2* (Academie De Droit International, 1991), 946.

¹¹⁷ S. N. Nandan and D. H. Anderson, 'Straits Used for International Navigation: A Commentary on Part III of the United Nations Convention on the Law of the Sea 1982' in Hugo Caminos (ed), *Law of the Sea* (Dartmouth, 2001), 69-70; Robert Beckman, 'Transit Passage Regime in the Straits of Malacca: Issues for Consideration' (Paper presented at the Building A Comprehensive Security Environment in the Straits of Malacca, Kuala Lumpur, 2004), 244-246; Bruce A. Harlow, 'UNCLOS III and Conflict Management in Straits' (1985) 15(2) *Ocean Development and International Law*, 200-202.

¹¹⁸ Gerard J. Mangone, 'Straits used for international navigation' (1987) 18(4) *Ocean Development and International Law*, 406-407; David L. Larson, 'Innocent, Transit and Archipelagic Sea Lanes Passage' (1987) 18(4) *Ocean Development and International Law*, 414; Charles E. Pirtle, 'Transit Rights and US Security Interests in International Straits: The "Straits Debate" Revisited' (1978) 5(4) *Ocean Development and International Law*, 479-480; Rene-Jean Dupuy and Daniel Vignes, *A Handbook on the New Law of the Sea- Volume 2* (Academie De Droit International, 1991), 945-947.

¹¹⁹ John Norton Moore, 'The Regime of Straits and the Third United Nations Conference on the Law of the Sea' (1980) 74(1) *American Journal of International Law*, 90.

On the issue relating to the twelve nautical miles limit for the territorial sea, the US reiterated in 1970 that:

The US supports the twelve nautical mile limit...only if a treaty can be negotiated which...will provide for freedom of navigation through and over international straits.¹²⁰

At UNCLOS III, there were three rival proposals presented. The first proposal, put forward by a bloc of maritime nations, particularly the US and the USSR, wanted nothing less than freedom of navigation and overflight in the straits.¹²¹ They considered that their navigational interests would be at stake if the regime of innocent passage was to be applied in straits used for international navigation.¹²² However, this proposal had a few provisions relating to the obligations of the transiting vessels and aircraft that have caused pollution in the straits to pay compensation for damage caused to States bordering straits as a consequence of their transits.¹²³

The second group of delegations led by Malaysia, supported by Indonesia, Cyprus, Greece, Morocco, the Philippines, Spain and Yemen, proposed that straits be dealt as one entity with the territorial sea,¹²⁴ subject to certain modifications to the right of innocent passage applicable to

¹²⁰ Press Release No. 64, 62 US Dept. State Bull., 343 (16 March 1970) as quoted in Hugo Caminos, 'The Legal Regime of Straits in the 1982 United Nations Convention on the Law of the Sea' in Academie de Droit International de la Haye (ed), *Recueil Des Cours, 1987-V* (Kluwer, 1989), 67; Ana G. Lopez Martin, *International Straits: Concept, Classification and Rules of Passage* (Springer-Verlag, 2010), 21-23.

¹²¹ Kim Young Koo, 'Transit Passage Regime Controversy Revisited: An Appraisal and Analysis on the Legal Ambiguities and Recent Trends' (1992) 37 *Korea Journal of International Law*, 1-5; William T. Burke, 'Who Goes Where, when, and How: International Law of the Sea for Transportation' (1977) 31(2) *International Organization, Restructuring Ocean Regimes: Implications of the Third United Nations Conference on the Law of the Sea*, 278; Ana G. Lopez Martin, *International Straits: Concept, Classification and Rules of Passage* (Springer-Verlag, 2010), 21-23.

¹²² Article 1 of the Draft Articles on straits used for international navigation submitted by the USSR reads 'in straits used for international navigation between one part of the high seas and another part of the high seas, all ships in transit shall enjoy the same freedom of navigation, for the purpose of transit through such straits, as they have on the high seas'. See United Nations (UN), *The Law of the Sea: Straits Used for International Navigation: Legislative History of Part III of the United Nations Convention on the Law of the Sea Volume I* (United Nations, 1992), 48; Ana G. Lopez Martin, *International Straits: Concept, Classification and Rules of Passage* (Springer-Verlag, 2010), 21-23.

¹²³ Ana G. Lopez Martin, *International Straits: Concept, Classification and Rules of Passage* (Springer-Verlag, 2010), 26.

¹²⁴ United Nations (UN), *The Law of the Sea: Straits Used for International Navigation: Legislative History of Part III of the United Nations Convention on the Law of the Sea Volume I* (United Nations, 1992), 75-76; Shekhar Ghosh, 'The Legal Regime of Innocent Passage Through the Territorial Sea' in Hugo Caminos (ed), *Law of the Sea*

foreign ships.¹²⁵ This group of States opposed any attempts to ‘internationalise’ the straits, as this would compromise the environmental well-being and security interests of their territorial waters.¹²⁶

The third proposal, submitted by the UK, was a compromise formula between the other two, treating straits separately from the territorial sea.¹²⁷ The navigational regime of transit passage was put forward in the UK proposal,¹²⁸ which was not the same as the high seas freedom of navigation and overflight as propounded by the bloc of maritime States.¹²⁹ Fiji’s proposal was almost similar to that of the UK, except on the aspects of the right of submarines to pass submerged through straits used for international navigation and on the legislative powers of States bordering straits.¹³⁰ Due to the similarities between the UK and Fiji proposals, it was

(Dartmouth, 2001), 51-56; R. Palmer Cundick, ‘International Straits: The Right of Access’ (1975) 5 *Georgia Journal of International & Comparative Law*, 131-140.

¹²⁵ United Nations (UN), *The Law of the Sea: Straits Used for International Navigation: Legislative History of Part III of the United Nations Convention on the Law of the Sea Volume I* (United Nations, 1992), 75-76; S. N. Nandan and D. H. Anderson, ‘Straits Used for International Navigation: A Commentary on Part III of the United Nations Convention on the Law of the Sea 1982’ in Hugo Caminos (ed), *Law of the Sea* (Dartmouth, 2001), 70-73.

¹²⁶ United Nations (UN), *The Law of the Sea: Straits Used for International Navigation: Legislative History of Part III of the United Nations Convention on the Law of the Sea Volume I* (United Nations, 1992), 75-76; Shekhar Ghosh, ‘The Legal Regime of Innocent Passage Through the Territorial Sea’ in Hugo Caminos (ed), *Law of the Sea* (Dartmouth, 2001), 51-56; Amelia Emran, *The Regulation of Vessel-Source Pollution in the Straits of Malacca and Singapore* (Master of Maritime Studies (Research) Thesis, University of Wollongong, 2007), 59-54; R. Palmer Cundick, ‘International Straits: The Right of Access’ (1975) 5 *Georgia Journal of International & Comparative Law*, 131-140; Yaacov Vertzberger, ‘The Malacca/Singapore Straits’ (1982) 22(7) *Asian Survey*, 609-613; David L. Larson, ‘Innocent, Transit and Archipelagic Sea Lanes Passage’ (1987) 18(4) *Ocean Development and International Law*, 417-418.

¹²⁷ United Nations (UN), *The Law of the Sea: Straits Used for International Navigation: Legislative History of Part III of the United Nations Convention on the Law of the Sea Volume II* (United Nations, 1992), 79-97; Raj Sativale, ‘Transit Passage in the Straits of Malacca’ (2003) *MIMA Bulletin*, 2-3. It was said that the proposal by the UK was ‘a major turning point in the evolution of Conference thinking on this central issue’ (i.e. issue on passage through straits). See Myron H. Nordquist, ‘United Nations Convention on the Law of the Sea 1982: A Commentary (Volume II)’ in Satya N. Nandan, Shabtai Rosenne and Neal R. Grandy (eds), *Second Committee: Articles 1 to 85, Annexes I and II and Final Act, Annex II* (Martinus Nijhoff, 1993) vol II, 287-288.

¹²⁸ William T. Burke, ‘Who Goes Where, when, and How: International Law of the Sea for Transportation’ (1977) 31(2) *International Organization, Restructuring Ocean Regimes: Implications of the Third United Nations Conference on the Law of the Sea*, 278-281.

¹²⁹ S. N. Nandan and D. H. Anderson, ‘Straits Used for International Navigation: A Commentary on Part III of the United Nations Convention on the Law of the Sea 1982’ in Hugo Caminos (ed), *Law of the Sea* (Dartmouth, 2001), 70-73.

¹³⁰ *Ibid.*

decided in 1975 that a ‘Private Working Group on Straits used for International Navigation’ or the ‘The Group’ would be established.¹³¹

The Group was co-chaired by the representatives from Fiji and the UK, aiming towards creating a moderate group to compromise the extreme positions between the two conflicting blocs.¹³² In discussing the navigational regimes for straits used for international navigation, the Group made close contacts with Indonesia and Malaysia and the major maritime powers.¹³³ The group of States bordering straits, particularly Malaysia, Indonesia and Spain were not content and criticised the UK’s position in the Group, contending that it was more biased towards satisfying the desires of the two major maritime nations, the US and the USSR.¹³⁴

The Group proposed a draft, which was largely based on the draft earlier prepared by the UK. It was entitled ‘Draft Articles on the Territorial Sea and Straits’ combining together all conflicting elements of freedom of navigation and overflight in straits used for international navigation as well as appropriate measures on safeguarding the marine environment and security interests of the coastal State.¹³⁵ The UK and Fiji proposal attempted to ‘internationalise’ straits without having to ‘internationalise’ them in a true sense.¹³⁶ The position of Malaysia and Indonesia

¹³¹ United Nations (UN), *The Law of the Sea: Straits Used for International Navigation: Legislative History of Part III of the United Nations Convention on the Law of the Sea Volume II* (United Nations, 1992), 79-97.

¹³² Tommy Koh and Shanmugam Jayakumar, ‘The Negotiating Process of the Third United Nations Conference on The Law of The Sea’ in Myron H. Nordquist (ed), *United Nations Convention on the Law of the Sea 1982: A Commentary* (Martinus Nijhoff, 1985) vol 1, 107.

¹³³ Ibid.

¹³⁴ Ibid.

¹³⁵ United Nations (UN), *The Law of the Sea: Straits Used for International Navigation: Legislative History of Part III of the United Nations Convention on the Law of the Sea Volume II* (United Nations, 1992), 79-80; S. N. Nandan and D. H. Anderson, ‘Straits Used for International Navigation: A Commentary on Part III of the United Nations Convention on the Law of the Sea 1982’ in Hugo Caminos (ed), *Law of the Sea* (Dartmouth, 2001), 70-73; Amelia Emran, *The Regulation of Vessel-Source Pollution in the Straits of Malacca and Singapore* (Master of Maritime Studies (Research) Thesis, University of Wollongong, 2007), 64-65.

¹³⁶ This proposal by UK had three essential elements i.e. (i) a new ‘right of transit passage’ for most straits used for international navigation, incorporating the elements of the freedom of navigation and overflight between parts of the high seas; (ii) a regime of non-suspendable innocent passage in straits excluded from the rule of transit passage; and (iii) provisions seeking to assure States bordering straits that their interests would be protected. See Myron H. Nordquist, ‘United Nations Convention on the Law of the Sea 1982: A Commentary (Volume II)’ in Satya N. Nandan, Shabtai Rosenne and Neal R. Grandy (eds), *Second Committee: Articles 1 to 85, Annexes I and II and Final Act, Annex II* (Martinus Nijhoff, 1993) vol II, 287-288.

gradually changed with the tabling of Draft Articles by the Fiji/UK group.¹³⁷ This draft was eventually inserted as Part III in the LOSC.¹³⁸

Nevertheless, Malaysia and Indonesia were still apprehensive that the adoption of transit passage would aggravate the already intricate environmental problems caused by vessel-source pollution in the Straits of Malacca and Singapore.¹³⁹ Singapore was not totally in agreement with its two neighbours, but reiterated its support over the problem of pollution from vessels in the Straits of Malacca and Singapore.¹⁴⁰ Eventually, Malaysia managed to persuade other delegations to agree to a specific provision on enforcement and Article 233 LOSC was drafted to accommodate this matter.¹⁴¹ With the insertion of Article 233 in Part XII of the LOSC, Indonesia, Malaysia and Singapore voted in support of the adoption of the LOSC.¹⁴² Article 233 deals with environmental safeguards with respect to straits used for international navigation and is further discussed in Chapter 6 of this Thesis.¹⁴³

The guarantee of free transit right for vessels of all flags through straits constitutes a major victory for maritime States.¹⁴⁴ The regime of transit passage does not affect the sovereignty of

¹³⁷ United Nations (UN), *The Law of the Sea: Straits Used for International Navigation: Legislative History of Part III of the United Nations Convention on the Law of the Sea Volume II* (United Nations, 1992), 117-119.

¹³⁸ *Ibid.*, 125-129.

¹³⁹ Michael Leifer, 'Malacca, Singapore and Indonesia' in Gerard J. Mangone (ed), *International Straits of the World* (Sijthoff & Noordhoff, 1978), 3-5; Yaacov Vertzberger, 'The Malacca/Singapore Straits' (1982) 22(7) *Asian Survey*, 609-613.

¹⁴⁰ Yaacov Vertzberger, 'The Malacca/Singapore Straits' (1982) 22(7) *Asian Survey*, 609-613.

¹⁴¹ Article 233 of the LOSC reads '...if a foreign ship other than those referred to in section 10 has committed a violation of the laws and regulations referred to in article 42, paragraph 1(a) and (b), causing or threatening major damage to the marine environment of the straits, the States bordering the straits may take appropriate enforcement measures and if so shall respect *mutatis mutandis* the provisions of this section'.

¹⁴² Malaysia sent a letter to the President of UNCLOS III explaining that the application of traffic separation scheme and under keel clearance requirement of 3.5m were within the scope of Article 42(1) (a) and Article 233 of the LOSC. See United Nations (UN), 'DOCUMENT A/CONF.62/L.145: Letter dated 28 April from the representative of Malaysia to the President of the Conference' (A/CONF.62/L.145, UN, 1982), 251; United Nations (UN), *DOCUMENT A/CONF.62/L.145/ADD.1*, United Nations Conferences on the Law of the Sea Official Records (William S. Hein, 2000); United Nations (UN), *DOCUMENT A/CONF.62/L.145/ADD.2*, United Nations Conferences on the Law of the Sea: Official Records (William S. Hein, 2000); Erik Jaap Molenaar, *Coastal State Jurisdiction over Vessel-Source Pollution* (Doctor of Philosophy Thesis, Utrecht University, 1965), 295-298.

¹⁴³ See Section 6.3.6 of Chapter 6 of this Thesis.

¹⁴⁴ Ana G. Lopez Martin, *International Straits: Concept, Classification and Rules of Passage* (Springer-Verlag, 2010), 39.

States bordering straits over their territorial straits and their capacity to interfere with navigation is much diminished and their jurisdiction over affirmative conduct affecting the environment is greatly restricted.¹⁴⁵ In this regard, many States considered Part III of the LOSC as ‘a balanced solution to the problem’. In the words of Nandan and Anderson:

Although the precise balance proposed during the first part of the Conference was resisted by several States bordering straits, the term Part III – which resulted from long debates – eventually achieved consensus.¹⁴⁶

On 30 April 1982, the LOSC was adopted by the plenary of UNCLOS III and came into force in 1994. The LOSC is in fact a codification of customary international rule on ocean governance as reflected in a number of its provisions. This is shared by Oxman who opined that the LOSC ‘is both widely ratified and widely regarded as generally declaratory of the customary international law of the sea.’¹⁴⁷ As such, these provisions are considered binding even upon those who are not parties to the LOSC.¹⁴⁸

3.3.1.4 Transit Passage and Customary International Law

The critical question posed after the conclusion of UNCLOS III was whether transit passage is an innovation of UNCLOS III or is it considered customary international law? Most maritime States such as the UK and the US regard transit passage as customary international law.

In 1988, before the LOSC entered into force, France and Britain issued a Joint Declaration on the application of transit passage regime in the Strait of Dover (which is within the British and French territories) which confirmed the British position that the regime of transit passage

¹⁴⁵ Ibid.

¹⁴⁶ S. N. Nandan and D. H. Anderson, ‘Straits Used for International Navigation: A Commentary on Part III of the United Nations Convention on the Law of the Sea 1982’ in Hugo Caminos (ed), *Law of the Sea* (Dartmouth, 2001), 78.

¹⁴⁷ Bernard H. Oxman, ‘Transit of Straits and Archipelagic Waters by Military Aircraft’ (2000) 4 *Singapore Journal of International & Comparative Laws*, 391-392.

¹⁴⁸ Tim Hillier, *Sourcebook on Public International Law* (Cavendish, 1998), 369-370; Alexander SC Street and Blake Larkin, ‘Navigation; Collisions and Liability; Marine Inquiries’ in Michael White (ed), *Australian Maritime Law: Second Edition* (Federation Press, 2000), 202-203.

reflected existing international law.¹⁴⁹ Langdon supported this assertion by contending that based on current State practice, transit passage has always been regulated by customary international law. Consequently, it is not entirely the creation of UNCLOS III.¹⁵⁰ In 1992, the then UN Secretary-General, Boutros Boutros-Ghali explained that:

The regime of transit passage has been widely accepted in general terms by the international community and has become part of the practices of States both of States bordering straits as well as shipping States.¹⁵¹

Customary international law, Treves contended, has moved away from the concept of non-suspendable innocent passage as referred to in 1958 TSC. Instead, it is moving towards a dual regime, i.e., non-suspendable innocent passage for straits of minor importance and transit passage for straits of great navigational importance.¹⁵² There is also an assertion that even though transit passage is a newly created regime of UNCLOS III, its creation has an inherent link with the twelve-nautical mile territorial sea regime which admittedly has attained the status of customary international law.¹⁵³ This fact could be considered as the decisive factor which

¹⁴⁹ Nihan Unlu, 'The Legal Regime of the Turkish Straits' in Gerard J. Mangone (ed), *International Straits of the World* (Martinus Nijhoff, 2002), 74-76.

¹⁵⁰ J.B.R.L. Langdon, 'The Extent of Transit Passage: Some Practical Anomalies' (1990) 14 *Marine Policy*, 130-131.

¹⁵¹ UN Doc. A/47/512, Nov. 5, 1992, para 23, at 8: UN Office of Legal Affairs, Division for Ocean Affairs and the Law of the Sea: Practice of States at the time of entry into force of the United Nations Convention of the Law of the Sea, 8, as quoted in J. Ashley Roach and Robert W. Smith, *United States Responses to Excessive Maritime Claims* (Martinus Nijhoff, 1996), 290.

¹⁵² Rene-Jean Dupuy and Daniel Vignes, *A Handbook on the New Law of the Sea- Volume 2* (Academie De Droit International, 1991), 970-976.

¹⁵³ As earlier elaborated in this Chapter, transit passage regime was introduced following the extension of territorial Sea limits of coastal States from three-nautical mile to twelve-nautical mile. This has caused dissatisfaction amongst maritime States as the adoption of twelve-nautical mile territorial Sea limit would cause most straits in the world to cease from having a high seas corridor and this in turn will hamper free navigation of their large naval fleet. In exchange for the acceptance of the twelve-nautical mile regime, transit passage was made applicable in straits used for international navigation, as embodied in Part III of the LOSC. See Said Mahmoudi, 'Customary International Law and Transit Passage' (1989) 20(2) *Ocean Development and International Law*, 163-168; Bing Bing Jia, *The Regime of Straits In International Law* (Clarendon Press Oxford, 1998), 206-207; Rakish Suppiah and Thulasi Kamalanathan, 'Straits Used for International Navigation: Requirements of International Law' (2009) 16(1) *MIMA Bulletin*, 4.

enables one to contend that transit passage is in fact sanctioned by customary international law.¹⁵⁴

On the other hand, there are also views that the transit passage regime is not customary international law and that it is a new creation of UNCLOS III. The Secretariat of the International Civil Aviation Organization (ICAO) said that UNCLOS III has coined a new term in international law that is the right of transit passage which is a compromise between ‘free transit’ and ‘right of innocent passage’.¹⁵⁵ How could a new navigational regime created by UNCLOS III become accepted as part of customary international law?¹⁵⁶ Churchill and Lowe argued that, despite the fact that most maritime States have exercised unimpeded right of transit through a number of straits around the globe, it has yet to become one:

The conclusion which emerges is that a general right of transit passage has not yet become established in customary international law.¹⁵⁷

The same view was also shared by Boczek:

The United Kingdom (UK), which recognized such right with regard to the Dover Straits in a joint UK-France declaration in 1988, had regarded the right of unimpeded transit passage through international straits as reflecting customary law...but on the whole, most commentators believe that, a general right of transit passage through international straits does not form part of customary international law.¹⁵⁸

¹⁵⁴ Said Mahmoudi, ‘Customary International Law and Transit Passage’ (1989) 20(2) *Ocean Development and International Law*, 163-168.

¹⁵⁵ Myron H. Nordquist, ‘United Nations Convention on the Law of the Sea 1982: A Commentary (Volume II)’ in Satya N. Nandan, Shabtai Rosenne and Neal R. Grandy (eds), *Second Committee: Articles 1 to 85, Annexes I and II and Final Act, Annex II* (Martinus Nijhoff, 1993) vol II, 320.

¹⁵⁶ Nordquist in his commentary described transit passage as ‘a new’ passage right, incorporating the elements of the freedom of navigation and overflight between parts of the high seas. See *Ibid.*, 287-288.

¹⁵⁷ Robin Rolf Churchill and Alan Vaughan Lowe, *The Law of the Sea* (Manchester University Press, 1988), 94.

¹⁵⁸ Boleslaw A. Boczek, *International Law: A Dictionary* (Scarecrow Press, 2005), 313-314.

Another commentator, Nihan Unlu opined that unlike the innocent passage regime which has been accepted as customary international law, transit passage on the other hand, has not.¹⁵⁹ This view is also shared by Bing Bing Jia.¹⁶⁰

It has now been almost two decades since the LOSC came into force. The US, despite not being a State party to the LOSC, claim rights and obligations laid down in the LOSC which are in the nature of customary international law.¹⁶¹ Indeed, some commentators, as discussed above, have asserted that the regime of transit passage is not customary international law. However, given the fact that the transit passage regime has been practiced by States around the world for almost two decades now since the LOSC came into force in 1994, it may not be entirely impossible for it to eventually be accepted as part of customary international law in the future.¹⁶²

3.4 CONCLUSION

This Chapter discussed the historical development of the legal regime governing straits. From the time the doctrine of the freedom of the seas was fashioned until the concept of ‘closed seas’ was introduced, the law of the sea continued to develop to become a complex legal regime, evolving alongside the advancement of human civilisations. Undeniably, the law of the sea today represents the mixture of both the doctrines of Grotius and Selden harmoniously. The LOSC, which emerged from UNCLOS III, was a milestone accomplishment in which the global community came together to create a set of rules governing the oceans that would be applicable to all. After long and intense negotiations between countries that participated in UNCLOS III, the LOSC was adopted, aspiring to promote sustainable ocean governance.

¹⁵⁹ Nihan Unlu, ‘The Legal Regime of the Turkish Straits’ in Gerard J. Mangone (ed), *International Straits of the World* (Martinus Nijhoff, 2002), 75. Unlike the innocent passage regime, the transit passage regime has been the subject of a series of exceptions, reservations, declarations, qualifications and attenuations. Hence, it is possible for one to assert that transit passage is still far from fully corresponding to the current customary international law. See Tullio Scovazzi, ‘Management Regimes and Responsibility for International Straits: With Special Reference to the Mediterranean Straits’ (1995) 19(2) *Marine Policy*, 146.

¹⁶⁰ Bing Bing Jia noted that most commentators agreed that transit passage is not part of customary international law. See Bing Bing Jia, *The Regime of Straits In International Law* (Clarendon Press Oxford, 1998), 207-208.

¹⁶¹ Tullio Scovazzi, ‘Management Regimes and Responsibility for International straits: With Special Reference to the Mediterranean Straits’ (1995) 19(2) *Marine Policy*, 146.

¹⁶² Jose A. de Yturriaga, *Straits Used for International Navigation: a Spanish Perspective* (Martinus Nijhoff, 1991), 304-308.

The LOSC did not acknowledge straits to be ‘international’, since most States bordering straits are apprehensive that they may lose their sovereignty over their territorial sea forming a strait if such a description was adopted. Instead, UNCLOS III adopted the term ‘strait used for international navigation’ rather than ‘international straits’, as provided in Part III of the LOSC. Transit passage was accepted as the main navigational regime applicable in straits used for international navigation expounded in the LOSC.

Some academic commentators have regarded transit passage as part of customary international law while others have not. Despite these conflicting views, based on the earlier arguments in this Chapter, it is not too excessive to contend that the transit passage regime was in fact a creation of UNCLOS III. Nevertheless, given that it has been 18 years since the LOSC entered into force, it may eventually be possible for transit passage to be considered as part of customary international law.

Having discussed the legal status of straits used for international navigation in this Chapter, the following Chapter 4 explains the features and the applications of the navigational regimes applicable to all vessels navigating through straits used for international navigation, focusing mainly on the transit passage regime.

CHAPTER 4. NAVIGATIONAL REGIMES THROUGH STRAITS USED FOR INTERNATIONAL NAVIGATION

4.1 INTRODUCTION

This Chapter discusses the navigational regimes applicable to vessels transiting straits used for international navigation. In the first part of this chapter, the types and features of the navigational regimes applicable in straits used for international navigation, are explained. The second part of this chapter discusses the types of straits in which these navigational regimes shall apply. This chapter concludes by reiterating that transit passage is the accepted navigational regime under international law for vessels transiting the Straits of Malacca and Singapore.

4.2 TYPES OF NAVIGATIONAL RIGHTS

The regulatory powers and sovereignty of the coastal State are at their fullest in maritime zones close to the shore and diminish as the zones move seaward.¹ The coastal State exercises absolute sovereignty over its internal waters,² where it may apply its national laws and determine prerequisites for the entry of foreign ships into its ports.³ The close proximity of the State's internal waters to its land territory justifies the exercise of full jurisdictional and enforcement powers of the coastal State over this maritime zone.⁴

The coastal State exercises sovereignty in its territorial sea subject to the exercise of the right of innocent passage by foreign vessels.⁵ In the Exclusive Economic Zone (EEZ), instead of sovereignty, the coastal State exercises sovereign rights for the exploration and exploitation,

¹ Robin Rolf Churchill and Alan Vaughan Lowe, *The Law of the Sea* (Manchester University Press, 1988), 51-53; Patricia Birnie and Alan Boyle, *International Law and the Environment* (Oxford University Press, 2002), 370-372; Bernard H. Oxman, 'The Territorial Temptation: A Siren Song at Sea' (2006) 100 *The American Journal of International Law*, 835-837.

² Bernard H. Oxman, 'The Territorial Temptation: A Siren Song at Sea' (2006) 100 *The American Journal of International Law*, 835.

³ Robin Rolf Churchill and Alan Vaughan Lowe, *The Law of the Sea* (Manchester University Press, 1988), 51-53.

⁴ *Ibid.*

⁵ Malcolm Shaw, *International Law* (Cambridge University Press, 2003), 507.

conservation and management of living and non-living natural resources therein as prescribed in the LOSC.⁶ The rights of a coastal State over a strait⁷ depend on whether such is part of its internal waters, territorial sea, archipelagic waters⁸ or the EEZ.⁹ There are also straits used for international navigation wide enough to have a high seas¹⁰ corridor within them.

There are several navigational regimes applicable to straits. The LOSC in Part II, Part III, Part V and Part VII prescribe the navigational regimes applicable depending on the particular characteristics of the straits. These navigational regimes are innocent passage, transit passage, and freedom of navigation in the EEZ and on the high seas.

4.2.1 Innocent Passage and Non-Suspendable Innocent Passage

The regime of innocent passage is categorised into two forms: the right of innocent passage and the right of non-suspendable innocent passage. The first category of innocent passage is exercisable by foreign vessels in the territorial sea of a coastal State. The right of innocent passage is regarded as customary international law as reflected in the *Corfu Channel Case*. In this case, the ICJ held that navigation of warships in time of peace through straits used for international navigation connecting two parts of the high seas without previous authorisation of

⁶ The LOSC defines sovereign rights in the EEZ as rights of the State ‘for the purpose of exploring and exploiting, conserving and managing the natural resources, whether living or non living, of the waters superjacent to the seabed and of the seabed and its subsoil, and with regard to other activities for the economic exploitation and exploration of the zone, such as the production of energy from the water, currents and winds. See LOSC Art 56(1) (a).

⁷ Julian Roberts and Martin Tsamenyi, ‘The Regulation of Navigation Under International Law: A Tool for Protecting Sensitive Marine Environments’ in Tafsir Malick Ndiaye and Rudiger Wolfrum (eds), *Law of the Sea, Environmental Law and Settlement of Disputes* (Martinus Nijhoff, 2007), 796-799.

⁸ The LOSC also has excluded some straits from the application of its Part III such as the Indonesian Straits of Sunda, Lombok and Makassar and Ombai-Wetar. Although geographically, these straits can be regarded or named as straits, the LOSC has regarded them as parts of the Indonesian archipelagic waters and therefore, the archipelagic sea lanes passage as prescribed in Part IV of the LOSC will apply instead of the transit passage regime. See Hasjim Djalal, ‘The Law of the Sea Convention and Navigational Freedoms’ in Donald R. Rothwell and Sam Bateman (eds), *Navigational Rights and Freedoms and the New Law of the Sea* (Martinus Nijhoff, 2000), 2-3.

⁹ If a strait used for international navigation has EEZ corridors in it, foreign vessels or aircraft are permitted to exercise freedom of navigation or overflight as applicable on the high seas. See LOSC Art 58(1).

¹⁰ If a strait used for international navigation is wide enough to have a high seas corridor running through it, foreign vessels or aircraft are allowed to exercise freedom of navigation and overflight as prescribed by the LOSC. See LOSC Art 87(1) (a) and (b).

the coastal State, provided the passage is innocent, it is permissible.¹¹ The navigational regime of innocent passage is defined in Article 17 of the LOSC, which states that “ships of all States, whether coastal or land-locked, enjoy the right of innocent passage through the territorial sea.”¹²

The LOSC prescribes that for passage to be considered ‘innocent’ shall be continuous and expeditious.¹³ Any acts committed by the vessel that could compromise the peace, good order or security of the coastal State would remove the ‘innocent’ status of that vessel.¹⁴ Submarines and other underwater vessels are required to surface while navigating through the territorial sea of States other than the State whose flag they are carrying.¹⁵ The right of innocent passage applies only to maritime navigation. It does not include the right of a foreign aircraft to fly in the airspace of the territorial sea belonging to another country.¹⁶ The right of overflight was not mentioned in Article 18(1) (a) and (b) of the LOSC, which reads:

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.

The coastal State, on the other hand, has the duty not to hamper innocent passage of any vessel unless the passage ceases to be innocent or the coastal State fears that the passage would undermine its security interests.¹⁷ In addition, tolls and charges cannot be levied upon foreign ships by reason only of their passage but may be levied for other specific services rendered to the ship.¹⁸ It is not clear whether general services such as the maintenance of navigational aids fall

¹¹ International Court of Justice (ICJ), ‘The Corfu Channel Case (Merits) Judgment of April 9th, 1949’ (ICJ Reports 1949, P. 4), 35-36; Mary George, *Legal Regime of the Straits of Malacca and Singapore* (LexisNexis, 2008), 29.

¹² See LOSC Art 17.

¹³ See LOSC Art 18(2).

¹⁴ See LOSC Art 19(1) and (2).

¹⁵ See LOSC Art 20; Bernard H. Oxman, ‘The New Law of the Sea’ (1983) 69 *American Bar Association Journal*, 156-160.

¹⁶ Bernard H. Oxman, ‘The New Law of the Sea’ (1983) 69 *American Bar Association Journal*, 156-160.

¹⁷ See LOSC Art 24(1) (a) and (b).

¹⁸ See LOSC Art 26(1) and (2).

within the scope of Article 26(2) of the LOSC.¹⁹ In enhancing navigational safety in its territorial sea, the coastal State may designate sea lanes and Traffic Separation Schemes (TSS) for navigating vessels. The sea lane designation must be based on recommendations of the competent international organisation, in this case, generally regarded as the International Maritime Organization (IMO).²⁰

The coastal State's regulatory powers in its own territorial sea are extensive. It has the right to enact laws within this maritime zone which must be complied with by foreign vessels transiting its territorial sea. This is illustrated in the Malaysian case of *PP v Narongne Sookpavit*,²¹ decided in 1987, 9 years before Malaysia ratified the LOSC. This case involved the arrest of Thai fishermen within the 3-nautical mile territorial sea of Malaysia. The fishermen claimed that they were exercising innocent passage. Nevertheless, the police discovered that they were in possession of fishing appliances in contravention of Section 11(1) of the Fisheries Act 1963.²² The Malaysian court ruled that the passage by the accused persons could not be regarded as innocent as it contravened Malaysian domestic legislation as well as the meaning of innocent passage as recognised under customary international law.²³

The second category of innocent passage is the right of non-suspendable innocent passage that applies in straits of the type prescribed in Article 45(1) (a) and (b) of the LOSC.²⁴ Unlike the right of innocent passage which may be temporarily suspended as provided in Article 25(3) of the LOSC, vessels that exercise the non-suspendable form of innocent passage may not have

¹⁹ Yasuhiko Kagami, 'International Support for Navigational Aids: Lesson Learned from International Practices' (Paper presented at the International Symposium on Safety and Protection of the Marine Environment in the Straits of Malacca and Singapore, Kuala Lumpur, 2008), 45-46.

²⁰ See LOSC Art 22(1) and (3) (a).

²¹ *PP v Narongne Sookpavit* [1987] 2 MLJ 100.

²² 'Fisheries Act 1963 (Repealed by the Fisheries Act 1985 [Act 317])' (2006).

²³ Abdul Ghafur Hamid and Khin Maung Sein, *Judicial Application of International Law in Malaysia: An Analysis* (2006) The Malaysian Bar <http://www.malaysianbar.org.my/international_law/judicial_application_of_international_law_in_malaysia_an_analysis.html>.

²⁴ Article 45(1) of the LOSC reads 'The regime of innocent passage...shall apply in straits used for international navigation: (a) excluded from the application of the regime of transit passage...(b) between a part of the high seas or an exclusive economic zone and the territorial sea of a foreign State'. Article 45(2) of the LOSC explains that this innocent passage regime is non-suspendable.

their passage suspended by the coastal State.²⁵ The non-suspendable innocent passage regime is similar to the right of innocent passage governed by Part II, Section 3 of the LOSC. Therefore, the right of non-suspendable innocent passage applies only to ships and does not include overflight rights of foreign aircraft. In addition, foreign-flagged submarines and other underwater vehicles must surface while exercising this right.

4.2.2 Transit Passage

The navigational regime of transit passage is covered by Part III of the LOSC. The transit passage regime is applicable in straits used for international navigation connecting one part of the high seas or an EEZ and another part of the high seas or an EEZ.²⁶ This type of strait has have been completely amalgamated into the territorial seas of the bordering States with the result that there is no EEZ or high seas corridor through them.²⁷

The transit passage regime applies to ensure the smooth navigation of all ships, vessels and aircraft and does not in any way affect the legal status of the waters forming such straits and the coastal State's exercise of sovereignty over the straits.²⁸ Unlike the regimes of innocent passage and non-suspendable innocent passage, this regime applies on all types of foreign ships or aircraft to navigate or to fly above straits used for international navigation, even though the

²⁵ Donat Pharand, 'The Northwest Passage in International Law' in Charles B. Bourne (ed), *The Canadian Yearbook of International Law/ Annuaire canadien de Droit International* (University of British Columbia, 1980) vol XVII, 114-115.

²⁶ See LOSC Art 37; Myron H. Nordquist, 'United Nations Convention on the Law of the Sea 1982: A Commentary (Volume II)' in Satya N. Nandan, Shabtai Rosenne and Neal R. Grandy (eds), *Second Committee: Articles 1 to 85, Annexes I and II and Final Act, Annex II* (Martinus Nijhoff, 1993) vol II, 317-320.

²⁷ Naoya Okuwaki, 'Improving Navigational Safety Governance in Straits of Malacca and Singapore' (Paper presented at the International Symposium on Safety and Protection of the Marine Environment of the Straits of Malacca and Singapore, Kuala Lumpur, 2007), 17-19; Sam Bateman, 'The Regime of Straits Transit Passage in the Asia Pacific: Political and Strategic Issues' in Donald R. Rothwell and Sam Bateman (eds), *Navigational Rights and Freedoms and the New Law of the Sea* (Kluwer, 2000), 94-98.

²⁸ See LOSC Art 34(1); Myron H. Nordquist, 'United Nations Convention on the Law of the Sea 1982: A Commentary (Volume II)' in Satya N. Nandan, Shabtai Rosenne and Neal R. Grandy (eds), *Second Committee: Articles 1 to 85, Annexes I and II and Final Act, Annex II* (Martinus Nijhoff, 1993) vol II, 295-300; Markus J. Kachel, *Particularly Sensitive Sea Areas: The IMO's Role in Protecting Vulnerable Marine Areas* (Springer-Verlag, 2008), 75-78.

straits may form part of the territorial sea of another State.²⁹ Submarines and other underwater vehicles can transit in their normal submerged mode.³⁰

States bordering straits may also prescribe sea lanes and TSS in straits used for international navigation to facilitate safe shipping. However, unlike the regime of innocent passage, the designation of the said sea lanes and TSS in straits must be referred to the competent international organisation, generally accepted as being the IMO, for endorsement.³¹ In exercising the right of transit passage through straits used for international navigation, ships and aircraft must proceed without delay and refrain from activities that may compromise the security of the coastal State.³² States bordering straits are neither permitted to hamper such a passage³³ nor to formulate any laws or regulations that will have the practical effect of impeding the right of transit passage.³⁴

The LOSC does not provide the exact meaning of the phrase ‘proceed without delay’.³⁵ Nevertheless, it is generally understood that vessels should transit a strait at a reasonable speed depending on the weather, traffic and the existence of navigational hazards along the waterways, without loitering or stopping, unless by force majeure or distress.³⁶ Navigating vessels are required to comply with internationally accepted regulations relating to safe navigation and

²⁹ See LOSC Art 38(1); Myron H. Nordquist, ‘United Nations Convention on the Law of the Sea 1982: A Commentary (Volume II)’ in Satya N. Nandan, Shabtai Rosenne and Neal R. Grandy (eds), *Second Committee: Articles 1 to 85, Annexes I and II and Final Act, Annex II* (Martinus Nijhoff, 1993) vol II, 317-320; Sam Bateman, ‘The Regime of Straits Transit Passage in the Asia Pacific: Political and Strategic Issues’ in Donald R. Rothwell and Sam Bateman (eds), *Navigational Rights and Freedoms and the New Law of the Sea* (Kluwer, 2000), 97.

³⁰ S. N. Nandan and D. H. Anderson, ‘Straits Used for International Navigation: A Commentary on Part III of the United Nations Convention on the Law of the Sea 1982’ in Hugo Caminos (ed), *Law of the Sea* (Dartmouth, 2001), 77.

³¹ See LOSC Art 41(1), (3) and (4).

³² See LOSC Art 39(1) (a) and (b).

³³ See LOSC Art 44.

³⁴ See LOSC Art 42(2).

³⁵ Myron H. Nordquist, ‘United Nations Convention on the Law of the Sea 1982: A Commentary (Volume II)’ in Satya N. Nandan, Shabtai Rosenne and Neal R. Grandy (eds), *Second Committee: Articles 1 to 85, Annexes I and II and Final Act, Annex II* (Martinus Nijhoff, 1993) vol II, 341.

³⁶ S. N. Nandan and D. H. Anderson, ‘Straits Used for International Navigation: A Commentary on Part III of the United Nations Convention on the Law of the Sea 1982’ in Hugo Caminos (ed), *Law of the Sea* (Dartmouth, 2001), 77-78.

prevention, reduction and control of pollution from ships endorsed by the IMO.³⁷ Aircraft are similarly bound by international rules on safety, while flying over straits used for international navigation.³⁸ Nordquist contends that the language used in Article 38(2) of the LOSC corresponds to Articles 58(1) and 87(1) (a) and (b) of the LOSC, implying that the ‘right of transit passage’ is comparable with the ‘freedom of navigation and overflight’ in the EEZ and the high seas.³⁹ Beckman describes transit passage as the exercise of a freedom rather than a right, as aircrafts and vessels have the freedom to traverse and fly over straits.⁴⁰ Nevertheless, these contentions may not be entirely accurate.

As stated earlier, while vessels and aircraft have the freedom to navigate or fly over straits used for international navigation, they also have the corresponding obligation to follow the rules and regulations prescribed by States bordering straits which are based on the provisions of the LOSC while exercising transit passage. This is not comparable to the freedom of navigation regime on the high seas or to the freedom of navigation which may be exercised by vessels in the EEZ. For example, on the high seas, vessels may transit without having to do so expeditiously or without having to follow a designated traffic lane. Article 38(2) of the LOSC stipulates that transit passage may operate in the form of freedom of navigation and overflight.⁴¹ Nevertheless, Articles 38(1)⁴² and 38(3)⁴³ clearly describes that transit passage is in fact a right. In addition, the word ‘right’ and not ‘freedom’ indicates the distinction between Article 38 of the LOSC with

³⁷ See LOSC Art 39(2) (a) and (b).

³⁸ See LOSC Art 39(3) (a) and (b).

³⁹ Myron H. Nordquist, ‘United Nations Convention on the Law of the Sea 1982: A Commentary (Volume II)’ in Satya N. Nandan, Shabtai Rosenne and Neal R. Grandy (eds), *Second Committee: Articles 1 to 85, Annexes I and II and Final Act, Annex II* (Martinus Nijhoff, 1993) vol II, 329-330.

⁴⁰ Robert Beckman, ‘Transit Passage Regime in the Straits of Malacca: Issues for Consideration’ (Paper presented at the Building A Comprehensive Security Environment in the Straits of Malacca, Kuala Lumpur, 2004), 245-246.

⁴¹ Article 38(2) of the LOSC reads ‘Transit passage means the exercise in accordance with this Part of the freedom of navigation and overflight solely for the purpose of continuous and expeditious transit...’.

⁴² Article 38(1) of the LOSC reads ‘In straits referred to in article 37, all ships and aircraft enjoy the right of transit passage...’.

⁴³ Article 38(3) of the LOSC states ‘Any activity which is not an exercise of the right of transit passage through a strait remains subject to the other applicable provisions of this Convention...’.

that of Articles 58⁴⁴ and 87⁴⁵ of the LOSC, the two articles that deal with the application of freedom of navigation and overflight in the EEZ and the high seas, respectively.

States bordering straits are permitted to impose applicable international rules and regulations relating to the above matters in order to ensure that the marine environment of their coasts is protected from vessel-source marine pollution.⁴⁶ Many States designate sea lanes within the straits for transit purposes by submitting a proposal of a TSS designation to the IMO for approval.⁴⁷ These regulations must be observed by vessels⁴⁸ and the designated sea lanes must be respected by ships exercising transit passage in the strait.⁴⁹ States bordering straits are also permitted to foster co-operation with the user States of the strait to improve navigational safety and to control pollution from vessels sailing through the strait.⁵⁰ The regulatory powers of States bordering straits over shipping in straits used for international navigation are very restricted, so much so that they can only interfere with the passage of vessels if they have committed major damage to the marine environment of the straits.⁵¹ In the words of Beckman:

⁴⁴ Article 58(1) of the LOSC stipulates that ‘In the exclusive economic zone, all States, whether coastal or land-locked, enjoy, subject to the relevant provisions of this Convention, the freedoms referred to in article 87 of navigation and overflight...’.

⁴⁵ Article 87(1) of the LOSC reads: ‘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 this 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...’.

⁴⁶ See LOSC Art 42(1) (a) and (b); Plant is of the view that the word ‘applicable’ in the context of Article 42(1) (b) should be taken to mean as ‘applicable’ by virtue of the rules of international law, or in other words, the standards must represent the standards of customary law adhered to by most States. See G. Plant, ‘International Legal Aspects of Vessel Traffic Services’ (1990) 14(1) *Marine Policy*, 75-76.

⁴⁷ See LOSC Art 41(1); G. Plant, ‘International Legal Aspects of Vessel Traffic Services’ (1990) 14(1) *Marine Policy*, 74-77.

⁴⁸ See LOSC Art 41(4).

⁴⁹ See LOSC Art 41(7).

⁵⁰ Article 43 of the LOSC states that ‘User States and States bordering a strait should by agreement co-operate: (a) in the establishment and maintenance in a strait of necessary navigational and safety aids or other improvements in aid of international navigation; and (b) for the prevention, reduction and control of pollution from ships’.

⁵¹ See LOSC Art 233.

If a vessel exercising the right of transit passage violates obligations under Article 39(2), but the vessel in question does not come into port, and the violation in question does not cause or threaten major damage to the marine environment of the straits, the rights of the littoral State are more limited. The littoral State would not have a right to interfere with the passage of the vessel or a right to arrest it.⁵²

To date, what constitutes ‘major damage’ has yet to be judicially interpreted and still remains vague.⁵³ This issue will be dealt with more extensively in Chapter 5 of this Thesis. In addition, Part III of the LOSC does not mention in clear terms that transit passage can be suspended in the interest of the preservation of the good order of the marine environment of straits.⁵⁴

4.3 CATEGORIES OF STRAITS UNDER THE LOSC

For navigational purposes, the LOSC has divided straits used for international navigation into a number of categories. The two main categories are straits where transit passage applies and straits where transit passage does not apply.

4.3.1 Straits Used for International Navigation Where Transit Passage Applies

Foreign vessels may exercise transit passage in straits used for international navigation in straits that connect one part of the high seas or EEZ to another part of the high seas or EEZ that have breadths of 24 nautical miles or less, as mentioned in Articles 37(1) and 38 of the LOSC. Examples of straits under this category include the Straits of Malacca and Singapore, Strait of Gibraltar, Bab-el-Mandeb, Strait of Hormuz, Torres Strait and the Dover Strait.⁵⁵ The second type of strait where transit passage applies to foreign ships is a strait used for international navigation that connects one part of the high seas or EEZ to another part of the high seas or EEZ

⁵² Robert Beckman, ‘Transit Passage Regime in the Straits of Malacca: Issues for Consideration’ (Paper presented at the Building A Comprehensive Security Environment in the Straits of Malacca, Kuala Lumpur, 2004), 249-250.

⁵³ Mary George, *Legal Regime of the Straits of Malacca and Singapore* (LexisNexis, 2008), 73-84.

⁵⁴ *Ibid.*, 283-289.

⁵⁵ Jon M. Van Dyke, ‘Transit Passage Through International Straits’ in Aldo Chircop, Ted L. McDorman and Susan J. Rolston (eds), *The Future of Ocean Regime-Building: Essays in Tribute to Douglas M. Johnston* (Martinus Nijhoff, 2009), 177-232.

exceeding 24 nautical miles in breadth, but the EEZ or high seas corridors running through them are too dangerous for navigation, as stipulated in Article 36 of the LOSC.⁵⁶ An example of this type of strait is the Bass Strait that separates the continental land mass of Australia from the Australian island state of Tasmania, particularly in areas between King Island and the Australian mainland state of Victoria.⁵⁷ The eastern side of the Bass Strait, despite having an EEZ or high seas corridor within it, is dotted with small islands, islets and rocks, which make it unsafe to be used for international navigation.⁵⁸ Thus, transit passage is applicable on this part of the Bass Strait.⁵⁹

4.3.2 Straits Used for International Navigation Where Transit Passage Does Not Apply

There are also a few straits used for international navigation where transit passage is not exercisable by navigating foreign vessels and ships. They include:

(a) Straits used for international navigation that are governed by separate treaties

There are no specific list of straits used for international navigation that are governed by separate treaties. However, the Baltic or Danish Strait, the Turkish Strait and Magellan Strait are among those that fit into this category.⁶⁰ Article 35(c) of the LOSC exempts straits of this kind from the application of the transit passage regime. Instead, the navigational regimes that apply in these straits may be contained in long standing conventions negotiated specifically for them. The

⁵⁶ Article 36 of the LOSC states that transit passage would not apply in a strait used for international navigation if there exists through the strait a route through the high seas or through an EEZ of similar convenience with respect to navigational and hydrographical characteristics.

⁵⁷ Mary George, *Legal Regime of the Straits of Malacca and Singapore* (LexisNexis, 2008), 47; Donald R. Rothwell, 'International Straits and UNCLOS: An Australian Case Study' (1992) 23(3) *Journal of Maritime Law and Commerce*, 479.

⁵⁸ Donald R. Rothwell, 'International Straits and UNCLOS: An Australian Case Study' (1992) 23(3) *Journal of Maritime Law and Commerce*, 479-481.

⁵⁹ *Ibid.*

⁶⁰ Jon M. Van Dyke, 'Transit Passage Through International Straits' in Aldo Chircop, Ted L. McDorman and Susan J. Rolston (eds), *The Future of Ocean Regime-Building: Essays in Tribute to Douglas M. Johnston* (Martinus Nijhoff, 2009), 196-197; Hugo Caminos, 'Categories of International Straits Excluded From the Transit Passage Regime Under Part III of the United Nations Convention on the Law of the Sea' in Tafsir Malick Ndiaye and Rudiger Wolfrum (eds), *Law of the Sea, Environmental Law and Settlement of Disputes: Liber Amicorum Judge Thomas A. Mensah* (Martinus Nijhoff, 2007), 583-585.

Danish or Baltic Strait and the Turkish Strait are governed by the Copenhagen Convention on the Sound and the Belts of 1857⁶¹ and the Montreux Convention of 1936,⁶² respectively.

Passage through the Strait of Magellan is regulated by the 1881 Boundary Treaty between Chile and Argentina (1881 Treaty) which conferred sovereignty over the Strait of Magellan to Chile.⁶³ Article V of the 1881 Treaty grants vessels of all flags the freedom to navigate through the Strait of Magellan.⁶⁴ In reaffirming the application of Article V of the 1881 Treaty, Chile and Argentina have entered into another treaty called the ‘Treaty of Peace and Friendship’ in 1984 which stated:

...both States reaffirmed the validity of article V of the Boundary Treaty of 1881 whereby the Strait of Magellan (*Estrecho de Magallanes*) is neutralized forever with free navigation assured for the flags of all nations.⁶⁵

It can be concluded that the LOSC has not altered the longstanding legal regime of the Strait of Magellan. The 1881 Treaty is clearly compatible with the LOSC which acknowledged the special status of the navigational regime of vessels sailing through straits used for international navigation.

⁶¹ The Consolidated Treaty Series, ‘Treaty for the Redemption of Sound Dues between Austria, Belgium, France, Great Britain, Hanover, the Hanse Towns, Mecklenburg-Schwerin, the Netherlands, Oldenburg, Prussia, Russia, Sweden-Norway and Denmark’ in Clive Parry (ed), *The Consolidated Treaty Series (1648-1918)* (Oceana, 1969) vol 116, 357; Jon M. Van Dyke, ‘Legal and Practical Problems Governing International Straits’ in Hamzah Ahmad (ed), *The Straits of Malacca: International Co-operation in Trade, Funding and Navigational Safety* (Pelanduk, 1997), 197-202.

⁶² Natalino Ronzitti, ‘1936 Montreux Convention Regarding the Regime of the Straits’ in Natalino Ronzitti (ed), *The Law of Naval Warfare: A Collection of Agreements and Documents with Commentaries* (Martinus Nijhoff, 1988), 435-368; Yasuhiko Kagami, ‘International Support for Navigational Aids: Lesson Learned from International Practices’ (Paper presented at the International Symposium on Safety and Protection of the Marine Environment in the Straits of Malacca and Singapore, Kuala Lumpur, 2008), 47-48.

⁶³ ‘Boundary Treaty of 1881 between Chile and Argentina’ as quoted in Michael A. Morris, ‘The Strait of Magellan’ in Gerard J. Mangone (ed), *International Straits of the World* (Martinus Nijhoff, 1989), 205-207.

⁶⁴ Ibid.

⁶⁵ Ibid., 208-210.

(b) Straits used for international navigation that connect one part of the high seas or EEZ to the territorial sea of a foreign State

Instead of transit passage, Article 45(1) (b) of the LOSC provides that non-suspendable innocent passage is exercisable by foreign vessels in a strait that connects one part of the high seas or EEZ to the territorial sea of a foreign State.⁶⁶ The navigational features of non-suspendable innocent passage were discussed in Section 4.2.1. Some examples of straits of this nature are the Strait of Georgia that connects the North Pacific Ocean which is partly within the American EEZ to the Canadian state of British Columbia; and the Strait of Tiran that connects the Red Sea and the Gulf of Aqaba.⁶⁷ The Strait of Tiran links the Red Sea, which is under the territorial waters of Egypt and Saudi Arabia to the shores of Saudi Arabia, Egypt, Jordan and Israel.⁶⁸

The Straits of Malacca and Singapore are generally considered as straits that connect one high seas or EEZ to another high seas or EEZ. However, if they are considered as separate straits, the Strait of Malacca may also fall under this category as it connects the Malaysian and Indonesian EEZ in the Strait of Malacca to the territorial sea of Singapore when it joins the Strait of Singapore at the southern end of the Malay Peninsula.⁶⁹ Chapter 9 of this Thesis will discuss this issue in further detail.⁷⁰

⁶⁶ See Note 24.

⁶⁷ Mary George, *Legal Regime of the Straits of Malacca and Singapore* (LexisNexis, 2008), 48; Christos L. Rozakis and Petros N. Stagos, 'The Turkish Straits' in Gerard J. Mangone (ed), *International Straits of the World* (Martinus Nijhoff, 1987) vol 9, 75-76; Leo Gross, 'Passage Through the Strait of Tiran and in the Gulf of Aqaba' (1968) 33(1) *Law and Contemporary Problems*, 125-128.

⁶⁸ Leo Gross, 'Passage through the Strait of Tiran and in the Gulf of Aqaba' (1968) 33(1) *Law and Contemporary Problems*, 125-128; Gerard J. Mangone, 'Straits used for international navigation' (1987) 18(4) *Ocean Development and International Law*, 402-403.

⁶⁹ Mohd Hazmi bin Mohd Rusli, 'The Legal Feasibility of Imposing Shipping Controls in Straits Used for International Navigation: A Study of the Straits of Malacca and Singapore' (2011) 2(9) *OIDA International Journal of Sustainable Development*, 69-82; Mohd Hazmi bin Mohd Rusli, 'Balancing the Tensions between Shipping and Marine Environmental Protection in the Straits of Malacca and Singapore: Have the Straits Reached an Environmental Tipping Point' (2011) 7(2) *The International Journal of Environmental, Cultural, Economic and Social Sustainability*, 45-46.

⁷⁰ See Section 9.2.1 of Chapter 9 of this Thesis.

- (c) Straits used for international navigation which were previously territorial sea, but have become internal waters because of the drawing of straight baselines enclosing that maritime area

The right of transit passage would not apply in straits used for international navigation forming the internal waters of the coastal State as provided for in Article 35(a) of the LOSC.⁷¹ Nevertheless, this exception will not apply if the waters of the strait were territorial sea before the drawing of a straight baseline that enclosed them making them internal waters under Article 7 of the LOSC. A good example to illustrate this situation is the waters of the Strait of Malacca. Once Malaysia publicises its straight baselines in the Strait of Malacca, most northern Malaysian waters of the Strait of Malacca which are now territorial sea would be enclosed as internal waters.⁷² The use of the word ‘except’ in Article 35(a) of the LOSC shows that transit passage will still be applicable in internal waters areas of the strait that used to be territorial sea before the drawing of such straight baselines.

- (d) Straits used for international navigation that have EEZ or High seas corridors within them

Article 36 of the LOSC states clearly that transit passage is not applicable in straits used for international navigation that have EEZ or high seas corridors running through them. The navigational regime applicable in these straits would be freedom of navigation and overflight as provided for in Article 58(1)⁷³ and Article 87(1) (a) and (b)⁷⁴ of the LOSC respectively. Straits may have EEZ or high seas corridors in them if the bordering States opt not to extend their

⁷¹ Article 35(a) of the LOSC states ‘Nothing in this Part affects any areas of internal waters within a strait, except where the establishment of a straight baseline in accordance with the method set forth in Article 7 has the effect of enclosing as internal waters areas which had not previously been considered as such’.

⁷² M. J. Valencia, ‘Validity of Malaysia’s Baselines and Territorial Sea Claim in the Northern Malacca Strait’ (2003) 27 *Marine Policy*, 367-373.

⁷³ Article 58(1) of the LOSC reads: ‘In the exclusive economic zone, all States...enjoy...the freedoms referred to in article 87 of navigation and overflight’.

⁷⁴ Articles 87(1) of the LOSC states ‘The high seas are open to all States...Freedom of the high seas is exercised under the conditions laid down by this Convention...It comprises...(a) freedom of navigation (b) freedom of overflight.

territorial sea limits to 12 nautical miles, as Japan and Korea have done in the Korea Strait,⁷⁵ or if the strait is really wide enough to have a maximum breadth of more than 24 nautical miles from one shore to the other, such as the northern part of the Strait of Malacca towards the Andaman Sea.⁷⁶ Other examples would be Florida Strait that separates Florida and Cuba; and Formosa Strait between mainland China and Taiwan.⁷⁷ If the vessel ceases to transit in the EEZ or high seas corridor within the straits, and enters parts of the straits that form the territorial sea of the bordering States, the vessel is deemed to be exercising the right of innocent passage and the passage may be suspended by the bordering State for reasons essential for the protection of the State's security.⁷⁸ In the case of the Strait of Malacca,⁷⁹ since the breadth at its opening to the Andaman Sea stretches for more than 200 nautical miles in length, foreign vessels can sail through that part of the Strait of Malacca under the regime of freedom of navigation in the EEZ. However, the Strait of Malacca gets constricted in size as it flows south.

Earlier in Chapter 2, it was noted that Malaysia and Indonesia have not officially delimited their EEZ boundaries in the waters of the Strait of Malacca.⁸⁰ As shown in Map 2-4 in Chapter 2, Malaysia claims that the EEZ boundary line in the Strait of Malacca should follow the same boundary line set in the Continental Shelf Boundary Agreement signed by Malaysia and

⁷⁵ Joseph R. Morgan, 'Large Marine Ecosystem of the Pacific Rim' in Kenneth Sherman, Lewis M. Alexander and Barry D. Gold (eds), *Large Marine Ecosystems: Stress, Mitigation and Sustainability* (American Association for the Advancement of Science, 1993), 296.

⁷⁶ The north-west entrance to the Strait of Malacca from the Andaman Sea measures about 200 nautical miles. See Michael Leifer, 'Malacca, Singapore and Indonesia' in Gerard J. Mangone (ed), *International Straits of the World* (Sijthoff & Noordhoff, 1978), 52-53; Amelia Emran, *The Regulation of Vessel-Source Pollution in the Straits of Malacca and Singapore* (Master of Maritime Studies (Research) Thesis, University of Wollongong, 2007), 9.

⁷⁷ David L. Larson, 'Innocent, Transit and Archipelagic Sea Lanes Passage' (1987) 18(4) *Ocean Development and International Law*, 414-415.

⁷⁸ Hugo Caminos, 'Categories of International Straits Excluded From the Transit Passage Regime Under Part III of the United Nations Convention on the Law of the Sea' in Tafsir Malick Ndiaye and Rudiger Wolfrum (eds), *Law of the Sea, Environmental Law and Settlement of Disputes: Liber Amicorum Judge Thomas A. Mensah* (Martinus Nijhoff, 2007), 590-592. Article 25(3) of the LOSC states 'The coastal State may...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...'.⁷⁹

⁷⁹ Unlike the Strait of Malacca which has considerably large breadth at its northern entrance, the breadth of the whole stretch of the Strait of Singapore from one side to the other is less than 24 nautical miles. Therefore, it could be said that transit passage is deemed to begin in the Strait of Singapore when a vessel starts to navigate within its limits as described by the International Hydrographic Organization (IHO). See International Hydrographic Organization (IHO), 'Limits of Oceans and Seas' (150-XII-1971, IHO, 1953), 23.

⁸⁰ See Section 2.3 of Chapter 2 of this Thesis.

Indonesia in 1969.⁸¹ On the other hand, Indonesia contends that the EEZ boundary line in the Strait of Malacca should be drawn based on the principle of equitable solution.⁸² The maritime boundary line should be measured from the median line between Sumatra and Peninsula Malaysia.⁸³

It has also been earlier mentioned in Chapter 2 that Malaysia has yet to finalise and submit a map specifying its straight baselines defining its internal waters and territorial sea on its side of the Strait of Malacca to the UN.⁸⁴ This drawing of straight baseline is important in determining the extent of the territorial Sea and EEZ areas that Malaysia could claim in the Strait of Malacca. Theoretically, if the drawing of this straight baseline causes some maritime areas along the western coast of Peninsula Malaysia to be enclosed as internal waters, the Malaysian territorial Sea and EEZ limits will be pushed seaward, resulting in the EEZ corridor within the Malaysian side of the Strait of Malacca to get smaller in area⁸⁵.

The breadth of the Strait of Malacca, from a geographic and hydrographic perspective, is wide enough to have an EEZ corridor. However, due to the straight baselines drawn on the Strait, transit passage may be exercised by foreign ships in that part of the Strait as the EEZ corridor may no longer be available.⁸⁶ These scenarios are illustrated in the following Map 4-1 and Map 4-2. For the purpose of these illustrations, it is assumed that the EEZ boundary between Malaysia and Indonesia is similar to that of the Continental Shelf Boundary concluded by the two countries in 1969. The lines drawn on the map, however, do not indicate the precise borders and baselines, as this is done solely for the purpose of illustration.

⁸¹ I Made Andi Arsana, *Good Fences Make Good Neighbours* (2010) The Malaysian Insider <<http://www.themalaysianinsider.com/breakingviews/article/good-fences-make-good-neighbors-i-made-andi-arsana/>>.

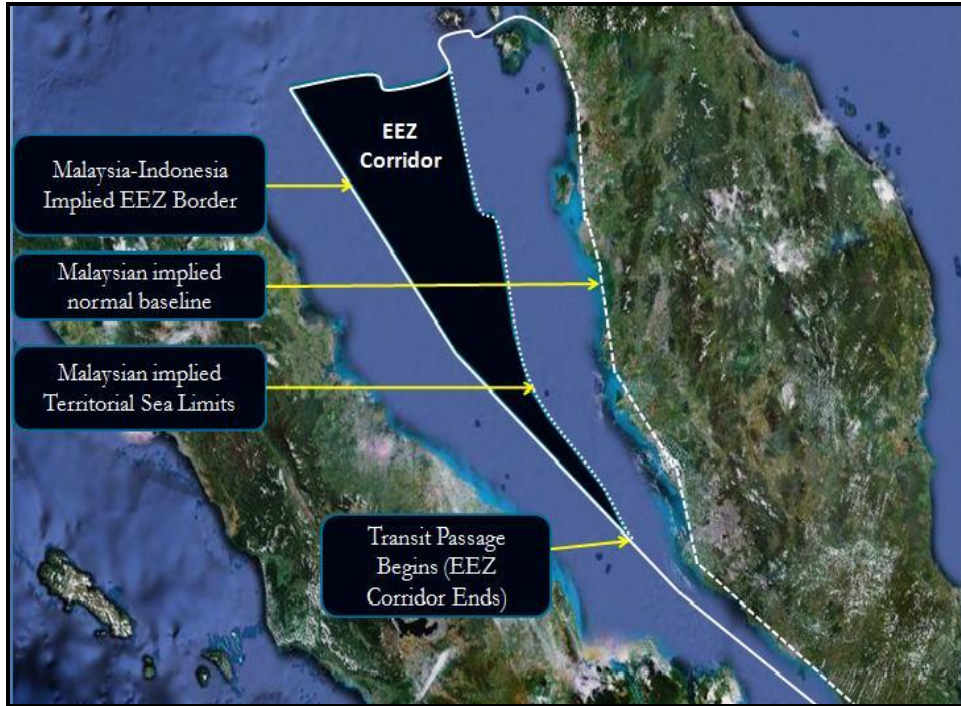
⁸² I Made Andi Arsana, *Insiden Selat Malaka* (2011) Detiknews <<http://us.detiknews.com/read/2011/04/13/082414/1615124/103/insiden-selat-malaka>>.

⁸³ Ibid.

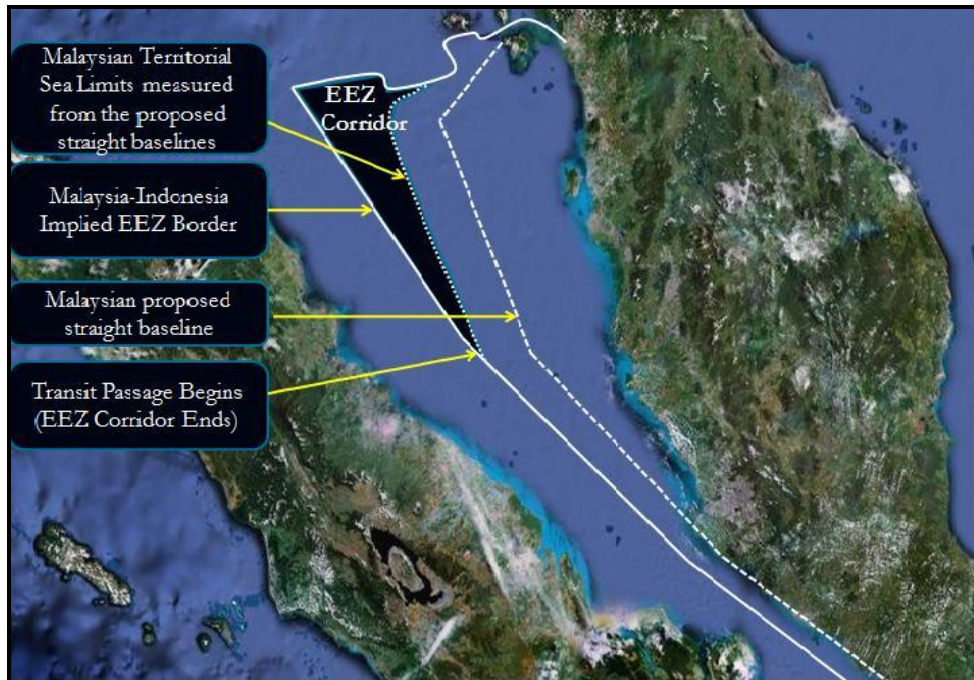
⁸⁴ See Section 2.3 of Chapter 2 of this Thesis.

⁸⁵ Mohd Hazmi bin Mohd Rusli, 'Navigational Regimes through Straits Used for International Navigation: A Study of the Straits of Malacca and Singapore' (Paper presented at the International Young Scholar's Conference, Bandar Sunway, Malaysia, 2011).

⁸⁶ Ibid.



Map 4-1: The projected beginning/terminating points of transit passage on the Malaysian side of the Strait of Malacca measured from Malaysia’s implied normal baseline. (Modified from Google Maps)



Map 4-2: The projected beginning/terminating points of transit passage on the Malaysian side of the Strait of Malacca measured from Malaysia’s proposed straight baselines. (Modified from Google Maps)

Map 4-1 and Map 4-2 demonstrate that the starting and terminating points of transit passage in the Strait of Malacca may vary based on the size of an EEZ corridor that may exist in the Strait. Nevertheless, due to Malaysia's straight baseline, areas that used to be territorial sea in the Strait of Malacca have been enclosed as internal waters of Malaysia, transit passage would still be applicable in those waters as prescribed by Article 35 (a) of the LOSC.⁸⁷ However, this may only be the case if there is no longer an equally convenient EEZ or high seas corridor that runs within that maritime area of the Strait of Malacca.

Furthermore, this situation is also made difficult in the absence of a proper EEZ boundary between Malaysia and Indonesia in the Strait of Malacca. Otherwise, the EEZ corridor in the Strait could be ascertained and transit passage may be deemed to be exercisable by foreign vessels when they sail in areas where the EEZ corridor ends. Malaysia and Indonesia have yet to formally declare the starting or terminating points of transit passage within their maritime areas in the Strait of Malacca. It is important for both States to determine these points to properly ascertain the regulatory powers that they possess over shipping traffic that goes through different parts of the Strait of Malacca. If the vessel sails in areas within the EEZ corridor of the Strait, then the regulatory powers of the littoral States would not be governed by Part III of the LOSC but rather by Part V of the LOSC, which covers the matter on freedom of navigation in the EEZ. Likewise, if the vessel swerves away from the EEZ corridor and enters maritime areas within the Strait which are part of the territorial sea of the littoral States, the innocent passage regime in Part II of the LOSC would then apply. Nevertheless, if the vessel subsequently enters maritime areas within the Strait where transit passage applies, Malaysia and Indonesia may exercise their regulatory powers based on the provisions of Part III of the LOSC.

In the Strait of Singapore, Malaysia, Indonesia and Singapore have yet to finalise their common maritime boundaries, particularly areas around Pedra Branca. The issue on the determination of beginning and terminating points of transit passage may not crop up in the Strait of Singapore. Unlike the Strait of Malacca, the breadth of the Strait of Singapore does not exceed 24 nautical

⁸⁷ Article 35(a) of the LOSC states 'Nothing in this Part affects any areas of internal waters within a strait, except where the establishment of a straight baseline in accordance with the method set forth in Article 7 has the effect of enclosing as internal waters areas which had not previously been considered as such'.

miles.⁸⁸ Hence, transit passage is deemed to begin when a vessel sails into the waters of the Strait of Singapore as defined by the IHO.⁸⁹

- (e) Straits used for international navigation which are formed by an island of the coastal State but there is a similarly convenient high seas route with respect to navigational and hydrographical characteristics seaward of the island

A strait that is formed by an island of the coastal State but there is a similarly convenient high seas route with respect to navigational and hydrographical characteristics seaward of the island is often referred to the ‘Messina Exception’ or ‘Island Exception’, expounded in Article 38(1) of the LOSC and exempted from the application of transit passage.⁹⁰ Non-suspendable innocent passage applies in such straits, the features of which were earlier explained in Section 4.2.1, above. This exception was to accommodate the concerns of the Italian delegation during UNCLOS III about the strait between Sicily and the Italian mainland.⁹¹ Tullio Treves has suggested that the ‘island exception’ signifies the concept that transit passage is reserved only for primary straits and not for straits of secondary importance.⁹² A good example of this would be a strait that separates Scotland and the Orkney Islands. Even though the strait can be used for international navigation, there is also a route seaward of the Orkney Islands, called the Fair Isle Gap which is similarly convenient for shipping.⁹³ Other waterways that may fall into this category could include Foveaux Strait between New Zealand’s South Island and Stewart Island

⁸⁸ The Strait of Singapore has an overall breadth of not more than 8.639 nautical miles. See I. M. Andi Arsana and Farid Yuniar Sumaryo, ‘Geospatial Aspects of Maritime Boundary Delimitations in the Singapore Strait involving Indonesia, Malaysia and Singapore’ (Paper presented at the FIG Congress 2010: Facing the Challenges - Building the Capacity, Sydney, 2010), 8.

⁸⁹ International Hydrographic Organization (IHO), ‘Limits of Oceans and Seas’ (150-XII-1971, IHO, 1953), 23; See Section 2.2 of Chapter 2 of this Thesis.

⁹⁰ William L. Schachte Jr. and J. Peter A. Bernhardt, ‘International Straits and Navigational Freedoms’ (Paper presented at the 26th Law of the Sea Institute Annual Conference, Genoa, Italy, 1992), 13; See Notes 102 and 103.

⁹¹ Hugo Caminos, ‘Categories of International Straits Excluded From the Transit Passage Regime Under Part III of the United Nations Convention on the Law of the Sea’ in Tafsir Malick Ndiaye and Rudiger Wolfrum (eds), *Law of the Sea, Environmental Law and Settlement of Disputes: Liber Amicorum Judge Thomas A. Mensah* (Martinus Nijhoff, 2007), 590-592.

⁹² Ibid.

⁹³ David Anderson, *Modern Law of the Sea: Selected Essays* (Martinus Nijhoff, 2008), 167.

and Cheju Island between the southwestern coast of the Korean Peninsula and Cheju Island.⁹⁴ However, Langdon argued that the existence of a large patch of shoal water extending from the island out into the sea would justify the application of transit passage in the strait that separates the island and the mainland.⁹⁵ The shallow shoalwater seawards of the island would render the passage seaward of the island inconvenient for navigation.

Palk Strait, which separates Sri Lanka and the Indian subcontinent, may also be considered an example of this type of strait, but with a slight difference from the other examples described above. The route seawards of Sri Lanka is more navigationally convenient than the Palk Strait as the Strait is not navigationally a preferred sea route.⁹⁶ The Palk Strait is narrow, shallow and dotted with many islets and sandy shoals that make it navigationally difficult.⁹⁷ As such, navigating vessels would prefer to bypass Palk Strait by sailing around Sri Lanka.⁹⁸ Nevertheless, the Indian Government is working on the Sethusamudram Shipping Canal Project (SSCP), a project to deepen the Palk Strait so that it would be more navigable for vessels.⁹⁹ The SSCP was first proposed in 1860 to shorten the distance from one side of India to the other.¹⁰⁰ Once this project is completed, the Palk Strait would be opened and viable for international navigation and the route would also be a shorter route for vessels compared to the present route of going around Sri Lanka.¹⁰¹

⁹⁴ Sam Bateman, 'The Regime of Straits Transit Passage in the Asia Pacific: Political and Strategic Issues' in Donald R. Rothwell and Sam Bateman (eds), *Navigational Rights and Freedoms and the New Law of the Sea* (Kluwer, 2000), 96.

⁹⁵ J.B.R.L. Langdon, 'The Extent of Transit Passage: Some Practical Anomalies' (1990) 14 *Marine Policy*, 135.

⁹⁶ R Hariharan, *Strategic Security and Sethusamudram Project* (2006) South Asia Analysis Group <<http://www.southasiaanalysis.org/%5Cpapers18%5Cpaper1713.html>>.

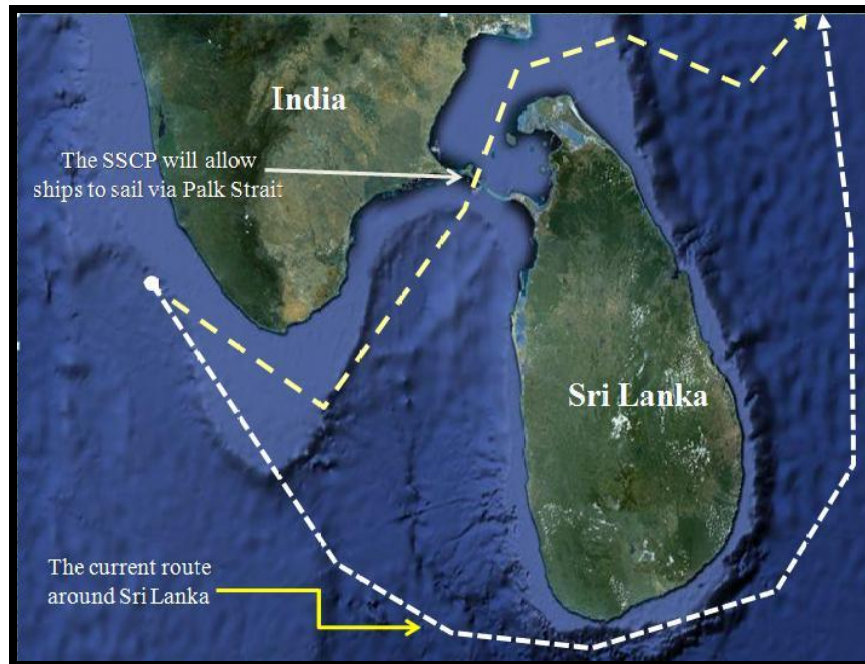
⁹⁷ Ibid.

⁹⁸ Ibid.

⁹⁹ Ibid.

¹⁰⁰ R. Ramesh, 'Sethusamudram Shipping Canal Project and the Unconsidered High Risk Factors: Can it Withstand Them?' <http://www.elaw.org/system/files/Sethusamudram_Shipping_Canal_Project_Final.pdf>, 7.

¹⁰¹ Ibid.



Map 4-3: The SSCP Route
(Modified from Google Maps)

However the question of whether or not transit passage would be applicable to the Palk Strait is still open for deliberation until the SSCP is entirely completed. This is because Palk Strait has never been regarded in the past as a strait that is used for international navigation as it is not a navigationally convenient sea route.

(f) Vessels sailing between ports situated within the strait itself

Some straits possess many seaports along its length. For example, there are many ports along the coast of the Strait of Malacca on both shores. As illustrated in Map 4-4, if a foreign vessel sails from the Malaysian port of Melaka to the Sumatran port of Dumai, Indonesia, such passage is not an exercise of transit passage as provided in Article 37¹⁰² and Article 38(1) of the LOSC.¹⁰³

¹⁰² Article 37 of the LOSC explains that transit passage applies in straits which are used for international navigation between one part of the high seas or an EEZ and another part of the high seas or an EEZ.

¹⁰³ Article 38(1) of the LOSC provides that all ships and aircraft enjoy the right of transit passage when transiting through straits as explained in Article 37 of the LOSC.



Map 4-4: Melaka and Dumai are two important regional ports along the Strait of Malacca (Modified from GoogleMaps)

In this instance, transit passage would not be applicable because the vessel is not traversing the strait in order to travel from an area of EEZ or high seas to another area of EEZ or high seas. The ship is navigating across the strait to get into a port that is situated on the other side of the waterway. Instead of transit passage, the right of non-suspendable innocent passage will apply as described in Article 37 and Article 45 (1) (a) of the LOSC.¹⁰⁴

4.4 CONCLUSION

This chapter addressed the key issue of the navigational regime applicable in straits used for international navigation. There are four types of passage rights through straits used for international navigation: the right of innocent passage, the right of non-suspendable innocent passage, transit passage, and freedom of navigation in the EEZ or on the high seas, all of which are codified in the LOSC. Among all these navigational regimes, freedom of navigation in the

¹⁰⁴ S. N. Nandan and D. H. Anderson, 'Straits Used for International Navigation: A Commentary on Part III of the United Nations Convention on the Law of the Sea 1982' in Hugo Caminos (ed), *Law of the Sea* (Dartmouth, 2001), 109; Mary George, *Legal Regime of the Straits of Malacca and Singapore* (LexisNexis, 2008), 46-50; See Notes 24 and 102.

EEZ or the high seas is the most liberal, followed by transit passage regime and the non-suspendable innocent passage regime that applies to straits described in Article 45(1) (b) of the LOSC. Unlike other navigational regimes which cannot be hampered, impeded or suspended by the coastal State, the innocent passage regime is the strictest form of navigational regime as it could be suspended for security purposes.

The transit passage regime is the navigational regime that applies most frequently to straits used for international navigation. The transit passage regime confers very liberal rights of navigation and overflight to all vessels and aircrafts exercising passage through or over straits used for international navigation. The transit passage regime applies in the Straits of Malacca and Singapore as they link one part of the high seas or an EEZ to another part of the high seas or an EEZ. Nevertheless, the littoral States of Malaysia and Indonesia have yet to determine the beginning and terminating points of transit passage in the Strait of Malacca. From an enforcement jurisdiction point of view, the determination of these points are important as it will assist the littoral States to exercise their enforcement powers within the limits allowed by the LOSC.

As transit passage is a liberal navigational regime, the Straits of Malacca and Singapore are therefore expected to accommodate unlimited number of shipping traffic. This is based on the fact that passage of vessels exercising transit passage may not be hampered, impaired or impeded. The increasing number of shipping traffic in the Straits of Malacca and Singapore has raised environmental concerns. There is apprehension that congestion may increase the risks of maritime accidents, which may threaten the sensitive marine environment of the Straits. The subsequent chapter discusses pollution issues that the Straits of Malacca and Singapore are currently facing arising from heavy shipping activities.

CHAPTER 5.

MARINE POLLUTION ISSUES IN THE STRAITS OF MALACCA AND SINGAPORE

5.1 INTRODUCTION

International law under the United Nations Convention on the Law of the Sea 1982 (LOSC) requires the Straits of Malacca and Singapore to accommodate an unlimited volume of shipping traffic. The heavy shipping activity occurring in the Straits of Malacca and Singapore may enhance the likelihood of maritime collisions in the Straits. Maritime collisions could result in oil or hazardous or noxious substances spilling into the waters of the Straits of Malacca and Singapore. This Chapter examines the types of pollution in the Straits of Malacca and Singapore, focusing more on vessel-source pollution. This Chapter concludes by stating that vessel-source pollution problem is a serious issue as it may affect the sensitive marine environment of the Straits and disrupt the socio-economic well-being of the littoral States of Malaysia, Indonesia and Singapore.

5.2 TYPES OF POLLUTION IN THE STRAITS OF MALACCA AND SINGAPORE

The coastal areas along the Straits of Malacca and Singapore have a high population density as major cities and ports are concentrated on the coast. With active human-based activities, the Straits of Malacca and Singapore face pressures associated with marine pollution, mainly caused by land-based human activities, vessel sources of marine pollution,¹ and atmospheric pollution.² However, the issue of atmospheric pollution is not discussed in this Chapter.

*This Chapter has been published (wholly or in part) in the following peer-reviewed journals:

- (a) Mohd Hazmi bin Mohd Rusli, 'Straits of Malacca and Singapore: Ensuring Safe Navigation' (2011) (131/2011) *RSIS Commentaries*, 1-2;
- (b) Mohd Hazmi bin Mohd Rusli, 'The Application of Compulsory Pilotage in Straits Used for International Navigation: A Study of the Straits of Malacca and Singapore' (2011) 3(4) *Asian Politics & Policy*, 501-526;
- (c) Mohd Hazmi bin Mohd Rusli, 'The Legal Feasibility of Imposing Shipping Controls in Straits Used for International Navigation: A Study of the Straits of Malacca and Singapore' (2011) 2(9) *OIDA International Journal of Sustainable Development*, 69-82;
- (d) Mohd Hazmi bin Mohd Rusli, 'Protecting Vital Sea Lines of Communication: A Study of the Proposed Designation of the Straits of Malacca and Singapore as a Particularly Sensitive Sea Area' (2012) 57 *Ocean & Coastal Management*, 79-94;

Realising the adverse impact of marine pollution on the marine environment, the United Nations LOSC has addressed the problem of land-based³ and vessel-source marine pollution⁴ on the marine environment and as parties to the LOSC, Malaysia, Indonesia and Singapore are expected to address these problems effectively. It is therefore imperative to examine the problems of marine pollution in areas within and around the Straits of Malacca and Singapore.

5.2.1 Land-Based Sources of Pollution

Land-based pollution has always been considered to be the most persistent and rampant problem for urban and industrialised areas situated along the length of the Straits of Malacca and Singapore.⁵ As discussed earlier in Chapter 2, the coastal regions of Malaysia, Indonesia and Singapore facing the Straits are heavily populated.⁶ The constant process of development has increased land-based pollution problems, through generation of domestic discharge and municipal solid waste, sewage (including animal wastes), industrial and agricultural effluents as well as marine litter that may pose hazards to the environment.⁷ If this waste is not managed

¹ Kirstin Dow, 'An Overview of Pollution Issues in the Straits of Malacca' in Hamzah Ahmad (ed), *The Straits of Malacca: International Co-operation in Trade, Funding and Navigational Safety* (Pelanduk, 1998), 61-98; Mohamad Pauzi Zakaria et al, 'Oil Pollution in the Straits of Malacca, Malaysia: Application of Molecular Markers for Source Identification' (2000) 34 *Environmental, Science and Technology*, 1189-1190; Abdul Rani Abdullah et al, 'The GEF/UNDP/IMO Malacca Straits Demonstration Project: Sources of Pollution' (1999) 39 *Marine Pollution Bulletin*, 229.

² Veronika Eyring et al, 'Transport Impacts on Atmosphere and Climate: Shipping' (2010) 44 *Atmospheric Environment*, 4761; Cheryl Rita Kaur, 'IMO's Role in Addressing Harmful Air Emissions from Ships: The Road Ahead' (2009) (16 (1) 2009) *MIMA Bulletin*, 13-16; Rachel Oliver, *Shipping's Impact on the Air* (2008) CNN.com <<http://edition.cnn.com/2008/WORLD/asiapcf/01/20/eco.about.ships/index.html>>.

³ Articles 207(1) & (2) of the LOSC prescribe that States to adopt laws and regulations to prevent, reduce and control marine pollution of the marine environment from land-based sources and also to enforce other measures to prevent, reduce and control such pollution.

⁴ The LOSC has also addressed problems relating to pollution from vessels. Article 211(1) reads 'States, acting through the competent international organization or general diplomatic conference, shall establish international rules and standards to prevent, reduce and control pollution of the marine environment from vessels...'.⁷

⁵ Cheryl Rita Kaur, 'Pollution From Land-Based Sources' in H.M. Ibrahim and Hairil Anuar Husin (eds), *Profile of the Straits of Malacca: Malaysia's Perspective* (Maritime Institute of Malaysia (MIMA), 2008), 128. Due to rapid urbanisation and industrialisation of areas along the west coast of Peninsular Malaysia, land-based oil pollutants contributes to pollution in coastal areas of States bordering the Strait of Malacca. See Mohamad Pauzi Zakaria et al, 'Oil Pollution in the Straits of Malacca, Malaysia: Application of Molecular Markers for Source Identification' (2000) 34 *Environmental, Science and Technology*, 1189-1190.

⁶ See Section 2.4 of Chapter 2 of this Thesis.

⁷ P.S Choo, Ismail I. and H. Rosly, 'The West Coast of Peninsular Malaysia' <<http://ftp.fao.org/docrep/fao/007/ad894e/AD894E02.pdf>>; United Nations (UN), 'Statement by the Honourable

systematically, these various wastes may be disposed of in landfill sites or may also be discharged into rivers or canals that feed into the sea. It is an established fact that over 80 per cent of marine pollution comes from land-based sources of pollution.⁸ Therefore, it is important to briefly examine the laws and regulations of the littoral States of the Straits of Malacca and Singapore on the management of land-based waste. For the purpose of this Chapter, the focus is on the management of municipal solid waste in the three States of Malaysia, Indonesia and Singapore.

5.2.1.1 Land-based Source of Pollution in Malaysia's Strait of Malacca States

The total land mass of the eight Malaysian states bordering the Strait of Malacca is approximately 0.67 million hectares, out of the total Malaysian land area of 33 million hectares.⁹ Since the 1980s, the Malaysian economy has experienced gradual but significant changes as Malaysia has shifted from an agricultural-based economy to manufacturing.¹⁰ This development was more focused on the western coast of Peninsular Malaysia where major cities, settlements and conurbations are located such as the Klang Valley in Selangor, Georgetown and Seberang Prai in Pulau Pinang, Port Dickson in Negeri Sembilan and Muar and Pontian Kecil in Johor.¹¹ Johor Bahru is the biggest city in the south of Peninsular Malaysia bordering the Tebrau Strait

Datuk Faizah Mohd Tahir, Head of Delegation and Secretary General, Ministry of Women, Family and Community Development, Malaysia on Item 4: Population Distribution, Urbanisation, Internal Migration and Development at the 41st Session of the Commission on Population and Development, United Nations, New York' (UN, 2008).

⁸ World Wildlife Fund (WWF), *Problems: Ocean Pollution* (2010) WWF <http://wwf.panda.org/about_our_earth/blue_planet/problems/pollution/>.

⁹ Global Environment Facility/United Nations Development Programme/International Maritime Organization, 'Physical, Ecological and Demographic Characteristics' in Chua Thia-Eng, S. Adrian Ross and Huming Yu (eds), *Malacca Straits Environmental Profile* (GEF/UNDP/IMO Regional Programme for the Prevention and Management of Marine Pollution in the East Asian Seas, 1998), 31.

¹⁰ Lee Boon Thong, 'Emerging Urban Trends and the Globalizing Economy in Malaysia' in Fu-chen Lo and Yue-man Yeung (eds), *Emerging World Cities in Pacific Asia* (United Nations University Press, 1996), 335-336; United Nations (UN), 'Statement by the Honourable Datuk Faizah Mohd Tahir, Head of Delegation and Secretary General, Ministry of Women, Family and Community Development, Malaysia on Item 4: Population Distribution, Urbanisation, Internal Migration and Development at the 41st Session of the Commission on Population and Development, United Nations, New York' (UN, 2008).

¹¹ Global Environment Facility/United Nations Development Programme/International Maritime Organization, 'Physical, Ecological and Demographic Characteristics' in Chua Thia-Eng, S. Adrian Ross and Huming Yu (eds), *Malacca Straits Environmental Profile* (GEF/UNDP/IMO Regional Programme for the Prevention and Management of Marine Pollution in the East Asian Seas, 1998), 31; Abdul Rani Abdullah et al, 'The GEF/UNDP/IMO Malacca Straits Demonstration Project: Sources of Pollution' (1999) 39 *Marine Pollution Bulletin*, 229-232.

that feeds into the Strait of Malacca. These towns and cities have experienced rapid development and urbanisation; modern buildings, factories and infrastructure have been built, and the population density has increased in this part of the country.¹²

Most major rivers in the west coast states of Peninsular Malaysia run through major cities such as Kuala Lumpur, Ipoh, Melaka, Klang and Johor Bahru before flowing into the Strait of Malacca.¹³ In 2007, the Department of Environment in Malaysia monitored 143 river basins with 1,064 monitoring stations.¹⁴ Out of these 1,064 rivers, 638 (60 per cent) were classified as clean, 376 (35 per cent) as slightly polluted and 50 (5 per cent) as polluted.¹⁵ The west coast states of Peninsular Malaysia possess the most polluted rivers, which include Sungai Pinang and Sungai Juru in Pulau Pinang, Sungai Merlimau in Melaka and Sungai Danga, Sungai Segget and Sungai Tebrau in Johor.¹⁶

In addition, municipal solid waste generation in Malaysia has also gradually increased from 1990–2006, as illustrated in Table 5-1.

¹² Lee Boon Thong, 'Emerging Urban Trends and the Globalizing Economy in Malaysia' in Fu-chen Lo and Yue-man Yeung (eds), *Emerging World Cities in Pacific Asia* (United Nations University Press, 1996), 336-341.

¹³ Global Environment Facility/United Nations Development Programme/International Maritime Organization, 'Physical, Ecological and Demographic Characteristics' in Chua Thia-Eng, S. Adrian Ross and Huming Yu (eds), *Malacca Straits Environmental Profile* (GEF/UNDP/IMO Regional Programme for the Prevention and Management of Marine Pollution in the East Asian Seas, 1998), 11.

¹⁴ Ministry of Natural Resources and Environment Department of Environment, 'Malaysia Environmental Quality Report 2007' (Department of Environment, Malaysia, 2007), 28-30.

¹⁵ Ibid.

¹⁶ Ibid.

Urban Centre	Municipal Solid Waste Generation (tonnes/day)		
	1990	2002	2006
Kuala Lumpur	586.8	2,754	3,100
Johor Bahru (Johor)	174.8	215	242
Ipoh (Perak)	162.2	208	234
Georgetown (Pulau Pinang)	137.2	221	249
Klang (Selangor)	122.8	478	538
Kuala Terengganu (Terengganu)	121.0	137	154
Kota Bharu (Kelantan)	102.9	129.5	146
Kuantan (Pahang)	85.3	174	196
Seremban (Negeri Sembilan)	85.2	165	186
Melaka	46.8	562	632

Table 5-1: Municipal Solid Waste Generation in Malaysian Urban Centres (1990–2006)
(Source: Periathamby, 2009)¹⁷

Each day Peninsular Malaysia generates over 19,000 tonnes of municipal solid waste, which is expected to reach 30,000 tonnes per day by the year 2020,¹⁸ with organic waste constituting the largest type of waste being disposed of.¹⁹ Currently, it is estimated that around 75 per cent of all waste collected is disposed of in 130 landfill and dump sites, with a small proportion of waste being subject to intermediate treatment or recycled.²⁰ Landfilling has until now been Malaysia's main method of disposing waste.²¹

¹⁷ Agamuthu Periathamby, Fauziah Shahul Hamid and Kahlil Khidzir, 'Evolution of Solid Waste Management in Malaysia: Impacts and Implications of the Solid Waste Bill 2007' (2009) 11 *Journal of Material Cycles and Waste Management*, 97; Nadzri Yahaya, 'Overview of Solid Waste Management in Malaysia' (Paper presented at the Workshop on Carbon Finance and Municipal Solid Waste Management in Malaysia, Kuala Lumpur, 2008).

¹⁸ Agamuthu Periathamby, Fauziah Shahul Hamid and Kahlil Khidzir, 'Evolution of Solid Waste Management in Malaysia: Impacts and Implications of the Solid Waste Bill 2007' (2009) 11 *Journal of Material Cycles and Waste Management*, 98.

¹⁹ Latifah Abd Manaf, Mohd Armi Abu Samah and Nur Ilyana Mohd Zukki, 'Municipal Solid Waste Management in Malaysia: Practices and Challenges' (2009) 29 *Waste Management*, 2903.

²⁰ Ibid.

²¹ Ibid.

The landfill method of disposal has been proven to have negative ramifications as it may pollute rivers, toxify soil and contaminate drinking water.²² Hence, landfill is the least favoured option from the perspective of the environment and efficient use of resources.²³ Municipal solid waste management in Malaysia is relatively poor and haphazard.²⁴ As such, Malaysia has worked towards improving its system of disposing municipal solid waste. Under the 8th and 9th Malaysia Plan, the government of Malaysia is working towards developing a sustainable waste management system.²⁵ Recycling is still at an infant stage in Malaysia but its usage is increasing steadily.²⁶ By the year 2020, the Malaysian Government target is to reduce the landfill method of disposal of waste with intermediate processing and recycling applying to the remainder, as shown in Table 5-2.

Treatment	Percentage of Waste Disposed		
	2002	2006	Target 2020
Recycling	5.0	5.5	22.0
Composting	0.0	1.0	8.0
Incineration	0.0	0.0	16.8
Inert landfill	0.0	3.2	9.1
Sanitary landfill	5.0	30.9	44.1
Other disposal sites	90.0	49.4	0.0
Total	100.0	100.0	100.0

Table 5-2: Methods of Waste Disposal in Malaysia
(Source: Periathamby, 2009)²⁷

²² Tariq bin Yousuf and Md. Mostafizur Rahman, 'Transforming an Open Dump into a Sanitary Landfill: A Development Effort in Waste Management' (2009) 11 *Journal of Material Cycles and Waste Management*, 277-278.

²³ Ibid.

²⁴ Mohamed Osman Aseed, Mohd Nasir Hassan and M. Abdul Mujeebu, 'Development of Municipal Solid Waste Generation and Recyclable Components Rate of Kuala Lumpur: Perspective Study' (2009) 29 *Waste Management*, 2210.

²⁵ Latifah Abd Manaf, Mohd Armi Abu Samah and Nur Ilyana Mohd Zukki, 'Municipal Solid Waste Management in Malaysia: Practices and Challenges' (2009) 29 *Waste Management*, 2905.

²⁶ Ibid.

²⁷ Agamuthu Periathamby, Fauziah Shahul Hamid and Kahlil Khidzir, 'Evolution of Solid Waste Management in Malaysia: Impacts and Implications of the Solid Waste Bill 2007' (2009) 11 *Journal of Material Cycles and Waste Management*, 98.

Malaysia is also importing technologies from Japan and some European countries for improving its waste management system.²⁸ Plans have been undertaken to dispose of municipal solid waste by incineration as research findings show that incineration would give high returns on energy with minimal adverse impacts on the environment.²⁹

Malaysia has also put forward the Solid Waste and Public Cleansing Management Act 2007 (Solid Waste Act) and the Solid Waste and Public Cleansing Management Corporation Act 2007 which are expected to bring considerable positive changes in waste management in Peninsular Malaysia.³⁰ Part X of the Solid Waste Act 2007 promotes the 3Rs (reduce, reuse and recycle) and this will be one of the bases of the future development of municipal solid waste management in Malaysia.³¹ The Solid Waste and Public Cleansing Management Corporation Act 2007 which came into force on 1 June 2008 established a body that deals specifically with matters of solid waste management and public cleansing.³² To complement the Solid Waste and Public Cleansing Management Corporation Act 2007, the Solid Waste Act 2007 was initially scheduled to come into force on 30 April 2011.³³ However, due to technical issues, the implementation of the Solid Waste Act 2007 was postponed to a later date to be announced by the Malaysian Government.³⁴

²⁸ Ibid.

²⁹ Sivapalan Kathirvale et al, 'Energy Potential From Municipal Solid Waste in Malaysia' (2003) 29 *Renewable Energy*, 565-566. The Malaysian government did make plans to construct an incinerator plant in Broga, but due to overwhelming cost of construction, the plan was called off in 2007. See The Star, *DPM: Broga Incinerator Project Stopped Because it Was Too Expensive* (2007) The Star <<http://thestar.com.my/news/story.asp?file=/2007/7/7/nation/20070707141216&sec=nation>>.

³⁰ Agamuthu Periathamby, Fauziah Shahul Hamid and Kahlil Khidzir, 'Evolution of Solid Waste Management in Malaysia: Impacts and Implications of the Solid Waste Bill 2007' (2009) 11 *Journal of Material Cycles and Waste Management*, 98.

³¹ Section 101 of the Solid Waste and Public Cleansing Management Act 2007 reads 'The Minister may, by order published in the Gazette, require (a) any solid waste generator to reduce the generation of controlled solid waste in any manner or method; (b) any person to use environmental friendly material; (c) any person to use specified amount of recycled materials for specified products...'. See 'Solid Waste and Public Cleansing Management Act 2007 (Act 672)' (2007).

³² Section 3 of the Solid Waste and Public Cleansing Management Corporation Act 2007 establishes the Corporation that will undertake to deal with the management of solid waste in Peninsular Malaysia. Section 17 of the Solid Waste and Public Cleansing Management Corporation Act 2007 underlines the functions of the Corporation which include *inter alia* to implement and enforce the solid waste and public cleansing management laws and to ensure that the functions and obligations of solid waste management services are properly being carried out. See 'Solid Waste and Public Cleansing Management Corporation Act 2007 (Act 673)' (2007).

³³ BERNAMA, *Implementation of Solid Waste Management Act Postponed* (2011) Bernama.com <<http://www.bernama.com.my/bernama/v5/newsindex.php?id=574084>>.

³⁴ Ibid.

5.2.1.2 Land-based Sources of Pollution in Indonesia's Strait of Malacca Provinces

On the opposite side of the Strait of Malacca, Sumatra's east coast land use and development is generally influenced by agricultural activities with urban and industrial centres located in the main cities of Banda Aceh, Medan and Dumai.³⁵ About 75 per cent of Indonesian cities with populations over 100,000 are coastal towns, including those along the length of the Strait of Malacca.³⁶ In 2007, it was estimated that the population of Indonesian provinces facing the Straits of Malacca and Singapore was around 12,780,308.³⁷ This high population concentration may increase land-based sources of pollution in that Indonesian region.

Rivers in Indonesia are also plagued with problems of pollution that are mainly caused by the dumping of untreated liquid industrial waste and municipal solid waste, particularly in Indonesia's highly industrialised areas such as the Jakarta Bay region in Western Java and the Medan region in Northern Sumatra.³⁸ Two of the most polluted rivers in Sumatra are the Asahan and Deli Rivers, both located in North Sumatra.³⁹ These rivers run through major industrial areas, and discharges from factories and industrial plants have degraded the water quality of these rivers⁴⁰ to the extent that their water is no longer fit for domestic consumption.⁴¹ Pollution

³⁵ Global Environment Facility/United Nations Development Programme/International Maritime Organization, 'Physical, Ecological and Demographic Characteristics' in Chua Thia-Eng, S. Adrian Ross and Huming Yu (eds), *Malacca Straits Environmental Profile* (GEF/UNDP/IMO Regional Programme for the Prevention and Management of Marine Pollution in the East Asian Seas, 1998), 30.

³⁶ Global Environment Facility/United Nations Development Programme/International Maritime Organization, 'Pollution From Land-Based Sources' in Chua Thia-Eng, S. Adrian Ross and Huming Yu (eds), *Malacca Straits Environmental Profile* (GEF/UNDP/IMO Regional Programme for the Prevention and Management of Marine Pollution in the East Asian Seas, 1997), 139.

³⁷ See Table 2-2 of Chapter 2 of this Thesis.

³⁸ Anton Lucas, 'River Pollution and Political Action in Indonesia' in Philip Hirsch and Carol Warren (eds), *The Politics of Environment in Southeast Asia* (Routledge, 1998), 181-182.

³⁹ Mark Cleary and Goh Kim Chuan, *Environment and Development in the Straits of Malacca*, Routledge Studies in Development and Society (Routledge, Taylor and Francis Group, 2000), 168-169; Ruyitno Nuchsin et al, 'Water Quality in the Straits of Malacca' (Paper presented at the Aquatic Resource and Environmental Studies of the Straits of Malacca: Managing the Straits through Science and Technology, Putrajaya, 2003), 23-24.

⁴⁰ Ruyitno Nuchsin et al, 'Water Quality in the Straits of Malacca' (Paper presented at the Aquatic Resource and Environmental Studies of the Straits of Malacca: Managing the Straits through Science and Technology, Putrajaya, 2003), 23-24.

⁴¹ Anton Lucas, 'River Pollution and Political Action in Indonesia' in Philip Hirsch and Carol Warren (eds), *The Politics of Environment in Southeast Asia* (Routledge, 1998), 184-185.

of the Asahan River has also compromised the fishing industry along this river.⁴² The Riau Province in Sumatra has been exploited for its oil resources and as a result, heavy metals have been found in sediment samples of the Pakning River in Bengkalis.⁴³

On average, an Indonesian generates 0.76 kg of municipal solid waste daily.⁴⁴ Hence, with a population of almost 250 million people, Indonesia would produce 187,366 tonnes of municipal solid waste each day.⁴⁵ Waste from traditional markets in Indonesia constitutes the second largest stream of municipal solid waste, coming second to household waste.⁴⁶ Overall, the system of disposal of municipal solid waste in Indonesia is not integrated,⁴⁷ with the management of municipal solid waste in cities outside the island of Java less controlled and monitored due to the shortage of waste disposal infrastructure and facilities.⁴⁸ Table 5-3 illustrates the amount of waste generated and collected in major cities in Indonesia.

⁴² Ibid.

⁴³ Mark Cleary and Goh Kim Chuan, *Environment and Development in the Straits of Malacca*, Routledge Studies in Development and Society (Routledge, Taylor and Francis Group, 2000). The Siak River is one of the major rivers in the Riau province, Sumatra, Indonesia. Due to high human activities, the Siak River is polluted with various inorganic and organic discharges as it drains into the Strait of Malacca. See Herbert Siegel et al, 'Siak River System-East Sumatra: Characterisation of Sources, Estuarine Processes, and Discharge into the Malacca Strait' (2009) 77 *Journal of Marine Systems*, 148-149.

⁴⁴ Mochammad Chaerul, Masaru Tanaka and Ashok V. Shekdar, 'Municipal Solid Waste Management in Indonesia: Status and the Strategic Actions' (2007) 12(1) *Journal of the Faculty of Environmental Science and Technology*, 41.

⁴⁵ Ibid.

⁴⁶ Lu Aye and E.R. Wijjaya, 'Environmental and Economic Analyses of Waste Disposal Options for Traditional Markets in Indonesia' (2006) 26 *Waste Management*, 1180.

⁴⁷ Ibid.

⁴⁸ Global Environment Facility/United Nations Development Programme/International Maritime Organization, 'Pollution From Land-Based Sources' in Chua Thia-Eng, S. Adrian Ross and Huming Yu (eds), *Malacca Straits Environmental Profile* (GEF/UNDP/IMO Regional Programme for the Prevention and Management of Marine Pollution in the East Asian Seas, 1997), 150.

City	Waste Generated (tonnes/day)	Waste Collected (tonnes/day)
Jakarta	5,802	5,228
Surabaya	1,689	1,556
Bandung	1,757	1,596
Medan	1,384	1,205
Semarang	961	844
Makassar	872	918
Padang	709	655
Yogyakarta	399	372
Total	13,676	12,378

Table 5-3: Waste generated and collected in major Indonesian cities in 2006
(Source: Chaerul, Tanaka and Shekdar, 2007)⁴⁹

Currently, like Malaysia, Indonesia is still developing its municipal solid waste management system. Usually, the collected municipal solid waste would be disposed of by way of landfilling, composting or through on-site burning. Its landfill sites are not entirely well-managed.⁵⁰

The case of the city of Batam illustrates Indonesia's problems with land-based sources of pollution.⁵¹ Batam is situated at the crossroads of international trade and is considered a major centre of economic development in Indonesia's Strait of Singapore region.⁵² Over the years, Batam has experienced a considerable increase in investment across all sectors, particularly in commerce, industry, tourism, and real estate as a consequence of its proximity to Singapore.⁵³

⁴⁹ Mochammad Chaerul, Masaru Tanaka and Ashok V. Shekdar, 'Municipal Solid Waste Management in Indonesia: Status and the Strategic Actions' (2007) 12(1) *Journal of the Faculty of Environmental Science and Technology*, 45.

⁵⁰ The 2005 Leuwigajah land-fill tragedy was a manifestation of the inefficiency of the municipal solid waste management system in Indonesia. This tragedy claimed hundreds of lives. The deadly landslide at the Leuwigajah landfill near Bandung, Indonesia struck on February 22, 2005, after three days of heavy rains. During the incident, approximately 2.7 million cubic meters of garbage, hazardous waste, and mud swept like an avalanche through the villages of Cilmius and Cireundeu. It formed a stampede of garbage that travelled almost a kilometer in just minutes. More than 140 people were killed and at least 69 houses destroyed. This incident shows that Indonesia is facing challenges in managing its municipal solid waste systematically. This is made worse by the fact that the local governments have limited financial capacity and low technical and managerial skills to deal with this problem. See Neale MacMillan, 'Community Solutions for Indonesia's Waste' <http://www.idrc.ca/en/ev-114808-201-1-DO_TOPIC.html>.

⁵¹ Gullaya Wattayakorn and John. C. Pernetta, 'Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand: Land-Based Pollution in the South China Sea' (Technical Publication No. 10, UNEP/GEF, 2007), 6-8.

⁵² Ibid.

⁵³ Ibid.

This has resulted in negative impacts on its marine environment and resources which eventually have led to the increase of domestic and industrial wastes, and physical destruction of coastal habitats.⁵⁴ The major land-based pollution problem in coastal waters adjacent to Batam City is contamination from heavy metals and nutrients.⁵⁵ Batam also has problems with municipal solid waste management; more often than not, municipal solid waste from markets and the settlements in Batam are dumped in temporary sites prior to composting, burial or, burning.⁵⁶

Nevertheless, the government of Indonesia has attempted to improve the municipal solid waste management system by passing regulations on waste management, waste minimisation and pollution prevention,⁵⁷ cleaner production, as well as increased production efficiency to encourage more environmentally-friendly practices in daily business and industrial activities.⁵⁸

5.2.1.3 Land-based Source of Pollution in Singapore

Over the last three to four decades, Singapore has been transformed from a relatively rural community into a highly urbanised community and an industrialised State.⁵⁹ The population of Singapore has grown rapidly over the years, increasing from 1,886,900 in 1965 to 4,987,600 in 2009.⁶⁰ This has led to a rising trend in waste output.⁶¹ Singapore produces a considerable

⁵⁴ Ibid.

⁵⁵ Ibid.

⁵⁶ Ibid.

⁵⁷ Considering the growing population of Indonesia and that the problems in managing municipal solid waste will be more acute, the Indonesian government in 2008 has passed Law Number 18 Year 2008 Regarding Waste Management (Law 18/2008). This is the main law in Indonesia governing matters pertaining to waste management. The objective of Law 18/2008 is to develop a sustainable solid waste management system in utilising waste as energy source. Article 5 of Law 18/2008 empowers the local governments in Indonesia to deal with the management of solid waste disposal system in their respective districts. Law 18/2008 aims towards promoting 3R i.e. reduce, reuse and recycle as promoted in its Article 20. See Sekretariat Negara Republik Indonesia, 'Act of the Republic of Indonesia Number 18 Year 2008 Regarding Waste Management' (Sekretariat Negara Republik Indonesia, 2008).

⁵⁸ United Nations, 'Sanitation Country Profile: Indonesia' (United Nations, 2004) <<http://www.un.org/esa/agenda21/natlinfo/countr/indonesia/sanitationIndonesia04f.pdf>>.

⁵⁹ Belinda Yuen, 'Romancing the High-Rise in Singapore' (2005) 22(1) *Cities*, 5.

⁶⁰ Singapore Department of Statistics, *Statistics: Time Series on Population (Mid-Year Estimates)* (2010) Singapore Government <<http://www.singstat.gov.sg/stats/themes/people/hist/popn.html>>.

⁶¹ Singapore Statistics, 'Yearbook of Statistics Singapore, 2009' (2009) <<http://www.singstat.gov.sg/pubn/reference/yos09/statsT-miscellaneous.pdf>>.

amount of waste which can be categorised into three groups: domestic and trade refuse, industrial refuse and institutional refuse.⁶² The first category refers to waste discharges from domestic activities like households, markets and food centres.⁶³ The second comes from industries, while the third category relates to discharges from government institutions such as hospitals, schools and public parks.⁶⁴ Due to its small geographical size, Singapore cannot afford to dispose of the majority of its waste through the conventional method of landfilling.⁶⁵ Hence, the National Environment Agency has adopted strategies to sustainably manage the growth in municipal solid waste generation.⁶⁶

The management of municipal solid waste in Singapore is governed by the Environmental Pollution Control Act that came into force in May 1999, and the Environmental Public Health Act, which is a consolidation of the current legislation on the control of air, water and waste.⁶⁷ Today, Singapore has in place an integrated municipal solid waste management system. Under this system, waste that is not recycled is collected and disposed of safely, either at waste-to-

⁶² Global Environment Facility/United Nations Development Programme/International Maritime Organization, 'Pollution From Land-Based Sources' in Chua Thia-Eng, S. Adrian Ross and Huming Yu (eds), *Malacca Straits Environmental Profile* (GEF/UNDP/IMO Regional Programme for the Prevention and Management of Marine Pollution in the East Asian Seas, 1997), 151.

⁶³ Ibid.

⁶⁴ Ibid.

⁶⁵ Singapore has three landfills which are all located outside the city limits. See Dongqing Zhang, Tan Soon Keat and Richard M. Gersberg, 'A Comparison of Municipal Solid Waste Management in Berlin and Singapore' (2010) 30 *Waste Management*, 925-926.

⁶⁶ Loh Ah Tuan, 'Control of Land-Based Water Pollution in Singapore' (Paper presented at the International Conference on the Straits of Malacca: Towards Sustainable Management of the Straits of Malacca, Malacca, 1999), 579-583.

⁶⁷ There are two pieces of subsidiary legislation passed under the Environmental Public Health Act which are directly related to solid waste management in Singapore namely the Environmental Public Health (Public Cleansing) Regulations 1970 and the Environmental Public Health (General Waste Collection) Regulations. Section 24 of the Environmental Public Health (Public Cleansing) Regulation 1970 gives direction for any person that has collected municipal solid waste within Singapore to send it to a refuse disposal ground or incineration plant maintained by the Singapore government. See 'Environmental Public Health (Public Cleansing) Regulations' (1970). Part IV of the Environmental Public Health (General Waste Collection) Regulation prescribes the three allowable methods of disposing waste in Singapore i.e. through incineration, dumping at the refuse dumping ground or through recycling. See 'Environmental Public Health (General Waste Collection) Regulations' (1989).

energy plants for incinerable waste⁶⁸, or at the Pulau Semakau sanitary landfill for non-incinerable waste.⁶⁹

More than a quarter of the drains in Singapore run from the southern coast into the Strait of Singapore via the Kallang, Geylang and Singapore rivers.⁷⁰ The Singapore River and the Kallang Basin catchment area, which cover a fifth of Singapore's overall landmass and are heavily populated, used to be seriously polluted by waste generated from squatter settlements, cottage industries, farms, market activities and unsewered premises.⁷¹ This prompted the Singapore government to introduce the River Clean-up Project, launched in 1977, with the objective of restoring the Kallang Basin and Singapore River to a level at which marine life could thrive in their waters.⁷² The S\$200 million clean-up project took 10 years to complete and in 1987, Singaporeans celebrated the achievement with an event called 'Clear Rivers Commemoration'.⁷³ Currently, Singapore has been successful in sustainably managing its waste generation and protecting its rivers from unwarranted pollution.

These facts demonstrate that the marine environment of the Straits of Malacca and Singapore is under considerable pressure from land-based sources of pollution, particularly from pollutants stemming from rivers in Peninsular Malaysia and from the eastern coast of Sumatra that feed

⁶⁸ At present, Singapore has four incinerators in Tuas, Ulu Pandan, Senoko and Tuas South. See Dongqing Zhang, Tan Soon Keat and Richard M. Gersberg, 'A Comparison of Municipal Solid Waste Management in Berlin and Singapore' (2010) 30 *Waste Management*, 926.

⁶⁹ Singapore Government, *Statistic Singapore* (2009) Singapore Government <<http://www.singstat.gov.sg/stats/keyind.html#popnarea>>; Loh Ah Tuan, 'Control of Land-Based Water Pollution in Singapore' (Paper presented at the International Conference on the Straits of Malacca: Towards Sustainable Management of the Straits of Malacca, Malacca, 1999), 579-583. About 91 per cent of waste collected in Singapore is incinerated and the remaining 9 per cent together with the ash generated from the incineration are disposed of at Pulau Semakau landfill. See Dongqing Zhang, Tan Soon Keat and Richard M. Gersberg, 'A Comparison of Municipal Solid Waste Management in Berlin and Singapore' (2010) 30 *Waste Management*, 925-926.

⁷⁰ L.M. Chou, 'The Cleaning of Singapore River and the Kallang Basin: Approaches, Methods, Investments and Benefits' (1998) 38 *Ocean & Coastal Management*, 134

⁷¹ Chwee Lye Low, 'Singapore River: Six Strategies for Sustainability' in Tai-Chee Wong, Belinda Yuen and Charles Goldblum (eds), *Spatial Planning for a Sustainable Singapore* (Springer, 2008), 81-83.

⁷² L.M. Chou, 'The Cleaning of Singapore River and the Kallang Basin: Approaches, Methods, Investments and Benefits' (1998) 38 *Ocean & Coastal Management*, 140-141.

⁷³ The Water Authority of Singapore, *The Cleaning Up of Singapore River and the Kallang Basin (1977-1987)* (2004) Drainage Department, Public Utilities Board, The Water Authority of Singapore <<http://www.pub.gov.sg/general/Documents/Cleanriver2.pdf>>.

into the Straits. As explained in Section 4.2.2 and Section 6.3.6 of this Thesis, the management of vessel-source pollution in the Straits of Malacca and Singapore is subjected to the restrictions imposed by the LOSC.⁷⁴ The littoral States however, have absolute power in dealing with matters pertaining to land-based source of pollution in their respective States.

Singapore has been successful in developing a state-of-the-art waste management system, while Indonesia and Malaysia are still working towards that end. It is anticipated that in the future both Malaysia and Indonesia will develop their waste management systems to ease the effect of land-based sources of pollution that the marine environment of the Straits of Malacca and Singapore is facing now, although the challenges they face are substantial.

5.2.2 Vessel-Source Pollution

Shipping plays an important role in facilitating the world's economy.⁷⁵ About 90 per cent of global trade is transported by sea, as it provides the safest, most rapid, inexpensive and reliable way of moving bulk cargoes from one place to another.⁷⁶ With the advent of supertankers carrying oil and other hazardous materials, fuel spills and discharge of wastes have been typical of shipping activities, either through operational or accidental discharges.⁷⁷ Operational pollution is that which originates from the ordinary operation of a vessel.⁷⁸ Operational discharges may account for more pollution than accidental oil spills.⁷⁹ Though operational discharges from bilge

⁷⁴ See Section 4.2.2 of Chapter 4 and Section 6.3.6 of Chapter 6 of this Thesis.

⁷⁵ Mohd Nizam Basiron and Tan Kim Hooi, 'The Environmental Impact of Increased Vessel Traffic in the Straits of Malacca and Singapore' (2007) 14(1) *MIMA Bulletin*, 15.

⁷⁶ International Chamber of Shipping (ICS), *Statement by the International Chamber of Shipping* (2007) ICS <http://www.internationaltransportforum.org/sofia/pdf/Contributions_OrgInt/ICSSstatement.pdf>.

⁷⁷ Nazery Khalid and Mohd Nizam Basiron, 'Securing Energy Transportation in the Straits of Malacca' in Aldo Chircop, Scott Coffen-Smout and Moira McConnell (eds), *Ocean Yearbook 22* (Martinus Nijhoff, 2008), 521-523; Goh Kim Chuan, 'Environmental Impact of Economic Development in Peninsular Malaysia: A Review' (1982) 2(1) *Applied Geography*, 11.

⁷⁸ Ian Townsend-Gault, David VanderZwaag and Robert Adamson, 'Transboundary Ocean and Atmospheric Pollution in Southeast Asia: Prospects for Regional Cooperation' in Amitav Acharya and Richard Stubbs (eds), *New Challenges for ASEAN: Emerging Policy Issues* (UBC Press, 1995), 19-22.

⁷⁹ Alan Tan Khee-Jin, 'Control of Pollution in the Straits of Malacca and Singapore: Modalities of Co-operation-Rapporteur's Report' (1998) 2 *Singapore Journal of International & Comparative Laws*, 269-270.

pumping, tank cleaning or deballasting of vessels while passing through coastal waters are constant,⁸⁰ accidental spills are given more attention due to their dramatic character.⁸¹

For the purpose of this Chapter, the focal point of discussion is more on accidental discharges of oil and hazardous and noxious substances in the Straits of Malacca and Singapore. Conflicts are triggered when shipping and environmental protection collides. Since it was established in 1948, the International Maritime Organization (IMO) has attempted to equitably balance the interests of the shipping industry with protection and preservation of the marine environment through relevant international instruments and policies. The 10 largest spills in shipping history are summarised in Table 5-4.

⁸⁰ The operational discharges of oil and hazardous and noxious substances from ships have raised concerns among the littoral States of the Straits of Malacca and Singapore. However, due to the limited breadth of the Straits, the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78) has put restrictions on the discharge of operational wastes from ships within a certain distance from the nearest land. Regulation 34 (A) (1) Part C of MARPOL 73/78 Annex I prohibits the discharge of oil or oily waste from an oil tanker in areas less than 50 nautical miles from the nearest land while Regulation 13 (2) (2.1) of MARPOL Annex II prohibits the discharge of hazardous and noxious substances in maritime areas less than 12 nautical miles from the nearest land. In addition, MARPOL Annex V puts a total prohibition of the discharge of plastic materials and allows the discharge of operational garbage in areas which are more than 25 nautical miles. As most maritime areas in the southern portion of the Strait of Malacca and the whole stretch of the Strait of Singapore possess breadth of less than 12 nautical miles, oil tankers and vessels are not permitted to discharge operational waste within these maritime areas. See International Maritime Organization (IMO), 'Revised Annex I of MARPOL 73/78: Resolution MEPC. 117(52)' (MEPC 52/24/Add.2, IMO, 2004), 62; International Maritime Organization (IMO), 'Revised Annex II of MARPOL 73/78: Resolution MEPC. 188 (52)' (MEPC 52/24/Add.1, IMO, 2004), 18-19; International Maritime Organization (IMO), 'Resolution MEPC.65(37): Amendments to the Annex of the Protocol of 1978 Relating to the International Convention for the Prevention of Pollution from Ships, 1973 (Amendments to Regulation 2 and new Regulation 9 of the Annex V)' (IMO, 1995), 2-3.

⁸¹ Peter A. Todd, Xueyuan Ong and Loke Ming Chou, 'Impacts of Pollution on Marine Life in Southeast Asia' (2010) 19 *Biodiversity Conservation*, 1071; Goh Kim Chuan, 'Environmental Impact of Economic Development in Peninsular Malaysia: A Review' (1982) 2(1) *Applied Geography*, 11; Abdul Rani Abdullah et al, 'The GEF/UNDP/IMO Malacca Straits Demonstration Project: Sources of Pollution' (1999) 39 *Marine Pollution Bulletin*, 232.

Position	Vessel	Year	Location	Spill Size (tonnes)
1	Atlantic Empress	1979	Off Tobago, West Indies	287,000
2	ABT Summer	1991	700 nautical miles off Angola	260,000
3	Castillo de Bellver	1983	Off Saldanha Bay, South Africa	252,000
4	Amoco Cadiz	1978	Off Brittany, France	223,000
5	Haven	1991	Genoa, Italy	144,000
6	Odyssey	1988	700 nautical miles off Nova Scotia, Canada	132,000
7	Torrey Canyon	1967	Scilly Isles, UK	119,000
8	Sea Star	1972	Gulf of Oman	115,000
9	Irenes Serenade	1980	Navarino Bay, Greece	100,000
10	Urquiola	1976	La Coruna, Spain	100,000
-	Tadotsu	1978	Dumai, Strait of Malacca	43,000
35	Exxon Valdez	1989	Prince William Sound, Alaska	37,000
-	Nagasaki Spirit	1992	Strait of Malacca	12,000

Table 5-4: List of the Largest Spills in Maritime History⁸²
(Source: ITOPF⁸³ and AEI)⁸⁴

Table 5-4 shows that the most damaging oil spill incidents in the Strait of Malacca were not comparable to those that have taken place elsewhere. However, it is significant that the Straits of Malacca and Singapore are semi-enclosed seas which are constricted, and therefore any oil spill incidents would be disastrous to not only the marine environment of the Straits, but also the livelihood of the coastal population as well as the safe navigation of transiting vessels.

There is also a higher risk of maritime accidents involving accidental spills of oil and other hazardous substances occurring in difficult, constricted and busy shipping lanes such as the Straits of Malacca and Singapore,⁸⁵ as noted by Kamaruzaman:

Traffic in many parts of the Strait can best be described as congested. With congestion, the Strait has become prone to accidents.⁸⁶

⁸² Note: Incidents in bold represent oil spill incidents in the Strait of Malacca.

⁸³ The International Tanker Owners Pollution Federation Ltd. (ITOPF), 'Oil Tanker Spill Statistics: 2007' (ITOPF, 2008), 1-8.

⁸⁴ Kenneth P. Green and Steven F. Hayward, *The Dangers of Overreacting to the Deepwater Horizon Disaster* (2010) American Enterprise Institute for Public Policy Research <<http://www.aei.org/outlook/100965>>.

⁸⁵ Peter A. Todd, Xueyuan Ong and Loke Ming Chou, 'Impacts of Pollution on Marine Life in Southeast Asia' (2010) 19 *Biodiversity Conservation*, 1071.

⁸⁶ Raja Malik Kamaruzaman, 'Navigational Safety in the Strait of Malacca' (1998) 2(2) *Singapore Journal of International & Comparative Laws*, 472.

Maritime accidents involving oil spills began to occur in the Straits of Malacca and Singapore as early as the 1920s.⁸⁷ The existence of a number of navigational hazards in the Straits of Malacca and Singapore has made navigation difficult through the Straits. These difficulties may result in maritime accidents, which may then compromise the well-being of the marine environment of the Straits of Malacca and Singapore. For this reason it became critical to identify the types of navigational hazards that posed threats to mariners in the Straits.

5.2.2.1 Navigational Hazards in the Straits of Malacca and Singapore

On average, the region around the Straits of Malacca and Singapore experiences high humidity and considerable rainfall, and the wind velocity is relatively light.⁸⁸ Given that the Straits and their environs are located in a tropical zone, these areas are subject to torrential rain and squalls almost every day.⁸⁹ A system of squalls originating from the Indian Ocean, described as the Sumatras, brings thunderstorms, heavy rain and winds in the pre-dawn and early mornings in the Strait of Malacca region.⁹⁰

The water currents at the northern entrance to the Strait of Malacca from where it meets the Andaman Sea are strong. In the north, the Andaman Sea waters enter the Strait from the bottom. Meanwhile in the south, the Strait of Malacca receives currents from the South China Sea, Johor Strait and Rupa Strait. The movement of currents in the southern part of the Strait of Malacca is unstable compared to the northern segment of the waterway as the southern end of the Strait is narrower and more confined.⁹¹ The currents in this part of the Strait form large sand waves, sand banks and shallow shoals along the waterway.⁹²

⁸⁷ Amriah Buang, 'Selat Melaka 1992-2006: Iktibar Beberapa Aspek Permasalahan Dalam Mengurus Kesejahteraan Sumber Sekitaran Serantau' (2006) *Malaysian Journal of Society and Space*, 58-71.

⁸⁸ H.M. Ibrahim, Hairil Anuar Husin and Deneswari Sivaguru, 'Physical, Ecological and Demographic Characteristics' in H.M. Ibrahim and Hairil Anuar Husin (eds), *Profile of the Straits of Malacca: Malaysia's Perspective* (Maritime Institute of Malaysia, 2008), 40.

⁸⁹ Mary George, *Legal Regime of the Straits of Malacca and Singapore* (LexisNexis, 2008), 7.

⁹⁰ Mohd Hazmi bin Mohd Rusli, 'Straits of Malacca and Singapore: Ensuring Safe Navigation' (2011) (131/2011) *RSIS Commentaries*, 1-2.

⁹¹ *Ibid.*

⁹² *Ibid.*

These characteristics can impact adversely on smooth navigation. During squalls, visibility can decrease considerably and these conditions can make it difficult for mariners to navigate their vessels through the Straits. In addition, the existence of numerous shoals and sand banks in the Straits are also dangerous for seafarers.⁹³ Other navigational hazards in the Straits can take at least one of four forms. These include:

- (a) Shipwrecks that may impede navigation;⁹⁴
- (b) Small islands, isles and shoals in the south-eastern exit to the Strait of Singapore;⁹⁵
- (c) Unreliable aids to navigation equipment, especially in the waters of Indonesia.⁹⁶
- (d) The high navigational traffic in the Straits of Malacca and Singapore coupled with the narrowness of the Straits;⁹⁷ the narrowest breadth in the Strait of Singapore is off the southern tip of Singapore Island at Phillips Channel, where the breadth is only about 1.956 nautical miles.⁹⁸

The most difficult stretch for navigation in the Straits of Malacca and Singapore is in the areas spanned by the traffic separation scheme: between One Fathom Bank off Port Klang in the west and Horsburgh Lighthouse in the east.⁹⁹ The TSS extends to about 250 nautical miles and has about six chokepoints with an average depth of about 23.35 metres.¹⁰⁰ The chokepoints are One

⁹³ Ibid.

⁹⁴ As of 2010, there are 11 identified ship wrecks along the TSS area of the Straits of Malacca and Singapore. See Tripartite Technical Experts Group (TTEG), '3rd Co-operation Forum under the Co-operative Mechanism on the Safety of Navigation and Environmental Protection in the Straits of Malacca and Singapore' (CF 3/REPORT, 2010), 5.

⁹⁵ Mary George, *Legal Regime of the Straits of Malacca and Singapore* (LexisNexis, 2008), 6-7.

⁹⁶ Ibid.

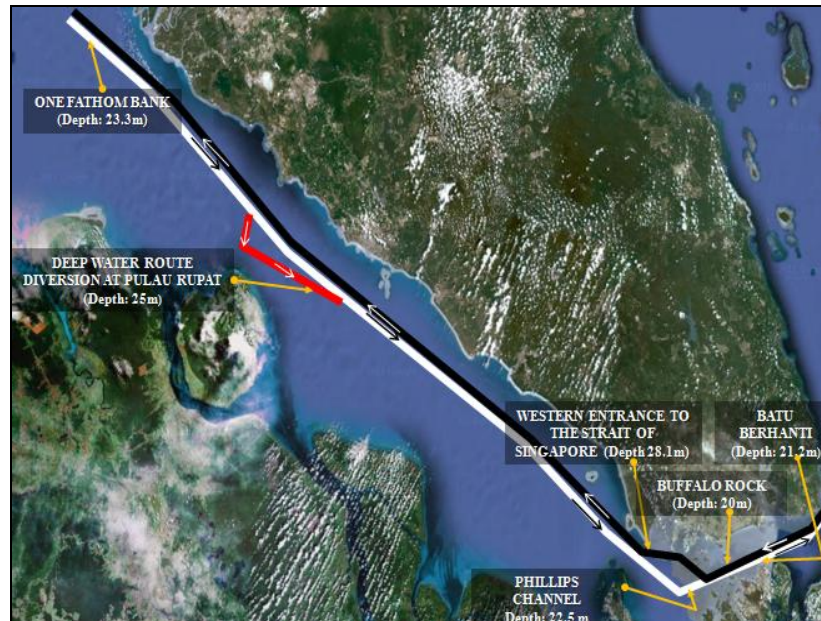
⁹⁷ The Strait of Malacca is relatively shallow waterway with depth of only 21.8 meters, particularly at its southern end where it subsequently joins the Strait of Singapore. See Zubir Abdul Karim, 'The Strategic Significance of the Straits of Malacca' (2007) (172) *Australian Defence Force Journal*, 33-34.

⁹⁸ Parry Oei, 'Review of Recent Significant Technologies and Initiatives Implemented to Enhance Navigational Safety and Protect the Marine Environment in the Straits of Singapore and Malacca' in Andrew Forbes (ed), *The Strategic Importance of Seaborne Trade and Shipping* (Sea Power Centre, RAAF Fairbairn, 2003), 141.

⁹⁹ Maritime Information Centre, *Straits Traffic Sustainable for Next 15 to 20 Years* (2009) Maritime Information Centre <http://www.micportal.com/index.php?option=com_content&view=article&id=2585%3Astraits-traffic-sustainable-for-next-15-to-20-years&Itemid=66>.

¹⁰⁰ US Energy Information Administration, *Malacca: World Oil Transit Chokepoints* (2011) US Energy Information Administration <http://www.eia.doe.gov/cabs/World_Oil_Transit_Chokepoints/Full.html>.

Fathom Bank, the deepwater route diversion at Pulau Rupert and the western entrance to the Strait of Singapore in the Strait of Malacca and Buffalo Rock, Phillips Channel as well as Batu Berhanti in the Strait of Singapore, as shown in Map 5-1:



Map 5-1: Critical areas for navigation in the Straits of Malacca and Singapore
(Source: MIMA)¹⁰¹

Despite continuous dredging, the Straits of Malacca and Singapore have continued to become shallow because of siltation, eventually making navigation more difficult.¹⁰² Haze caused by forest and bush fires in Sumatra has also compromised safe navigation through these waterways and this remains a threat to mariners.¹⁰³ To date, the haze crisis in 1997 was the worst to hit Malaysia, Indonesia and Singapore; to the extent that the Port Klang Authority considered

¹⁰¹ H.M. Ibrahim and Mansoureh Sh, 'Analysis of Carrying Capacity and Critical Governance Strategies for the Straits of Malacca' (Paper presented at the 6th MIMA International Conference on the Straits of Malacca "Chartering the Future", Kuala Lumpur, Malaysia, 2009).

¹⁰² Vivian Loius Forbes, *The Maritime Boundaries of the Indian Ocean Region* (Singapore University Press, 1995), 123; Mohd Hazmi bin Mohd Rusli, 'Straits of Malacca and Singapore: Ensuring Safe Navigation' (2011) (131/2011) *RSIS Commentaries*, 1-2.

¹⁰³ Mohd Hazmi bin Mohd Rusli, 'Navigational Hazards in International Maritime Chokepoints: A Study of the Straits of Malacca and Singapore' (Paper presented at the International Studies Association Asia-Pacific Regional Section Inaugural Conference, Brisbane, 2011).

closing night shipping in South Port as visibility fell below 0.5 nautical miles.¹⁰⁴ In 2005, the haze problem forced Malaysia to declare a state of emergency in the coastal cities of Port Klang and Kuala Selangor, both located on the shores of the Strait of Malacca.¹⁰⁵ Later in July 2009, the haze, which was caused by forest and plantation fires after a long drought season, had blanketed the airspace of the Riau province of Sumatra, affecting shipping near the Port of Dumai, where visibility was down to less than 0.2 nautical miles.¹⁰⁶ In 2010, hazy conditions caused by illegal forest clearing in Sumatra has reduced visibility down to less than 2 nautical miles, forcing Malaysia to issue a hazard warning for ships sailing in the Strait of Malacca.¹⁰⁷ With low visibility, the risks of maritime collision increase. Fortunately for the littoral States, maritime accidents have yet to take place in the Straits of Malacca and Singapore due to poor visibility caused by hazy conditions.¹⁰⁸

There are areas in the Straits, particularly in the Strait of Johor and the Strait of Singapore, which are off-limits for vessels as they have been designated as Live Firing Areas by the Singapore Armed Forces. These areas include three islets in the Strait of Singapore: Pulau Sudong, Pulau Pawai and Pulau Senang.¹⁰⁹ The other Live Firing Area in Singapore is Sarimbun, which is located along the Strait of Johor.¹¹⁰ However, these Live Firing Areas are generally outside the critical shipping ways within the Straits of Malacca and Singapore and do not normally obstruct the smooth movements of ships transiting the Straits.

¹⁰⁴ Mark Cleary and Goh Kim Chuan, *Environment and Development in the Straits of Malacca*, Routledge Studies in Development and Society (Routledge, Taylor and Francis Group, 2000), 172.

¹⁰⁵ Wayne Arnold, 'Indonesia smoke creates crisis in Malaysia' (2005) <<http://www.nytimes.com/2005/08/11/world/asia/11iht-malay.html>>.

¹⁰⁶ Fardah, 'Poll blinds govt to haze problem in Sumatra' (2009) *ANTARA News* <<http://news.antara.co.id/en/news/1247201875/poll-blinds-govt-to-haze-problem-in-sumatra>>.

¹⁰⁷ Berita Harian, *Jerebu Menyerang Sekali Lagi* (2010) Berita Harian Online <<http://www.bharian.com.my/articles/Jerebumenyerangsekali/Article/>>.

¹⁰⁸ Mohd Hazmi bin Mohd Rusli, 'Straits of Malacca and Singapore: Ensuring Safe Navigation' (2011) (131/2011) *RSIS Commentaries*, 1-2.

¹⁰⁹ Singapore Government, *SAF Military Exercises (Army)* (2009) <http://www.news.gov.sg/public/sGPC/en/media_releases/agencies/mindef/press_release/P-20090115-1/AttachmentPar/0/file/Live%20Firing%20News%20Release.pdf>.

¹¹⁰ Maritime and Port Authority of Singapore (MPA), 'Port Marine Circular No 15 of 2006' (NO 15 of 2006, MPA, 2006), 1-2.

Human error is also a form of navigational hazard that must be considered in assessing risks to the marine environment of the Straits.¹¹¹ The promotion of regulations relating safety and good seamanship through the IMO is also important in avoiding vessel groundings and collisions in the Straits of Malacca and Singapore.¹¹²

Other navigational hazards in the Straits of Malacca and Singapore include the cross traffic by small vessels in the Straits, piracy and sea robbery attacks as well as the proposed plan to build a bridge across the Strait of Malacca.¹¹³ These hazards may make navigation through the Straits of Malacca and Singapore more challenging and thus increase the likelihood of the occurrence of maritime accidents that may result in pollution of the marine environment of the Straits.

5.2.2.1.1 The Cross Traffic or Coastal Traffic in the Straits of Malacca and Singapore

The issue of cross traffic or coastal traffic shipping in the Straits of Malacca and Singapore has been controversial. It was one of the matters discussed during the International Symposium on Safety and Protection of the Marine Environment in the Straits of Malacca and Singapore convened by the Nippon Foundation in 2008.¹¹⁴ Cross traffic shipping may pose hazards to the smooth and safe navigation of vessels transiting through the Straits.¹¹⁵ Most cross traffic ships are vessels less than 300 Gross Register Tonnage (GRT), hence it is not compulsory for these ships to follow the safety navigation rules enforced in these waterways.¹¹⁶

¹¹¹ Rakish Suppiah, 'COLREGS in the Straits of Malacca: Crouching Agenda, Hidden Issues' (2008) 15(1) *MIMA Bulletin*, 15-20.

¹¹² *Ibid.*

¹¹³ Mohd Hazmi bin Mohd Rusli, 'Navigational Hazards in International Maritime Chokepoints: A Study of the Straits of Malacca and Singapore' (Paper presented at the International Studies Association Asia-Pacific Regional Section Inaugural Conference, Brisbane, 2011).

¹¹⁴ Sumathy Permal, 'Conference Report: The International Symposium on Safety and Protection of the Marine Environment in the Straits of Malacca and Singapore, Kuala Lumpur, 24 November 2008' (2008) 15(4) *MIMA Bulletin*, 35-36.

¹¹⁵ Global Environment Facility/United Nations Development Programme/International Maritime Organization, *Marine Pollution Management in Malacca/Singapore Straits: Lesson Learned* (GEF/UNDP/IMO Regional Programme for the Prevention and Management of Marine Pollution in the East Asian Seas, 1998), 132-135.

¹¹⁶ Mansoureh Shahryari and H.M. Ibrahim, 'Cross Traffic Movement and Its Risks to Shipping in the Straits of Malacca' (2009) 16(3) 2009 *MIMA Bulletin*, 3-6. The Mandatory Ship Reporting System in the Straits of Malacca and Singapore (STRAITREP) only applies to vessels which are of 300 GRT and above. See International Maritime

Cross traffic in the Strait of Malacca includes barter trade vessels, fishing boats and passenger ferries.¹¹⁷ A tightly-knit network of trade relations, both formal and informal, spans the waterway.¹¹⁸ Barter trade activities in the Strait refer to the trade activities between the people who are living on opposite shores of the Strait of Malacca.¹¹⁹ Most of these cross traffic vessels call at the Malaysian ports of Port Dickson, Malacca, Muar and Kukup, all located at the southern end of the Strait of Malacca.¹²⁰ These ports have connections with various Indonesian ports on the opposite shore, including Pelabuhan Belawan, Tanjung Balai, Dumai, Bengkalis, Karimun, Batam and Tanjung Pinang. Recent numbers show that the regional cross-strait traffic is decreasing. Between the years 2004–2009, barter traffic in the Strait of Malacca has decreased, as shown in Table 5-5.

Year	Approximate Number of Vessels
2004	25,000
2005	26,000
2006	25,000
2007	27,000
2008	22,000
2009	10,000
Total	135,000

Table 5-5: Approximate Numbers of Barter Traffic Vessels in the Strait of Malacca, 2004–2009 (Source: MIMA)¹²¹

Even though the barter traffic density in the Strait of Malacca has decreased, the volume of transiting traffic will still increase over the next few years.¹²² Therefore, the safety of transiting

Organization (IMO), ‘Resolution MSC.73 (69): Mandatory Ship Reporting Systems’ (I:\MSC\69\22-A1.WPD, IMO, 1998).

¹¹⁷ Mansoureh Shahryari and H.M. Ibrahim, ‘Cross Traffic Movement and Its Risks to Shipping in the Straits of Malacca’ (2009) 16(3) 2009 *MIMA Bulletin*, 3-6.

¹¹⁸ Hans-Dieter Evers and Solvay Gerke, ‘The Strategic Importance of the Straits of Malacca for World Trade and Regional Development’ (2008) 17 *ZEF Working Paper Series*, 7-8.

¹¹⁹ Ibid.

¹²⁰ Ibid.

¹²¹ Mansoureh Shahryari and Mohd Arshad, ‘Crossing the Straits: Risks and Responses’ (2011) 18(3) *MIMA Bulletin*, 5-9.

¹²² Ibid.; Mansoureh and Mohd Arshad, ‘Safety of Navigation in the Straits of Malacca’ (2010) 10/2010 *Sea Views* <http://www.mima.gov.my/images/stories/Article/Commentaries/seaviews_2010/sea_views_10-2010_21sept10.pdf>, 1.

ships in the Strait of Malacca could be compromised by the existence of cross-strait traffic, as most of the cross-strait traffic routes overlap with the TSS in the Straits of Malacca and Singapore.¹²³ High risk areas include Undan Zone, Segenting Zone and Piai Zone, all of which are located at the southern portion of the Strait of Malacca.¹²⁴ Map 5-2 shows the cross traffic movements in the Straits of Malacca and Singapore.



Map 5-2: Cross Traffic Movements in the Straits of Malacca and Singapore
(Source: Redrawn after Evers & Gerke, 2008)¹²⁵

To date, there have never been any rules established in regulating cross-strait traffic, which, as stated earlier, is exempted from the Straits of Malacca and Singapore's mandatory ship reporting system, the STRAITREP rule. To avoid future accidents, it would assist if the three littoral States of Malaysia, Singapore and Indonesia could devise solutions to this problem by designating

¹²³ Global Environment Facility/United Nations Development Programme/International Maritime Organization, *Marine Pollution Management in Malacca/Singapore Straits: Lesson Learned* (GEF/UNDP/IMO Regional Programme for the Prevention and Management of Marine Pollution in the East Asian Seas, 1998), 132-135.

¹²⁴ Mansoureh Shahryari and H.M. Ibrahim, 'Cross Traffic Movement and Its Risks to Shipping in the Straits of Malacca' (2009) 16(3) 2009 *MIMA Bulletin*, 2-6.

¹²⁵ Hans-Dieter Evers and Solvay Gerke, 'The Strategic Importance of the Straits of Malacca for World Trade and Regional Development' (2008) 17 *ZEF Working Paper Series*, 8.

proper lanes for cross-strait traffic in these busy waterways.¹²⁶ Even though efforts may have been made to do this, they have never been realised in full because trilateral agreement has been difficult to achieve. Singapore has objected to the idea of establishing a cross traffic route near its waters as this could impede the navigation of through traffic.¹²⁷ Nevertheless, this issue should be considered in evaluating the shipping risks in the Straits of Malacca and Singapore. A proper designation of traffic lanes could be established, at least on the Malaysian and Indonesian sides of the Strait of Malacca, to reduce the risk of accidents in this important shipping lane. In enhancing cross traffic safety of navigation, these suggestions have been made *inter alia*:

- (a) To improve communications between barter boats and transiting vessels¹²⁸
- (b) To improve the monitoring, surveillance, and the visibility of barter boats by equipping them with AIS type-B transponders which would allow them to be tracked by the Vessel Traffic Management System¹²⁹
- (c) Enhancing the sea-worthiness of cross-strait vessels¹³⁰
- (d) The introduction of compulsory insurance for cross-strait boats¹³¹

Even though there has never been a major maritime disaster involving a collision between cross-strait traffic and transiting traffic, cross-strait traffic is a hazard that must be considered in improving safety for the navigation of vessels transiting the Straits of Malacca and Singapore.

¹²⁶ Global Environment Facility/United Nations Development Programme/International Maritime Organization, *Marine Pollution Management in Malacca/Singapore Straits: Lesson Learned* (GEF/UNDP/IMO Regional Programme for the Prevention and Management of Marine Pollution in the East Asian Seas, 1998), 133-135.

¹²⁷ *Ibid.*, 135.

¹²⁸ Mansoureh Shahryari and Mohd Arshad, 'Crossing the Straits: Risks and Responses' (2011) 18(3) *MIMA Bulletin*, 5-9.

¹²⁹ *Ibid.*

¹³⁰ *Ibid.*

¹³¹ *Ibid.*

5.2.2.1.2 The Threats of Piracy and Sea Robbery on the Safety of Navigation in the Straits of Malacca and Singapore

Due to the busy nature of the Straits and ships carrying a variety of valuable commodities, some of which are valued up to US \$136 billion annually, namely electric and electronic goods,¹³² and the presence of shallow reefs and innumerable small islands that compel ships to transit at greatly reduced speed, pirate attacks on merchant ships along the Straits of Malacca and Singapore have been common in the past.¹³³ Piracy is defined in the LOSC as:

Any illegal acts of violence or detention, or any act of depredation, committed for private ends by the crew or the passengers of a private ship or a private aircraft, and directed on the high seas, against another ship or aircraft or against persons or property on board such ships or aircraft.¹³⁴

Since most parts of the Straits of Malacca and Singapore have been incorporated as territorial Straits of Malaysia, Indonesia and Singapore, any attacks on ships sailing the Straits, with the exception of the northern part of the Strait of Malacca that has a High Seas/EEZ Corridor, would not be deemed as acts of piracy under the LOSC definition. Pirate attacks in the Straits would nevertheless be regarded as sea robberies.

In 2004, there were a total of 38 attacks in the Strait; with approximately 50,000 ships sailing the Strait that year, the probability of an attack was 0.07 per cent.¹³⁵ This situation prompted the Joint War Committee (JWC) of Lloyd's Market Association to declare the Strait of Malacca as a war risk area beginning in July 2005; a declaration that put the Strait on a par with other well-known war zones such as the waters off the war-stricken countries of Somalia, Iraq and

¹³² Wally Mandryk, 'Lloyd's Marine Intelligence Unit: Strategic Importance of Trade & Shipping in the Straits of Malacca and Singapore' (Paper presented at the Symposium on Safety and Protection of the Marine Environment in the Straits of Malacca and Singapore, Kuala Lumpur, Malaysia, 2008); See Table 2-9 of Chapter 2 of this Thesis.

¹³³ Joshua H. Ho, 'Enhancing Safety, Security and Environmental Protection of the Straits of Malacca and Singapore: The Co-operative Mechanism' (2009) 40(2) *Ocean Development and International Law*, 233-234.

¹³⁴ See LOSC Art. 101(a)(i).

¹³⁵ Graham Gerard Ong-Webb, 'Introduction Southeast Asian Piracy: Research and Developments' in Graham Gerard Ong-Webb (ed), *Piracy, Maritime Terrorism and Securing the Malacca Straits* (Institute of Southeast Asian Studies, 2006), xxvii.

Lebanon.¹³⁶ These attacks posed hazards to the safety of navigation of vessels as well as a threat to the marine environment of the Straits of Malacca and Singapore. Reports by the International Maritime Bureau (IMB) revealed that the ships that were attacked were usually left without anyone in command.¹³⁷ This increased the possibility of the ship running aground or colliding with other vessels, especially in the constricted areas of the Straits.¹³⁸

If a fully laden oil tanker were to be sunk in these circumstances, the resultant environmental consequences to the coastal communities and the fishing industries would be devastating.¹³⁹ Passage of ships through the Straits would also be interrupted if there was a closure of the Strait as a result of an incident of this type.¹⁴⁰ This was clearly demonstrated in the 1992 collision between the Nagasaki Spirit and the Oceans Blessings. The Nagasaki Spirit was carrying oil and sailing eastbound via the Strait of Malacca when it was boarded by pirates.¹⁴¹ The vessel was looted and the crew was thrown overboard.¹⁴² The Oceans Blessings met with the same fate, where some of its crew was locked up in a hold.¹⁴³ This left both vessels not under control and ultimately they collided and spilled a considerable amount of crude oil into the waters of the Strait of Malacca.¹⁴⁴

Realising the adverse effects these attacks may have caused to the marine environment and the traffic flow of transiting ships, the three littoral States of Singapore, Malaysia and Indonesia have

¹³⁶ Ibid., xxxiv.

¹³⁷ Greg Chaikin, 'Piracy in Asia: International Co-operation and Japan's Role' in Derek Johnson (ed), *Piracy in Southeast Asia* (Institute of Southeast Asian Studies, 2005), 127.

¹³⁸ Ibid.

¹³⁹ Hong Nong, 'Maritime Trade Development in Asia: A Need for Regional Maritime Security Cooperation in the South China Sea' in Shicun Wu and Keyuan Zou (eds), *Maritime Security in the South China Sea: Regional Implications and International Cooperation* (Ashgate Publishing, 2009), 41-42.

¹⁴⁰ Greg Chaikin, 'Piracy in Asia: International Co-operation and Japan's Role' in Derek Johnson (ed), *Piracy in Southeast Asia* (Institute of Southeast Asian Studies, 2005), 127.

¹⁴¹ R Adm PP Sivamani, *The Limos are Here to Stay* (2005) Indian Navy <<http://indiannavy.nic.in/NavDespatch05/Chapter%202.pdf>>, 11-12.

¹⁴² Sam Bateman, *Sea Lane Security* (2003) Australasian Legal Information Institute <<http://www.austlii.edu.au/au/journals/MarStudies/2003/3.html>>.

¹⁴³ Jack Devanney, *Uses and Abuses of Ship Casualty Data* (2008) Center for Tankship Excellence <<http://www.martrans.org/documents/2008/misc/Devanneys%20casdata.pdf>>.

¹⁴⁴ Ibid.

introduced a number of collaborative measures such as the Tripartite Technical Expert Group (TTEG), Trilateral Coordinated Patrols Malacca Straits (MALSINDO), Eyes in the Sky (EIS) and the Regional Cooperation Agreement on Combating Piracy and Armed Robbery against Ships in Asia (ReCAAP)¹⁴⁵ to combat piracy and maritime terrorism in the Straits.¹⁴⁶ These joint measures to suppress piracy and sea robberies by the Singaporean, Malaysian and Indonesian authorities, with some cooperation from Thailand, have significantly improved security and reduced the risks to the marine environment in the Straits.¹⁴⁷

From 2004, the local armed forces organised coordinated sea patrols.¹⁴⁸ Each party polices its own territorial waters, but they correspond with one another on possible pirate activity, and this has greatly enhanced the effectiveness of the patrols.¹⁴⁹ In 2005, aerial surveillance flights were conducted to monitor the Strait of Malacca for pirates. The flights are undertaken by crews with nationals from different States so information can be more effectively shared.¹⁵⁰ As a result, there was a dip in pirate attacks from 2005, and by 2006 the Straits of Malacca and Singapore were removed from the war-risk zone list by the JWC of Lloyd's Market Association.¹⁵¹ Table 5-6 shows the number of piracy/sea robbery incidents in the waters of the Straits of Malacca and Singapore between the years 2000 and 2008.

¹⁴⁵ Malaysia and Indonesia are yet to become members of ReCAAP. See Singapore Ministry of Transport, *Factsheet on the Regional Cooperation Agreement on Combating Piracy and Armed Robbery Against Ships in Asia (ReCAAP)* (2006) <http://app.mot.gov.sg/data/ReCAAP%20factsheet%20_Nov06_%20%5BFINAL%5Das%20of%20281106.pdf>; Catherine Zara Raymond, 'Piracy and Armed Robbery in the Malacca Strait' (2009) 62(3) *Naval War College Review*, 35-36.

¹⁴⁶ Ramli Hj Nik and Sumathy Permal, 'Security Threats in the Straits of Malacca' in H.M. Ibrahim and Hairil Anuar Husin (eds), *Profile of the Straits of Malacca: Malaysia's Perspective* (Maritime Institute of Malaysia, 2008), 191.

¹⁴⁷ Michael Schuman, *How to Defeat Pirates: Success in the Strait* (2009) Time.com <<http://www.time.com/time/world/article/0,8599,1893032,00.html>>.

¹⁴⁸ Catherine Zara Raymond, 'Piracy and Armed Robbery in the Malacca Strait' (2009) 62(3) *Naval War College Review*, 35-36.

¹⁴⁹ Michael Schuman, *How to Defeat Pirates: Success in the Strait* (2009) Time.com <<http://www.time.com/time/world/article/0,8599,1893032,00.html>>.

¹⁵⁰ Ibid.

¹⁵¹ K.C. Vijayan, 'Malacca is Off War Risk List But Piracy Attacks Up Last Month', (Singapore), 11 August 2006.

Year	Attacks
2001	24
2002	23
2003	30
2004	46
2005	19
2006	16
2007	11
2008	12
Total	181

Table 5-6: Piracy/ Sea Robbery in the Straits of Malacca and Singapore: Actual and Attempted Attacks (Source: IMB)¹⁵²

Fortunately for the littoral States and the shipping community, a maritime terrorism incident has yet to take place in the waters of the Straits of Malacca and Singapore. However, with the quite recent 2005 and 2009 Bali¹⁵³ and Jakarta¹⁵⁴ bombing incidents, there is still a risk that such an incident could happen in the Straits. Any occurrence of piracy or sea robbery attacks or acts of terrorism in the Straits would undoubtedly result in a traffic hold-up for transiting ships.¹⁵⁵ Such an incident may also cause oil or chemical spills to take place and ultimately could compromise the well-being of the marine environment of the Straits of Malacca and Singapore.¹⁵⁶ Indeed, piracy/sea-robbery activities are still happening in the Straits of Malacca and Singapore.¹⁵⁷ Consequently, the most effective remedy is for the littoral States to work collaboratively to

¹⁵² Sam Bateman, Joshua Ho and Jane Chan, 'Good Order at Sea in Southeast Asia' (S. Rajaratnam School of International Studies, Nanyang Technological Studies, 2009), 17-20.

¹⁵³ BBC News, *Bali Bomb Attacks Claim 26 Lives* (2005) BBC News <<http://news.bbc.co.uk/2/hi/asia-pacific/4300274.stm>>.

¹⁵⁴ Peter Cave, *Australian man injured in Jakarta bombing* (2009) Australian Broadcasting Corporation <<http://www.abc.net.au/worldtoday/content/2009/s2628958.htm>>.

¹⁵⁵ Tammy M. Sittnick, 'State Responsibility and Maritime Terrorism in the Strait of Malacca: Persuading Indonesia and Malaysia to take Additional Steps to Secure the Strait' (2005) 14(3) *Pacific Rim Law & Policy Journal Association*, 749-750.

¹⁵⁶ Md. Pauzi Abdullah, 'Hydrocarbon Pollution in the Sediment of Some Malaysian Coastal Areas' (1997) (44) *Environmental Monitoring and Assessment*, 452.

¹⁵⁷ The Malaysian Maritime Enforcement Agency (MMEA) arrested seven sea robbers which are believed to be Indonesians on 9 March 2011. They were arrested when attempting to rob a merchant vessel near the waters of Pengerang, Johor, Malaysia. See Nor Azan Fitri Ahmad Hidzir, *Maritim Malaysia Tahan Tujuh Perompak Kapal Dagang* (2011) Utusan Malaysia <http://www.utusan.com.my/utusan/info.asp?y=2011&dt=0309&pub=Utusan_Malaysia&sec=Terkini&pg=bt_14.htm#>.

suppress these crimes as they pose hazards not only to the security of the waterways, but also to the safety of transiting vessels and the marine environment of the Straits.

5.2.2.1.3 The Proposed Strait of Malacca Bridge

Recently, a plan was proposed by the Straits of Malacca Partners Sdn. Bhd. (SOMP) to build a bridge to link the Indonesian port city of Dumai in the Sumatran province of Riau with the Malaysian city of Malacca.¹⁵⁸ The groundwork for the project started in 2006 and studies show that the bridge project is technically feasible.¹⁵⁹ If the project is carried out, the bridge has been estimated to cost US \$12.5 billion. The Import-Export Bank of China has agreed to finance 85 per cent of the total cost of the bridge project.¹⁶⁰

This proposed 127.92 km long bridge is said to be capable of fostering new economic opportunities between the two countries, particularly in stimulating trade and the tourism industry by enhancing ASEAN's connectivity when ready.¹⁶¹ Malaysia will undertake to build 48.68km of the bridge while Indonesia will construct the remaining 79.24km.¹⁶²

¹⁵⁸ The Star Online, 'CM: Bridge Over Strait Good for Trade and Tourism' (2009) *The Star Online* <<http://thestar.com.my/news/story.asp?file=/2009/8/19/nation/4548353&sec=nation>>.

¹⁵⁹ Ibid.

¹⁶⁰ Ibid.

¹⁶¹ Strait of Malacca Partners Sdn. Bhd., *Introduction* (2011) Strait of Malacca Partners Sdn. Bhd. <<http://straitofmalaccacrossing.com/>>.

¹⁶² Mohd Hazmi bin Mohd Rusli, 'Straits of Malacca and Singapore: Ensuring Safe Navigation' (2011) (131/2011) *RSIS Commentaries*, 1-2.



Map 5-3: The Proposed Strait of Malacca Bridge Project
(Source: Strait of Malacca Partners Sdn. Bhd.)

However, the Indonesian government has announced that they would give priority to the construction of Strait of Sunda Bridge over the Strait of Malacca Bridge.¹⁶³ The Indonesian government intends to first integrate Java-Sumatra as a centre of economic development with the Sunda Strait Bridge project.¹⁶⁴ The proposed 127.92 km Strait of Malacca Bridge is likely to resemble the Oresund Bridge that connects the Danish capital of Copenhagen in Denmark and Malmo in Sweden.¹⁶⁵ The 16 km combined bridge and tunnel stands over the Oresund Sound and connects both nations by road and rail, and was officially opened to public in June 2000.¹⁶⁶ When the construction of the bridge over Oresund Sound was proposed, it received adverse criticism from the shipping community as it was thought that it would hamper shipping flow in

¹⁶³ Jimmy Hitipeuw, *Indonesia to Prioritize Sunda Strait Bridge* (2011) Kompas.com <<http://english.kompas.com/read/2010/12/21/14305586/Indonesia.to.Prioritize.Sunda.Strait.Bridge-5>>.

¹⁶⁴ Ibid.

¹⁶⁵ Ibrahim Hj Mohamed et al, 'A Bridge Too Far? An Analysis of the Proposed Bridge Across the Straits of Malacca From a Maritime Perspective' (2009) 2 *MIMA's Online Commentary on Maritime Issues*, 1-3.

¹⁶⁶ Tage Skjøtt Larsen, Ulf Paulsson and Sten Wandel, 'Logistic in the Öresund Region After the Bridge' (2003) 144 *European Journal of Operational Research*, 247-248.

the Oresund Sound. As a result, Germany submitted a proposal to the IMO to suspend the construction of the bridge.¹⁶⁷ As a compromise, Sweden suggested that the bridge should be designed in two features; half as a bridge and half as a tunnel.¹⁶⁸ This compromise was advocated to allow larger ships to navigate across the Oresund Sound. It resulted in an increase of the construction expenditure of the bridge to three times more than the cost that had been budgeted for in the original plan.¹⁶⁹ Currently the Oresund Bridge carries 6 million vehicles per year, with the railway link transporting 8 million people annually across the Oresund Sound.¹⁷⁰ Besides the Oresund Bridge, the proposed Strait of Malacca Bridge will also resemble the proposed 18 km Fehmarn Belt Bridge that will connect Germany and Denmark and cut journey times between Copenhagen and Hamburg.¹⁷¹ This project, which has received opposition from environmentalists and local authorities in Germany who consider it to be unnecessary, is expected to be completed in 2018.¹⁷²

Given the busy nature of the Strait of Malacca, it is likely that similar impacts to those seen during the Oresund Bridge experience would occur if the Strait of Malacca Bridge plan were to be implemented, and it is likely that any proposed modifications to the plan would also substantially increase the price of the construction of the bridge.¹⁷³

It is anticipated that such a huge project would not only adversely affect the coastal ecosystems on both shores of the bridge; it would also affect the Strait as a whole, from hydrological,

¹⁶⁷ Ibrahim Hj Mohamed et al, 'A Bridge Too Far? An Analysis of the Proposed Bridge Across the Straits of Malacca From a Maritime Perspective' (2009) 2 *MIMA's Online Commentary on Maritime Issues*, 2-3.

¹⁶⁸ Ibid.

¹⁶⁹ Ibid.

¹⁷⁰ Terri Mapes, *The Oresund Bridge: The Connection of Denmark & Sweden* (About.com <<http://goscandinavia.about.com/od/denmar1/qt/oresundbridge.htm>>).

¹⁷¹ Bloomberg Businessweek, *Germany, Denmark to Build Mega Bridge: The 11-mile Span Across the Baltic Sea Will Be One of Europe's Largest Works Projects* (2007) Bloomberg Businessweek <http://www.businessweek.com/globalbiz/content/jul2007/gb2007072_815071.htm>.

¹⁷² Ibid.

¹⁷³ Ibrahim Hj Mohamed et al, 'A Bridge Too Far? An Analysis of the Proposed Bridge Across the Straits of Malacca From a Maritime Perspective' (2009) 2 *MIMA's Online Commentary on Maritime Issues*, 2-3.

environmental and economic perspectives.¹⁷⁴ In addition, the construction would have the effect of closing down a large portion of the TSS areas of the Strait of Malacca, which would result in potential navigational hazards for ships and thus hamper traffic flow through the waterway.¹⁷⁵ The construction and presence of the bridge with its many concrete pillars would not only reduce the speed of vessels sailing through the Strait but would also cause difficulty for large container vessels and oil tankers navigating through this area.¹⁷⁶ Slower movement of shipping traffic would cause congestion in the Strait and this may eventually lead to maritime accidents.¹⁷⁷ Spills of oil, chemical and noxious substances from such accidents could jeopardise the sensitive marine environment of the Straits of Malacca and Singapore. It would also mean that transits by shipping traffic would take longer, resulting in higher shipping costs and increases in prices for products sold in markets worldwide.¹⁷⁸

Upon completion, the bridge would connect the Malay Peninsula with the Indonesian island of Sumatra. The Malay Peninsula is located on a stable continent which is outside the Pacific Ring of Fire.¹⁷⁹ Sumatra, however, is located within the Pacific Ring of Fire, an area with major seismic activities, and is exposed to the threat of earthquakes and tsunamis.¹⁸⁰ The 2004 tsunami incident that ravaged Aceh manifestly demonstrated that the region is exposed to these natural

¹⁷⁴ The movement and speed of currents would be changed by the existence of pillars holding up the bridge, and could potentially alter the nature of the Strait. For example, the seabed ecosystems of the areas where the bridge would be erected would suffer from adverse impacts as a result of piling works and the placement of construction materials. From the environmental perspective, the project would encroach the nesting grounds of the hawksbill turtle (*penyu karah*) as the construction site of the bridge on the Malaysian side would be around Padang Kemunting, an important nesting area for this species of marine animal. Given the fact that the construction of the Bridge would itself alter the seabed ecosystems of the Strait, it has the potential to negatively impact the fisheries activities and the marine and coastal tourism industry in that area. See *Ibid.*

¹⁷⁵ Nazery Khalid and Lasme Khorana, 'Revisiting the Proposed Bridge Over the Straits of Malacca' (2010) 17(2) *MIMA Bulletin*, 12-16.

¹⁷⁶ *Ibid.*

¹⁷⁷ *Ibid.*

¹⁷⁸ *Ibid.*

¹⁷⁹ The Pacific Ring of Fire guards the margins of the continents and island arcs that border the Pacific Ocean which are mainly dominated by active volcanic belts, causing the areas situated within and around the continental margin to be instable and are subjected to frequent seismic activities. The areas include the Chilean and Peruvian Andes, Central America, the American and Canadian western seaboard, southern Alaska, the Aleutians, Kamchatka Peninsula, the Kuriles, Japan, the Marianas, Tonga-Fiji, New Zealand, the Philippines and Indonesia. See W.G. Ernst, 'The Increasing Severity of Circumpacific Natural Disasters' (2001) 43 *International Geology Review*, 380-381.

¹⁸⁰ BBC News, 'The Pacific 'Ring of Fire'' (2009) <<http://news.bbc.co.uk/2/hi/8284372.stm>>.

calamities.¹⁸¹ Should the bridge take a direct hit from a tremor or a tsunami, it is likely to be badly damaged.¹⁸² The economies of both Malaysia and Indonesia would suffer should the bridge collapse entirely or in part.¹⁸³ Shipping transits in the Strait would be hampered, with the debris from the shattered bridge being dispersed through the Strait, and economic activities such as fisheries and tourism would be heavily impacted.¹⁸⁴ However, the proponent of the project, the Strait of Malacca Partners Sdn. Bhd. contends that the site of the bridge is located on a Eurasian plate outside any fault line.¹⁸⁵ Though there is an unfavourable seismic zone approximately 100 km away from the project site, there has been no known record of active or frequent seismic activities in the last ten thousand years.¹⁸⁶

Taking these considerations into account, this proposed bridge connection between Malacca and Dumai may be seen as a potential major navigational hazard for international shipping traffic transiting the Strait of Malacca by raising the likelihood of maritime accidents and marine pollution.

5.2.2.2 Effects of Vessel-Source Marine Pollution

Shipping is an inherently risky activity in which maritime accidents or casualties are common.¹⁸⁷ Thirty-nine accidents were reported in the TSS area within the Straits of Malacca and Singapore

¹⁸¹ Roland Cochard, Senaratne L Ranamukhaarachchi and Ganesh P. Shivakoti, 'The 2004 Tsunami in Aceh and Southern Thailand: A review on Coastal Ecosystems, Wave hazards and Vulnerability' (2008) 10 *Perspectives in Plant Ecology, Evolution and Systematics*, 4-5.

¹⁸² Ibrahim Hj Mohamed et al, 'A Bridge Too Far? An Analysis of the Proposed Bridge Across the Straits of Malacca From a Maritime Perspective' (2009) 2 *MIMA's Online Commentary on Maritime Issues*, 3.

¹⁸³ Ibid.

¹⁸⁴ Ibid., 3-4.

¹⁸⁵ Straits of Malacca Partners Sdn. Bhd., *Geological Evaluation* (2011) Strait of Malacca Partners Sdn. Bhd. <<http://straitofmalaccacrossing.com/>>.

¹⁸⁶ Ibid.

¹⁸⁷ International Maritime Organization (IMO), *International Shipping Carrier of World Trade* (2005) IMO <http://www.imo.org/includes/blastDataOnly.asp/data_id%3D18900/IntShippingFlyerfinal.pdf>.

in the 10-year period from 2000–2010.¹⁸⁸ These accidents can be categorised as shown in Table 5-7.

Types of Casualty	Percentage
Collision	59
Sinking	9
Grounding	10
Fire	22
Total	100

Table 5-7: Casualty Breakdown in the Straits of Malacca and Singapore (2000–2010)
(Source: Marine Department of Malaysia)¹⁸⁹

The major oil and hazardous and noxious substance spills in the Straits of Malacca and Singapore are shown in the Table 5-8.

Year	Vessel Name	Type of Oil and Chemicals	Quantity of Spillage (tonnes)	Location and Cause
1975	Showa Maru	Crude	4,000	Singapore Strait/Grounding
1976	Diego Silang	Crude	5,500	Malacca Strait/Collision
1978	Tadotsu	Crude	43,000	Malacca Strait (Dumai)/Unknown
1987	MV Stolt ADV	Crude	2,000	Singapore Strait/Grounding
1992	Nagasaki Spirit and Oceans Blessings	Crude	12,000	Malacca Strait/Collision
1997	Evoikos and Orapin Global	Crude	29,000	Singapore Strait/Collision
2000	Natuna Sea	Crude	7,000	Singapore Strait/Grounding
2001	Indah Lestari	Phenol	630	Johor Strait/Sinking
2010	MV Waily and MT Bunga Kelana 3	Light Crude Oil	2,000	Singapore Strait/Collision

Table 5-8: Selected Oil and Chemical Spill Incidents
(Source: Basiron & Hooi)¹⁹⁰

¹⁸⁸ Ahmad Nordin Ibrahim, 'Overview on Traffic and Incidents in the Straits of Malacca and Singapore' (Paper presented at the 4th Cooperation Forum of the Cooperation Mechanism Between the Littoral States and User States on Safety of Navigation and Environmental Protection in the Straits of Malacca and Singapore, Melaka, 2011).

¹⁸⁹ Ibid.

¹⁹⁰ Mohd Nizam Basiron and Tan Kim Hooi, 'The Environmental Impact of Increased Vessel Traffic in the Straits of Malacca and Singapore' (2007) 14(1) *MIMA Bulletin*, 16.

Oil spill incidents inevitably entail adverse impacts on the marine environment.¹⁹¹ They may deteriorate the well-being of marine and coastal ecosystems through destruction of marine species and their natural habitats.¹⁹² An oil slick has devastating effects on everything that it touches, either in the open sea or in the coastal areas.¹⁹³

In 1993, an oil spill caused by a collision between the Singapore-registered oil tanker, Slimy, and a liquefied petroleum and gas carrier, Explode, took place in the narrow waterway near Singapore's resort island of Sentosa in the Strait of Singapore.¹⁹⁴ About 5,000 tonnes of oil, valued at US \$7.5 million, was discharged from Slimy and it also spilled all of its bunker oil into the sea.¹⁹⁵ The marine ecosystem around Sentosa Island was severely affected by the oil spill and tourism operators suffered losses estimated at US \$1.5 million.¹⁹⁶

The harmful effects of an accidental oil spill are also illustrated by the 1997 MT Evoikos and MT Orapin Global collision in the Strait of Singapore. At that time, this was the biggest oil spill ever to have taken place in the waters of the Straits of Malacca and Singapore.¹⁹⁷ The Cypriot tanker Evoikos ran over a Thai tanker Orapin Global while navigating through the Strait of Singapore on 15 October 1997.¹⁹⁸ The Evoikos, which was transporting approximately 130,000 tonnes of heavy fuel oil, sustained damage to its three cargo tanks spilling an estimated 29,000 tonnes of heavy fuel oil into the sea.¹⁹⁹ The spill affected about a dozen of the southern islands

¹⁹¹ Paul F. Kingston, 'Long-term Environmental Impact of Oil Spills' (2002) 7(1-2) *Spill Science & Technology Bulletin*, 53-54.

¹⁹² Petroleum Industry of Malaysia Mutual Aid Group (PINMAG), 'Malaysia's Response to the Evoikos Incident' (Paper presented at the Petroleum Association of Japan: Oil Spill Symposium ~98, Tokyo, 1998).

¹⁹³ Ibid.

¹⁹⁴ Global Environment Facility/United Nations Development Programme/International Maritime Organization, *Marine Pollution Management in Malacca/Singapore Straits: Lesson Learned* (GEF/UNDP/IMO Regional Programme for the Prevention and Management of Marine Pollution in the East Asian Seas, 1998), 107-108.

¹⁹⁵ Ibid.

¹⁹⁶ Ibid.

¹⁹⁷ Petroleum Industry of Malaysia Mutual Aid Group (PINMAG), 'Malaysia's Response to the Evoikos Incident' (Paper presented at the Petroleum Association of Japan: Oil Spill Symposium ~98, Tokyo, 1998).

¹⁹⁸ Ibid.

¹⁹⁹ Ibid.

and islets off Singapore.²⁰⁰ Subsequently, by 19 October 1997, the oil slicks drifted into the Malaysian and Indonesian waters of the Strait of Malacca in a north-westerly direction.²⁰¹ On 23 December 1997, oil came ashore in places along the 40 km length of the Selangor coastline, including several short sandy beaches, a 1 kilometre stretch of rocks, a concrete breakwater and two separate areas of mangroves.²⁰² This oil slick posed hazards to whole of the marine environment of the Strait, including the mangrove swamps and jungles and fish and prawn farms in coastal areas.²⁰³ Oil pollution in the sea may pollute the mangrove swamps which form valuable breeding and nursery grounds for fish and prawns, which would then considerably affect the well-being of the fishing industry that thrives along the coastal area bordering the Straits of Malacca and Singapore.²⁰⁴ This spill also disrupted the tourism industries on the south-western coast of the state of Johor.²⁰⁵

The costs of cleaning up of these major pollution incidents are very high. The Evoikos oil spill clean-up took three weeks at a cost of US \$7,500,000 while the 1976 Diego Silang oil spill clean-up cost US \$1,086,421.²⁰⁶ The 1993 Nagasaki Spirit oil spill incident incurred a clean-up expenditure amounting to US \$1,506,160.²⁰⁷ These costs do not take into consideration environmental damage in terms of loss of critical habitat for coastal and marine animals and living resources, as well as the economic losses suffered by fishermen tourism operators.²⁰⁸

²⁰⁰ Ibid.

²⁰¹ International Oil Pollution Compensation Funds, 'International Oil Pollution Compensation Funds-Annual Report 1997' (International Oil Pollution Compensation Funds, 1997).

²⁰² Ibid.

²⁰³ Ibid.

²⁰⁴ Goh Kim Chuan, 'Environmental Impact of Economic Development in Peninsular Malaysia: A Review' (1982) 2(1) *Applied Geography*, 11.

²⁰⁵ Petroleum Industry of Malaysia Mutual Aid Group (PINMAG), 'Malaysia's Response to the Evoikos Incident' (Paper presented at the Petroleum Association of Japan: Oil Spill Symposium ~98, Tokyo, 1998).

²⁰⁶ L.M. Chou, 'Marine Environmental Issues of Southeast Asia: State and Development' in A. Sasekumar, N. Marshall and D.J Macintosh (eds), *Ecology and Conservation of Southeast Asian Marine and Freshwater Environments including Wetlands* (Kluwer, 1994) vol 285, 147.

²⁰⁷ Mohd Hazmi bin Mohd Rusli, 'The Application of Compulsory Pilotage in Straits Used for International Navigation: A Study of the Straits of Malacca and Singapore' (Paper presented at the 4th Oceanic Conference on International Studies, Auckland, 2010).

²⁰⁸ L.M. Chou, 'Marine Environmental Issues of Southeast Asia: State and Development' in A. Sasekumar, N. Marshall and D.J Macintosh (eds), *Ecology and Conservation of Southeast Asian Marine and Freshwater Environments including Wetlands* (Kluwer, 1994) vol 285, 147.

Port Dickson in Malaysia is a good example to illustrate this scenario. Port Dickson is a renowned holiday beach retreat facing the Strait of Malacca. It is located only about 40 km from international waters of the Strait of Malacca, thereby exposing it to numerous transboundary environmental pollutants such as oil slicks and ballast water discharge from ships.²⁰⁹ Research has shown that due to the effects of heavy shipping activities and the numerous maritime accidents that have occurred off the waters of Port Dickson, and aggravated by the existing pressure of land-based marine pollution, the waters around Port Dickson have been contaminated by hydrocarbons²¹⁰ and sewage.²¹¹ If this pollution continues to occur, the sensitive marine environment near Port Dickson will be subjected to long-term damage, which will then affect the thriving tourism and fisheries activities in that area.²¹²

Due to the increasing volume of shipping traffic, maritime accidents and casualties are still common in the Straits of Malacca and Singapore.²¹³ One of the most recent accidents that occurred in the Strait of Malacca involved a collision between a Liberian registered tanker, MT Formosa Product Brick, and an Isle of Man-registered tanker, MV Ostende Max, on 19 August 2009 in waters off Port Dickson, Malaysia.²¹⁴ Fortunately, after extensive monitoring work, the

²⁰⁹ N. Gopinath, F.M. Yusoff and M. Shariff, 'Status of the Marine Environment off Port Dickson, Negeri Sembilan, Malaysia' (Paper presented at the First International Conference on the Straits of Malacca: Towards Sustainable Management of the Straits of Malacca, Malacca, 1999), 45-47.

²¹⁰ The intensity of tar-balls stranded on beaches is a good indicator for hydrocarbon pollution. The major source of tar-balls in the Strait of Malacca is said to derive from oily wastewaters of oil tankers from the Middle East. See A.T. Law and Y.S. Hii, 'Status, Impacts and Mitigation of Hydrocarbon Pollution in the Malaysia Seas' (2006) 9(2) *Aquatic Ecosystem Health & Management*, 151.

²¹¹ Law Ah Theem et al, 'Hydrocarbon and Sewage Pollution in the Coastal Waters off Port Dickson, Strait of Malacca' (Paper presented at the Second International Conference on the Straits of Malacca, Tropical Marine Environment: Charting Strategies for the Millennium, Penang, Malaysia, 2001), 525-540.

²¹² *Ibid.*, 525-526; N. Gopinath, F.M. Yusoff and M. Shariff, 'Status of the Marine Environment off Port Dickson, Negeri Sembilan, Malaysia' (Paper presented at the First International Conference on the Straits of Malacca: Towards Sustainable Management of the Straits of Malacca, Malacca, 1999), 45-58.

²¹³ The most recent maritime collision took place in July 2011 between a Maltese-registered freighter B Oceania and Panamanian registered vessel Xin Tai Hai, 8 miles off the coast of the Malaysian island of Pulau Pisang in the southern part of the Strait of Malacca. B Oceania sunk two hours after the collision while Xin Tai Hai was anchored near the spot where the collision took place. Fortunately, this collision did not spill any oil into the waters of the Straits of Malacca and Singapore. See SeaNews Turkey, *Cargo Ship Sunk After Collision* (2011) SeaNews Turkey <<http://www.seanews.com.tr/article/ACCIDENTS/68012/Oceania-Bulker-Xin-Tai-Hai-collision/>>.

²¹⁴ BERNAMA, *No Oil Spills near Burning Tanker* (2009) Bernama.com <<http://www.bernama.com/bernama/v5/newsgeneral.php?id=434366>> at 25 August 2009.

Malaysian Maritime Enforcement Agency (MMEA) confirmed that neither naphtha nor oil spills had taken place.²¹⁵

In 2010, a tanker identified as the MT Bunga Kelana 3 collided with a bulk carrier, MV Waily, in Malaysian waters off the coast of Singapore, resulting in an oil spill.²¹⁶ The Malaysian-registered tanker MT Bunga Kelana 3, which was ferrying 63,054 tonnes of light crude oil from Bintulu to Malacca, suffered damage to one of its cargo tanks and spilled an estimated 2,000 tonnes of oil into the Strait of Singapore.²¹⁷ Despite assurances by the local authorities that the utmost efforts were being taken to contain the spill, some oil did reach the shores of Johor and Singapore and this prompted a public outcry and claims of loss of livelihood by fishermen.²¹⁸ As stated by Basiron:

The environmental and ecological impact of oil spills must be considered. Besides wildlife, dirty beaches and ecosystems such as mangroves could also be affected. While the long term effect of oil spills on mangroves is yet to be ascertained, the sight of mangrove roots covered in oil is reason for concern. A spill in ecosystems such as coral reefs could be disastrous to the fishing and tourism industry not to mention the livelihood of coastal communities.²¹⁹

These biological assets are suffering from on-going environmental pressure as the Straits of Malacca and Singapore become busier each year with increasing maritime traffic.²²⁰ Vessel-source pollution may also affect the development of coral reefs.²²¹ This is evidenced by the fact that the coral reef population development in the Straits of Malacca and Singapore was recorded

²¹⁵ Razak Ahmad, *Malaysia Says Naphtha Tanker Fire under Control, No Spill*. (2009) Reuters <<http://www.reuters.com/article/idUSKLR477329>>.

²¹⁶ AlJazeera, *Collision off Singapore Spills Oil* (2010) AlJazeera English <<http://english.aljazeera.net/news/asia-pacific/2010/05/201052534038766899.html>>.

²¹⁷ Mohd Nizam Basiron, 'Anatomy of an Oil Spill' (2010) 17(3) *MIMA Bulletin*, 39.

²¹⁸ Ibid.

²¹⁹ Ibid.

²²⁰ Mohd Arshad Atta Mohd, 'Trade, Traffic and Threats in the Straits of Malacca' (2010) 17(3) *MIMA Bulletin*, 35-36.

²²¹ Angela Dikou and Robert van Woesik, 'Survival Under Chronic Stress From Sediment Load: Spatial Patterns of Hard Coral Communities in the Southern Islands of Singapore' (2006) 52 *Marine Pollution Bulletin*, 8-9.

as amongst the lowest in this region.²²² In comparison to the coral development in South China Sea, the coral reefs in the Strait of Malacca are less diverse, which has been attributed to higher stress conditions due to fishing, coral mining and heavy shipping activities.²²³

The well-being of mangrove ecosystems is also threatened due to constant soil erosion.²²⁴ The total mangrove areas bordering the Strait of Malacca on both shores is 498,109 hectares; 111,409 on the Malaysian side and 386,100 on the Sumatran side.²²⁵ Though shipping pollution is not the only cause of soil erosion, it has played a role in causing this unwanted phenomenon. About 29 per cent of the total Malaysian shoreline, including that bordering the Strait of Malacca, has suffered from coastal erosion.²²⁶

The waters of the Straits of Malacca and Singapore are also polluted by other sources, such as land-based sources of marine pollution, marine litter and excessive coastal development projects.²²⁷ Marine litter is also generated by ships and vessels plying the seas.²²⁸ Marine litter is defined as objects that are discarded, disposed of or abandoned which end up in the coastal and marine environment, including plastics, dilapidated vessels, glass, metals and rubber.²²⁹ Refuse

²²² Amelia Emran, *The Regulation of Vessel-Source Pollution in the Straits of Malacca and Singapore* (Master of Maritime Studies (Research) Thesis, University of Wollongong, 2007), 15-16. Reefs are deteriorating on the Malaysian side of the Strait of Malacca and reefs in Singapore are severely stressed due to heavy shipping activities. See Chua Thia-Eng et al, 'The Malacca Straits' (2000) 41 *Marine Pollution Bulletin*, 163-164.

²²³ F.M. Yusoff, M. Shariff and N Gopinath, 'Diversity of Malaysian Aquatic Ecosystems and Resources' (2006) 9(2) *Aquatic Ecosystem Health & Management*, 121-122; Angela Dikou and Robert van Woesik, 'Survival Under Chronic Stress From Sediment Load: Spatial Patterns of Hard Coral Communities in the Southern Islands of Singapore' (2006) 52 *Marine Pollution Bulletin*, 8-9.

²²⁴ Mohd Nizam Basiron, 'Sea-Based Sources of Marine Pollution' in H.M. Ibrahim and Hairil Anuar Husin (eds), *Profile of the Straits of Malacca: Malaysia's Perspective* (2008), 120-123.

²²⁵ Mohd Nizam Basiron and Tan Kim Hooi, 'The Environmental Impact of Increased Vessel Traffic in the Straits of Malacca and Singapore' (2007) 14(1) *MIMA Bulletin*, 16.

²²⁶ Keizrul Abdullah, Tan King Seng and Nor Hisham Mohd Ghazali, 'Protecting Coastal and Marine Tourism Assets' (2007) 14(3) *MIMA Bulletin*, 42.

²²⁷ BERNAMA, *Usaha Peringkat Negara Diperlukan Atasi Masalah Ekosistem di Selat Melaka* (2006) BERNAMA <<http://web10.bernama.com/maritime/news.php?id=211775&lang=my>>.

²²⁸ International Maritime Organization (IMO), *Prevention of Pollution by Oil* (2002) IMO <http://www.imo.org/environment/mainframe.asp?topic_id=231>.

²²⁹ Coordinating Body on the Seas of East Asia (COBSEA), *Marine Litter Management in Malaysia* (2009) COBSEA <http://www.cobsea.org/documents/Meeting_Documents/Marine%20Litter/Annex%2011_Malaysia.pdf>.

from vessels can be just as lethal to marine life as oil or chemicals.²³⁰ The greatest threat to marine animals comes from plastic, which is not biodegradable and can float in the oceans for years.²³¹ Fish and marine mammals may in some cases consume plastics which they mistake for food, and they can also become trapped and entangled in plastic ropes, nets, bags and other items.²³² Other types of pollutants may be in the form of ballast water exchange²³³ and from the use of anti-fouling paints on ships' hulls.²³⁴

5.3 CONCLUSION

This Chapter has pointed out that pollution issues are endemic in the Straits of Malacca and Singapore. These waterways are polluted by substances that originate not only from land-based

²³⁰ International Maritime Organization (IMO), *Prevention of Pollution by Oil* (2002) IMO <http://www.imo.org/environment/mainframe.asp?topic_id=231>.

²³¹ Ibid.

²³² Ibid.

²³³ To maintain stability and to keep stress loads of the ship within acceptable limits, ballast water is used for shipping activities. Globally, it is estimated that 3.7 billion tonnes of ballast water are transferred each year. See I. Eames et al, 'Continuous Flushing of Contaminants from Ballast Water Tanks' (2008) 56 *Marine Pollution Bulletin*, 250. Ballast water exchange could injure the marine environment through the introduction of harmful invasive species. These invasive species may disrupt the food chain, fouling beaches and damaging coastal infrastructures. Realising the threats of the invasive species that may be present in ballast water, the IMO has adopted the International Convention for the Control and Management of Ship' Ballast Water and Sediments (BWM) on 13 February 2004. Under the Convention, ships are required to implement a Ballast Water and Sediments Management Plan and to carry out ballast water management procedures based on the standards provided by the BWM. It has yet to come into force and will only do so 12 months after ratification by 30 States that represents 35 per cent of world merchant shipping tonnage. See International Maritime Organization (IMO), *International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM)* (2010) IMO <[http://www.imo.org/About/Conventions/ListOfConventions/Pages/International-Convention-for-the-Control-and-Management-of-Ships%27-Ballast-Water-and-Sediments-\(BWM\).aspx](http://www.imo.org/About/Conventions/ListOfConventions/Pages/International-Convention-for-the-Control-and-Management-of-Ships%27-Ballast-Water-and-Sediments-(BWM).aspx)>.

²³⁴ The IMO has adopted the International Convention on the Control of Harmful Anti-fouling Systems on Ships (AFS) on 5 October 2001 and it entered into force on 17 September 2008. The AFS proscribes the use of harmful organotins in anti-fouling paints used on ships and undertakes to prohibit the potential future use of other harmful substances in ships' anti-fouling systems. State-parties to the AFS are required to prohibit and/or restrict the application of anti-fouling systems which are harmful on ships flying their flag and ships that operate under their authority as well as on all ships that call at any of the State-parties' ports. As at 17 September 2007, the AFS has been ratified by 25 States, representing 38.11 per cent of world's merchant shipping tonnage. See International Maritime Organization (IMO), 'Adoption of the Final Act of the Conference and Any Instruments, Recommendations and Resolutions Resulting From the Work of the Conference: Final Act of the International Conference on the Control of Harmful Anti-Fouling Systems for Ships, 2001 (AFS/CONF/25)' (IMO, 2001); International Maritime Organization (IMO), *Anti-Fouling Systems: International Convention on the Control of Harmful Anti-Fouling Systems on Ships (2005 edition)* (IMO, 2005), 1-12; International Maritime Organization (IMO), *International Convention on the Control of Harmful Anti-fouling Systems on Ships* (2010) IMO <[http://www.imo.org/About/Conventions/ListOfConventions/Pages/International-Convention-on-the-Control-of-Harmful-Anti-fouling-Systems-on-Ships-\(AFS\).aspx](http://www.imo.org/About/Conventions/ListOfConventions/Pages/International-Convention-on-the-Control-of-Harmful-Anti-fouling-Systems-on-Ships-(AFS).aspx)>.

human activities, but also vessel-based sources of marine pollution. Considering the high density of the coastal populations in areas along the Straits, the littoral States of the Straits, particularly Malaysia and Indonesia, should further develop their waste management systems in order to lessen the amount of land-based waste discharged into the waters of the Straits of Malacca and Singapore. Singapore on the other hand, has a well-developed waste management system that minimises the impact of land-based pollution on the Straits of Malacca and Singapore.

The latter part of this Chapter has primarily discussed the issue of vessel-source pollution, focusing more on accidental discharges. Vessel-source waste and discharges may affect the sensitive marine environment of the Straits, especially when the pollution is substantial. It is true that in comparison with vessel-source pollution, land-based pollutants pose more threat as over 80 per cent of marine pollution comes from land-based sources. However, as far as the Straits of Malacca and Singapore are concerned, the littoral States' powers to regulate shipping traffic are subjected to the limitations imposed by the LOSC under the transit passage regime. As such, this Chapter concludes that vessel-source pollution cannot be as strictly regulated and therefore remain as issue of concern, as does land-based sources of pollution. The subsequent Chapter examines the international legal framework governing the control of vessel-source pollution in straits used for international navigation regulated by the LOSC and other related IMO conventions.

CHAPTER 6. THE INTERNATIONAL LEGAL FRAMEWORK

6.1 INTRODUCTION

This Chapter is structured into five parts, including this introductory section. The second part briefly discusses the historical development of international laws and regulations concerning vessel-source pollution. The third part of this Chapter elaborates on Part XII of the 1982 Law of the Sea Convention (LOSC) and other related International Maritime Organization (IMO) conventions on protection of the marine environment of straits used for international navigation. The fourth part briefly explains the incorporation of these international regulations into the domestic laws of the littoral States. The fifth part of this Chapter concludes by reiterating that international law governing the control of vessel-source pollution in straits used for international navigation has favoured shipping over the protection of the marine environment of straits.

6.2 A BRIEF HISTORICAL DEVELOPMENT

The world's first oil tankers began to ply the seas in the late 19th century when they initially carried kerosene for lighting.¹ The invention of the motor car fuelled demand for oil and as a result, oil transportation grew steadily in volume from the 1950s onwards.² By 1970, about 5 gallons of oil were transited around the world by sea for every human on Earth.³ Tanker size had

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- (a) Mohd Hazmi bin Mohd Rusli, 'The Legal Feasibility of the Imposition of a Traffic Limitation Scheme in Straits Used for International Navigation: A Study of the Straits of Malacca and Singapore' (2011) 1(6) *International Journal of Humanities and Social Science*, 122-130;
- (b) Mohd Hazmi bin Mohd Rusli, 'The Application of Compulsory Pilotage in Straits Used for International Navigation: A Study of the Straits of Malacca and Singapore' (2011) 3(4) *Asian Politics & Policy*, 501-526;
- (c) Mohd Hazmi bin Mohd Rusli, 'Protecting Vital Sea Lines of Communication: A Study of the Proposed Designation of the Straits of Malacca and Singapore as a Particularly Sensitive Sea Area' (2012) 57 *Ocean & Coastal Management*, 79-94.

¹ Joanna Burger, 'Oil Spills' in Shepard Krech III, J.R. McNeill and Carolyn Merchant (eds), *Encyclopedia of World Environmental History* (Routledge, 2004) vol 3, 965-967.

² International Maritime Organization (IMO), *Flag State Implementation* (IMO, 2010), 100.

³ John Sheail, 'Torrey Canyon: The Political Dimension' (2007) 42(3) *Journal of Contemporary History*, 485-486. The world's population in 1970 was about 3.6 billion. See George Gray Molina and Mark Purser, 'Human

grown 30-fold since their introduction in 1945.⁴ Global oil production has increased considerably from 450 million metric tonnes in 1950 to 2.7 billion metric tonnes in 1996, and indeed, oil spills incidents have risen alongside with production.⁵

The rapid development of the shipping industry around the world has sparked concerns over environmental pollution caused by operational discharges from vessels. Operational discharges pose discernible and apparent threats to the marine environment, as described by Mitchell:

...the waste oil traditionally generated during normal oil transport has posed a more diffuse but ubiquitous threat...By the 1970s, the intentional discharges made on thousands of tanker voyages were putting an estimated million tonnes of oil into the oceans annually.⁶

As a result, the United Kingdom (UK) government was the first to convene a conference that initiated the negotiations that culminated in the adoption of the International Convention for the Prevention of Pollution of the Sea by Oil, 1954 (OILPOL). The purpose of OILPOL was to devise measures for the prevention and reduction of marine pollution by oil discharged from ships.⁷ However, the issue of marine pollution caused by accidental discharges of oil and other noxious chemicals was not a focus of the international community until the Torrey Canyon tragedy took place in 1967.⁸

Development Trend Since 1970: A Social Convergence Story' (Research Paper 2010/02, United Nations Development Programme (UNDP), 2010), 3-8.

⁴ John Sheail, 'Torrey Canyon: The Political Dimension' (2007) 42(3) *Journal of Contemporary History*, 485-486.

⁵ Joanna Burger, 'Oil Spills' in Shepard Krech III, J.R. McNeill and Carolyn Merchant (eds), *Encyclopedia of World Environmental History* (Routledge, 2004) vol 3, 966.

⁶ Ronald B. Mitchell, 'Regime Design Matters: Intentional Oil Pollution and Treaty Compliance' (1994) 48(3) *International Organization, Restructuring Ocean Regimes: Implications of the Third United Nations Conference on the Law of the Sea*, 430-431.

⁷ Richard Price, 'The Carriage of Hazardous Cargo By Sea: A UAE Law Perspective' (1995) 10 *Arab Law Quarterly*, 314-315.

⁸ Rene-Jean Dupuy and Daniel Vignes, *A Handbook on the New Law of the Sea- Volume 2* (Academie De Droit International, 1991), 862-865; Alan E. Boyle, 'Marine Pollution Under the Law of the Sea Convention' (1985) 79(2) *American Journal of International Law*, 347-351.

The Torrey Canyon was the first major oil spill at sea that occurred entirely due to human error to capture the world's attention.⁹ The Torrey Canyon incident occurred at a time when political consciousness of the fundamental need to safeguard the marine environment was just emerging and demonstrated the failure of the international community to sufficiently anticipate and prevent the negative impacts of oil pollution on the marine environment.¹⁰ Before this incident, rules and regulations pertaining to the marine environment were not as developed as they are today.¹¹ In 1967, the Torrey Canyon ran aground on the Seven Stones reef between the Scilly Isles and Land's End on the British mainland, spilling over 119,000 tonnes of crude oil that eventually formed thick oil slicks 35 miles long in the English Channel and on the UK foreshore.¹²

As a result of the Torrey Canyon disaster, the international community realised that protection of the marine environment was not a trivial issue and began to place more importance on marine environmental protection.¹³ One of the earliest global efforts towards the protection of the marine environment was reflected in Principle 7 of the Stockholm Conference on the Human Environment 1972 (Stockholm Conference) which provides that:

States shall take all possible steps to prevent pollution of the seas by substances that are liable to create hazards to human health, to harm living resources and marine life, to damage amenities or to interfere with other legitimate uses of the sea.¹⁴

⁹ American Society of International Law, 'Liberia: Report on the Stranding of the "Torrey Canyon" (pollution of the sea by oil)' (1967) 6(3) *International Legal Materials*, 485-487.

¹⁰ Rajendra Ramlogan, *The Developing World and the Environment: Making the Case for Effective Protection of the Global Environment* (United Press of America, 2004), 49-50.

¹¹ International Maritime Organization (IMO), *Prevention of Pollution by Oil* (2002) IMO <http://www.imo.org/environment/mainframe.asp?topic_id=231>.

¹² Rajendra Ramlogan, *The Developing World and the Environment: Making the Case for Effective Protection of the Global Environment* (United Press of America, 2004), 49-50; Kevin T. Pickering and Lewis A. Owen, *An Introduction to Global Environmental Issues* (Routledge, 1997), 206; David Anderson, *Modern Law of the Sea: Selected Essays* (Martinus Nijhoff, 2008), 167.

¹³ Patricia Birnie and Alan Boyle, *International Law and the Environment* (Oxford University Press, 2002), 351-353; Alan E. Boyle, 'Marine Pollution under the Law of the Sea Convention' (1985) 79(2) *American Journal of International Law*, 347-351.

¹⁴ United Nations Environment Programme (UNEP), *Declaration of the United Nations Conference on the Human Environment* (1972) UNEP <<http://www.unep.org/Documents.multilingual/Default.asp?DocumentID=97&ArticleID=1503>>.

The Stockholm Conference recognised the responsibilities of States to protect and preserve the marine environment.¹⁵ Recommendations of the Stockholm Conference led to the negotiation of other important marine environmental protection instruments such as the 1972 Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matters (London Convention)¹⁶ and the International Convention for the Prevention of Pollution from Ships 1973, as modified by the Protocol of 1978 (MARPOL 73/78).¹⁷ Hence, it is not too simplistic to state that the principles of international environmental law stemming from marine pollution have developed quite significantly over the past few decades, as contended by Kbaier and Sebek:

Development of international environmental law over the last quarter of a century demonstrates that one of its most dynamic branches has been the law of marine pollution: scores of global and regional conventions have been adopted, and most technical rules rightly concentrated on pollution prevention and control.¹⁸

The provision on the protection of the marine environment was ultimately crystallised in Part XII of the LOSC which entered into force in 16 November 1994. The LOSC is the fundamental international instrument governing activities at sea. The Preamble of the LOSC states that its basic objective is to establish:

¹⁵ Ibid.

¹⁶ The Inter-Governmental Conference on the Convention on the Dumping of Wastes at Sea convened a meeting in London in November 1972 and it finally led towards the introduction of the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972 (London Convention) which came into force on 30 August 1975. Unlike MARPOL 73/78 that prohibits pollution from ships, the London Convention prohibits the dumping of certain hazardous materials and requires the party or parties intending to do so to seek a prior special permit for the dumping of a number of other identified materials and a prior general permit for other wastes or matter. See International Maritime Organization, *Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972* (International Maritime Organization <http://www.imo.org/Conventions/contents.asp?topic_id=258&doc_id=681>. For the purpose of this Chapter, focus is on the prevention and control of vessel-source pollution and not on the issue of ocean dumping as regulated by the London Convention.

¹⁷ International Maritime Organization (IMO), *Prevention of Pollution by Oil* (2002) IMO <http://www.imo.org/environment/mainframe.asp?topic_id=231>.

¹⁸ Rouchdy Kbaier and Victor Sebek, 'New Trends in Compensation for Oil Pollution Damage: Amoco Cadiz Legal Proceedings and the 1984 Diplomatic Conference on Liability and Compensation' (1985) 8(4) *Marine Policy*, 269.

...a legal order for the seas and oceans which will facilitate international communication, and will promote the peaceful uses of the seas and oceans, the equitable and efficient utilisation of their resources, the conservation of their living resources and the study, **protection and preservation of the marine environment** (Emphasis added).¹⁹

The LOSC, particularly its Part XII, provides a framework for the protection and preservation of the marine environment which emphasises the prevention, reduction and control of marine pollution. Most of the provisions on the protection and preservation of the marine environment are customary laws and they bind all States including those that are not State-parties to the LOSC,²⁰ as mentioned by Wolfrum:

The general prohibition on polluting marine areas drawn from the Convention on the Law of the Sea can also be considered a part of customary international law.²¹

Despite the ongoing development of international laws and regulations on marine environmental protection, maritime accidents are still occurring and the world has witnessed other large-scale oil spills incidents from oil tankers, including the Amoco Cadiz in 1978,²² the Atlantic Empress in 1979,²³ the Exxon Valdez in 1989²⁴ and the Braer in 1993.²⁵ In addition, the risks of maritime

¹⁹ United Nations (UN), *United Nations Convention on the Law of the Sea* (1982) UN <http://www.un.org/Depts/los/convention_agreements/texts/unclos/unclos_e.pdf>, 25.

²⁰ Meinhard Doelle, 'Climate Change and the Use of the Dispute Settlement Regime of the Law of the Sea Convention' (2005) <http://law.dal.ca/Files/Climate_Change_and_the_use_of_the_Dispute_Settlement_Regime_.pdf>, 9-11.

²¹ Rüdiger Wolfrum and Nele Matz, *Conflicts in International Environmental Law* (Springer-Verlag, 2003), 37-39.

²² The grounding of Amoco Cadiz off the coast of Brittany, France on 16 March 1978 spilled 221 000 tonnes of light crude oil into the waters of the English Channel. About 300kms of north-west coastline in the French regions of Finisterre and Côtes du Nord were oiled, causing extensive environmental damage in and around that area. See Edward S. Gilfillan et al, 'Use of Remote Sensing to Document Changes in Marsh Vegetation Following the Amoco Cadiz Oil Spill (Brittany, France, 1978)' (1995) 30(12) *Marine Pollution Bulletin*, 780.

²³ The Atlantic Empress was a Greek oil tanker that involved in two large spills off the coast of Trinidad and Tobago. The incident happened on 19 July 1979 during a tropical rainstorm when the Atlantic Empress collided with the Aegean Captain, spilling 287, 000 metric tonnes of oil into the Atlantic Ocean. This was regarded as the largest maritime oil spill in the history of shipping. However, in contrast with other maritime disasters, fortunately for this, the oil never came ashore and the tragedy did not cause a major environmental disaster. See Sara Philips, *No Expense Spared on Oil Clean-up* (2010) Australian Broadcasting Corporation <<http://www.abc.net.au/environment/articles/2010/05/04/2890320.htm>>.

²⁴ The tanker Exxon Valdez was bound for Long Beach, California when it struck Prince William Sound's Bligh Reef eventually spilling approximately 35, 500 tonnes of crude oil into Prince William Sound in Alaska. This

accidents are much higher in navigationally difficult and constricted waters such as the Straits of Malacca and Singapore. The environmental pollution caused by oil spill incidents is particularly apparent in narrow and enclosed or semi-enclosed seas like the Straits of Malacca and Singapore as the spill is concentrated and therefore increases the degree of environmental damage. The most recent maritime accident in the Straits of Malacca and Singapore took place on July 2011 near the south-western end of the Strait of Malacca.²⁶ Since these incidents are still occurring, it is crucial to examine the existing international legal framework on the protection of the marine environment of straits used for international navigation from vessel-source pollution that may be caused by both operational and accidental discharges of oil and wastes. These international rules and regulations are embedded in the LOSC as well as in the related IMO Conventions, as explained in subsequent parts of this Chapter.

6.3 PART XII OF THE LOSC

Part XII of the LOSC relates to the protection and preservation of the marine environment. The first article of Part XII of the LOSC provides that all States have a general obligation to protect and preserve the marine environment.²⁷ Article 192 of the LOSC is further supported by Article

incident took place on 24 March 1989 and most of the spilled oil spread southwest to the shores of many islands within the Sound and into the Gulf of Alaska killing an estimated 300,000 seabirds that breed all over North and South Atlantic. See Howard M. Feder and Arny Blanchard, 'The Deep Benthos of Prince William Sound, Alaska, 16 Months After the Exxon Valdez Oil Spill' (1998) 36(2) *Marine Pollution Bulletin*, 118; Francis Wiese, 'Seabirds and Atlantic Canada's Ship-Source Oil Pollution: Impacts, Trends and Solutions' (World Wildlife Fund Canada, 2002), 45-46.

²⁵ The Braer oil spill happened on 5 January 1993 where, as a result of bad weather, it ran aground on the southern tip of the Shetland Isles in Scotland, spilling 84, 500 tonnes of light crude oil into Scottish waters. See Kevin T. Pickering and Lewis A. Owen, *An Introduction to Global Environmental Issues* (Routledge, 1997), 206-208; Francis Wiese, 'Seabirds and Atlantic Canada's Ship-Source Oil Pollution: Impacts, Trends and Solutions' (World Wildlife Fund Canada, 2002), 8-11.

²⁶ See Section 5.2.2.2 of Chapter 5 of this Thesis.

²⁷ Article 192 of the LOSC reads 'States have the obligation to protect and preserve the marine environment'. Article 192 of the LOSC is an important component of the comprehensive approach of Part XII of the LOSC on safeguards on the marine environment and this provision reiterates the preamble of the LOSC and Principle 7 of the Stockholm Conference that all States have the obligation to protect and preserve the marine environment. The term 'States' in Article 192 refers to all States and does not only refer to State-parties to the LOSC. See Myron H. Nordquist, *United Nations Convention on the Law of the Sea 1982: A Commentary (Volume IV)* (Martinus Nijhoff, 1991), 36-40.

194(1) that provides:

States shall take, individually or jointly as appropriate, all measures consistent with this Convention that are necessary to prevent, reduce and control pollution of the marine environment from any source...

The employment of the terms ‘obligation’ and ‘shall’ in both Articles 192 and 194 respectively shows that the duty relating to protection of the marine environment is an important responsibility and that all States must be committed to achieving this end.²⁸ Even though the LOSC has provided a legal framework, nevertheless, the rules provided are largely general in application and as such, it requires States to devise more detailed international rules and regulations, as enumerated in Article 197 of the LOSC:

States shall cooperate on a global basis and, as appropriate, on a regional basis, directly or through competent international organisations, in formulating and elaborating international rules, standards and recommended practices and procedures consistent with this Convention, for the protection and preservation of the marine environment...’

As mentioned in Chapter 5, the LOSC has a provision on the prevention, reduction and control of pollution of the marine environment from vessels as enumerated in Article 211.²⁹ Like Article 197, Article 211 also stipulates that States have duties in establishing international rules and standards to prevent, reduce and control pollution that results from shipping activities.³⁰ Article 211 elucidates three types of State jurisdictions on the regulation of marine pollution and the standards of ships; namely, the coastal State,³¹ the port State³² and the flag State jurisdictions.³³

²⁸ Norquist contended that even though Articles 192, 194 and 197 employ the word ‘shall’, the scope of the possible obligation is qualified and never absolute. See Myron H. Nordquist, *United Nations Convention on the Law of the Sea 1982: A Commentary (Volume IV)* (Martinus Nijhoff, 1991), 36.

²⁹ See Section 5.2 of Chapter 5 of this Thesis.

³⁰ Article 211(1) reads ‘States, acting through the competent international organization or general diplomatic conference, shall establish international rules and standards to prevent, reduce and control pollution of the marine environment from vessels...’.

³¹ Article 211(4) of the LOSC states that ‘Coastal States may, in the exercise of their sovereignty within their territorial sea, adopt laws and regulations for the prevention, reduction and control of marine pollution from foreign vessels...Such laws and regulations shall, not hamper innocent passage of foreign vessels’.

Theoretically, a port State could have the status of a coastal State as well, but a coastal State may not necessarily possess the status of a port State unless ships voluntarily come into its port. Therefore, the concept of port State jurisdiction is only relevant when the coastal State exercises jurisdiction in relation to its port.³⁴ The former President of the International Tribunal on the Law of the Sea, Judge Thomas Mensah, contended that the difference between the jurisdictions of port States and coastal States is in the scope of their jurisdictions; while port State jurisdiction is essentially a right to control, coastal State jurisdiction is a right to regulate.³⁵ It is therefore crucial to examine the different jurisdictions possessed by the port State, the coastal State and the flag State in determining the extent of enforcement powers that the littoral States of the Straits of Malacca and Singapore have in regulating shipping traffic transiting the Straits.

6.3.1 Port State Jurisdiction

International law dictates that the internal waters of a coastal State are regarded as part of the territory of that State and unlike the territorial sea, vessels generally have no right of innocent passage to sail through that part of the maritime zone.³⁶ Ships are subject to the territorial jurisdiction and control of the port State when they enter the internal waters or ports of that State,³⁷ as enumerated in Article 25(2) of the LOSC.³⁸ The port State has the power to take

³² Article 211 (3) of the LOSC prescribes States to ‘establish particular requirements for the prevention, reduction and control of pollution of the marine environment as a condition for the entry of foreign vessels into their ports or internal waters...’; A port State is defined as ‘a sheltered place where ships may load or discharge cargo and embark or disembark passengers, which makes use of both natural conditions and artificial installations, and which offers facilities for the movement of passengers and goods by water and land, subject to a special administration to secure this traffic functions’. See Mary George, *Legal Regime of the Straits of Malacca and Singapore* (LexisNexis, 2008), 359.

³³ Article 211(2) specifies the jurisdiction of flag States where it mentions that ‘States shall adopt laws and regulations for the prevention, reduction and control of pollution of the marine environment from vessels flying their flag or of their registry’.

³⁴ Øystein Jensen, ‘Coastal State Jurisdiction and Vessel Source Pollution: The International Law of the Sea Framework for Norwegian Legislation’ (The Fridtjof Nansen Institute, 2006), 14.

³⁵ Erik Franckx, *Vessel-source Pollution and Coastal State Jurisdiction: The Work of the ILA Committee on Coastal State Jurisdiction Relating to Marine Pollution (1991-2000)* (Kluwer, 2001), 71.

³⁶ R.R. Churchill and A.V. Lowe, *The Law of the Sea* (Manchester University Press, 1999), 61-65.

³⁷ The internal waters of a State refer to the landward side of the baselines from which a territorial sea is measured. The internal waters are considered as part of that State’s territory, where it has the right to exercise its full sovereignty and jurisdictions over these waters. See Øystein Jensen, ‘Coastal State Jurisdiction and Vessel Source Pollution: The International Law of the Sea Framework for Norwegian Legislation’ (The Fridtjof Nansen Institute, 2006), 15; John Warren Kindt, *Marine Pollution and the Law of the Sea* (William S. Hein & Co., 1986), 1188-1189.

necessary actions against any offending ships that have caused marine pollution in its territorial waters or Exclusive Economic Zone (EEZ) should the offending ship subsequently enter its internal waters to call at its port.³⁹

The 2010 Pacific Adventurer oil spill incident off the coast of Queensland, Australia, is a good example to explain the enforcement powers of a port State.⁴⁰ This 23,737 DWT general cargo vessel suffered damage while plying through rough waters generated by Cyclone Hamish.⁴¹ The ship had been holed during turbulence, which resulted in a spill of 270,000 litres of bunker oil into the Moreton Bay area, not far from the port of Brisbane.⁴² When the Pacific Adventurer was towed into the port of Brisbane, an investigation was conducted on board the ship and a civil suit was instituted against the four shipping companies and the ship's Master, with each facing a count of discharging oil into the ocean.⁴³ This case is an excellent example of port State jurisdiction to take legal action against a polluting ship.

In principle, the port State has unrestricted jurisdiction to enforce its laws against any ships and those on board within its own internal waters based on the fact that the internal waters fall exclusively within the territorial sovereignty of the port State.⁴⁴ Enforcement measures that a port State can take include the inspection of vessels visiting its ports to ensure that they meet IMO requirements regarding safety and marine pollution prevention standards.⁴⁵ If the vessels do

³⁸ Article 25(2) of the LOSC reads 'In the case of ships proceeding to internal waters or call at a port facility outside internal waters, the coastal (port) State also has the right to take the necessary steps to prevent any breach of the conditions to which admission of those ships to internal waters or such a call is subject'.

³⁹ See LOSC Art. 218.

⁴⁰ Australian Transport Safety Bureau (ATSB), 'Loss of Containers from Pacific Adventurer of Cape Moreton, Queensland' (ATSB, 2009), 1-5.

⁴¹ Ibid.

⁴² Sam Collyer, *Pacific Adventurer Spill: Four Companies and Master to Stand Trial* (2010) Lloyd's List DCN <<http://www.lloydslistdcn.com.au/archive/2010/july/07/swire-captain-to-stand-trial-for-pacific-adventurer-spill>>.

⁴³ Ibid.

⁴⁴ Øystein Jensen, 'Coastal State Jurisdiction and Vessel Source Pollution: The International Law of the Sea Framework for Norwegian Legislation' (The Fridtjof Nansen Institute, 2006), 15; Brian F. Fitzgerald, 'Port State Jurisdiction and Marine Pollution Under UNCLOS III' (1995) 11 *Maritime Law Association of Australia and New Zealand Journal*, 31; R.R. Churchill and A.V. Lowe, *The Law of the Sea* (Manchester University Press, 1999), 61-65.

⁴⁵ The Netherlands Institute for the Law of the Sea, *International Organizations and The Law of the Sea* (Kluwer, 2000), 41-42.

not meet these requirements, the port State may allow or deny access to any vessels that seek to gain entry into its port. The Prestige oil spill in 2002 is a good example to illustrate this. The tanker Prestige, loaded with 77, 000 tonnes of fuel oil, was navigating through stormy waters and suffered an accident about 45 miles off the Spanish coast of Galicia.⁴⁶ In distress, the tanker approached Galicia, but due to fear that it would cause severe pollution of the marine environment the Spanish authorities denied its entry to a safe harbour and sent it off-shore in a north-westerly direction.⁴⁷ This incident shows that the port State has the power to deny access to any vessel at risk of entailing adverse environmental consequences should that vessel be allowed entry into the port.

The port State also possesses jurisdiction to take enforcement action against any vessel calling into its with regard to offences against international rules and standards committed beyond the port State's national jurisdiction.⁴⁸ This can be illustrated by the Evoikos and Orapin Global collision in the Singaporean waters of the Strait of Singapore on 15 October 1997, 3 years after the LOSC came into force. This collision affected the marine environment of Singapore's south coast as well as the south-western coast of Peninsular Malaysia.⁴⁹ The Evoikos was anchored in the Port of Singapore at Pulau Bukom and the Orapin Global was anchored off south-western Johor.⁵⁰ Following the incident, on 20 October 1997, the Singaporean Police arrested both Masters of the two vessels.⁵¹ As an affected coastal State, under the LOSC, Malaysia may make a request to Singapore, as a port State, to take appropriate legal action against the Masters of both vessels. The Masters of the Orapin Global and the Evoikos were tried and sentenced under

⁴⁶ Eduardo L. Giménez, 'The Prestige Catastrophe: Political Decisions, Scientific Counsel, Missin Markets and the Need for an International Maritime Protocol' (Universidade de Vigo, 2003), 7-8.

⁴⁷ Ibid.

⁴⁸ George C. Kasoulides, 'Global and Regional Port State Regimes' in Henrik Ringbom (ed), *Competing Norms in the Law of Marine Environmental Protection: Focus on Ship Safety and Pollution Prevention* (Kluwer, 1997), 122. This is provided for in the LOSC in its Article 218(3). It reads 'When a vessel is voluntarily within a port or at an off-shore terminal of a State, that State shall...comply with request from any State for investigation of a discharge violation...believed to have occurred in, caused, or threatened damage to the internal waters, territorial sea or exclusive economic zone of the requesting State'.

⁴⁹ See Section 5.2.2.2 of Chapter 5 of this Thesis.

⁵⁰ Mark Heah Eng Siang, 'Prevention and Combat of Oil Pollution in Singapore and the "Evoikos" Oil Spill Incident on 15 October 1998' (Paper presented at the PAJ Oil Spill Symposium '98, Tokyo, 1998).

⁵¹ Captain Roger Clipsham, 'Part 1: Why We Must Work to Decriminalise the Shipmaster' (The International Federation of Shipmasters' Association, 2000), 7-8.

Singaporean laws, and were charged for negligent navigation.⁵² Ultimately, the Master of the Orapin Global was sentenced to two months in jail, and to fines totalling S\$11,000 while the Master of the Evoikos was sentenced to three months in jail and fined S\$60,000.⁵³

Furthermore, while international law restricts the powers of a coastal State to regulate ships that pass through its territorial waters, that State however may, in its capacity as a port State, make requirements of ships that voluntarily enter its port.⁵⁴ For instance, the Port Klang Authority has made it a mandatory requirement for vessels to employ pilots when navigating within the port's pilotage district.⁵⁵ Unless otherwise authorised or exempted, all vessels within Port Klang's limit must be piloted and the passage of a vessel may be denied if this requirement is not fulfilled by the Master of the vessel.⁵⁶

In view of these facts, port State enforcement jurisdiction as enumerated in Article 218 of the LOSC has been seen as an innovative expansion of jurisdiction in international law that extends the enforcement powers of the regulation of prevention and the penalties for marine pollution incidents to the port State, where this had traditionally been left exclusively to the discretion of the flag State.⁵⁷

⁵² Ibid.

⁵³ Michael G. Chalos, 'Should I Go Down With the Ship, Or Should I Rot in Jail - A Modern Master's Dilemma' (2003) 26 *Maritime Studies* <<http://www.austlii.edu.au/au/journals/MarStudies/2003/26.html>>.

⁵⁴ Henrik Ringbom, 'Preventing Pollution from Ships- Reflections on the 'Adequacy' of Existing Rules' (1999) 8(1) *Review of European Community & International Environmental Law*, 23.

⁵⁵ Port Klang Authority, 'Port Klang Malaysia: Marine Information Handbook' (Port Klang Authority, Northport Malaysia and Westports Malaysia, 2008).

⁵⁶ Ibid.

⁵⁷ George C. Kasoulides, 'Global and Regional Port State Regimes' in Henrik Ringbom (ed), *Competing Norms in the Law of Marine Environmental Protection: Focus on Ship Safety and Pollution Prevention* (Kluwer, 1997), 124.

6.3.2 Coastal State Jurisdiction

When a ship passes through the territorial waters of a State and subsequently enters any of its ports, that State possesses the status of a port State. If a ship merely navigates through the territorial waters of a State without entering any of its ports, that State is regarded as a coastal State. The coastal State has jurisdiction over its territorial sea, which is subject to the right of innocent passage,⁵⁸ a passage regime where the coastal State has the power to regulate but not to control.⁵⁹ The LOSC does provide enforcement jurisdiction⁶⁰ for a coastal State to take action against polluting ships at sea, which can be in the form of inspection, detention or by instituting a legal proceeding.⁶¹ The powers in this respect are stronger in the territorial sea and more limited in the EEZ of that coastal State.⁶² Nevertheless, the powers of coastal State to take action against recalcitrant vessels are subject to the jurisdictional balance, which, based on the practice of international law, leans heavily in favour of navigational interests.⁶³ This means that coastal States cannot hamper innocent passage unless the vessel has conducted an act which could be deemed as a threat and thereby ceases to exercise the right of innocent passage.⁶⁴ In that case, based on Article 25(3) of the LOSC, the coastal State may temporarily suspend the right of

⁵⁸ For more discussion on the innocent passage regime, see Section 4.2.1 of Chapter 4 of this Thesis.

⁵⁹ Richard A. Legatski, 'Port State Jurisdiction Over Vessel-Source Marine Pollution' (1977) 2 *Harvard Environmental Law Review*, 456-460; Alan E. Boyle, 'Marine Pollution Under the Law of the Sea Convention' (1985) 79(2) *American Journal of International Law*, 357-362.

⁶⁰ On territorial sea, Article 220(2) of the LOSC reads 'Where there are clear grounds for believing that a vessel navigating in the territorial sea of a State has, during its passage therein, violated laws and regulations of that State adopted in accordance with this Convention...that State...may undertake physical inspection of the vessel relating to the violation and may...institute proceedings, including detention of the vessel'. On EEZ, Article 220(3) reads 'Where there are clear grounds for believing that a vessel navigating in the exclusive economic zone or the territorial sea of a State has, in the exclusive economic zone, committed a violation of applicable international rules and standards for the prevention, reduction and control of pollution from vessels...that State may require the vessel to give information regarding its identity and port of registry, its last and its next port of call and other relevant information required to establish whether a violation has occurred'.

⁶¹ Erik Jaap Molenaar, *Coastal State Jurisdiction over Vessel-source Pollution* (Kluwer, 1998), 245-246.

⁶² Brian F. Fitzgerald, 'Port State Jurisdiction and Marine Pollution Under UNCLOS III' (1995) 11 *Maritime Law Association of Australia and New Zealand Journal*, 35.

⁶³ Henrik Ringbom, 'Preventing Pollution from Ships- Reflections on the 'Adequacy' of Existing Rules' (1999) 8(1) *Review of European Community & International Environmental Law*, 25; Alan E. Boyle, 'Marine Pollution Under the Law of the Sea Convention' (1985) 79(2) *American Journal of International Law*, 357-362.

⁶⁴ Erik Jaap Molenaar, *Coastal State Jurisdiction over Vessel-Source Pollution* (Kluwer, 1998), 250.

innocent passage for such a vessel.⁶⁵ This situation also applies to States bordering straits. Nevertheless, based on the discussion of the transit passage regime in Chapter 4, unlike the innocent passage regime which can be temporarily suspended, States bordering straits possess more limited powers as they legally have no right under the international law to impede navigation unless if this is done under the ambit of Article 233 of the LOSC.⁶⁶ The provision of Article 233 is discussed in detail in the following sections of this Chapter.

6.3.3 Flag State Jurisdiction

A flag State refers to the State whose flag a ship is flying.⁶⁷ The principle of customary international law, as embodied in the LOSC, indicates that ships are bound by the laws of the State whose flag they bear.⁶⁸ The earliest effort to codify the principle of flag State jurisdiction was undertaken by the International Law Commission through the Draft Articles Concerning the Law of the Sea 1956, and now it is governed by Part VII of the LOSC.⁶⁹ Every State is required to take such measures for ships flying their flag as are necessary to ensure safety at sea.⁷⁰ This system of flag State jurisdiction developed from the concept that vessels were considered a part of the State's territory and that there exists a factual link between the ship and the State in which it is registered,⁷¹ even if the ship is navigating the high seas.⁷² The absence of any international body capable of ensuring effective regulatory enforcement of ships on the high seas has resulted

⁶⁵ Article 25(3) of the LOSC provides 'The coastal State may...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'.

⁶⁶ See Section 4.2 of Chapter 4 of this Thesis; Robert Beckman, 'Transit Passage Regime in the Straits of Malacca : Issues for Consideration' (Paper presented at the Building A Comprehensive Security Environment in the Straits of Malacca, Kuala Lumpur, 2004), 249-250.

⁶⁷ Markus J. Kachel, *Particularly Sensitive Sea Areas: The IMO's Role in Protecting Vulnerable Marine Areas* (Springer-Verlag, 2008), 55-60.

⁶⁸ Article 94 of the LOSC provides that 'Every State shall effectively exercise its jurisdiction and control in administrative, technical and social matters over ships flying its flag'.

⁶⁹ Camille Goodman, 'The Regime for Flag State Responsibility in International Fisheries Law-Effective Fact, Creative Fiction, or Further Work Required?' (2009) 23 *Australian and New Zealand Maritime Law Journal*, 157.

⁷⁰ The Netherlands Institute for the Law of the Sea, *International Organizations and The Law of the Sea* (Kluwer, 2000), 41.

⁷¹ David L. VanderZwaag et al, 'Governance of Arctic Marine Shipping' (Marine & Environmental Law Institute, Dalhousie Law School, 2008), 10.

⁷² Øystein Jensen, 'Coastal State Jurisdiction and Vessel Source Pollution: The International Law of the Sea Framework for Norwegian Legislation' (The Fridtjof Nansen Institute, 2006), 11-12.

in ships being subjected to the law of a State where they are registered.⁷³ This is provided for in Article 92 of the LOSC, which reads:

Ships shall sail under the flag of one State only and...shall be subject to its exclusive jurisdiction on the high seas.

On matters pertaining to enforcement jurisdiction, the flag State has the power to ensure that vessels flying their flag or on their registry comply with any international laws adopted in accordance with the LOSC on the prevention, reduction and control of vessel-source of pollution of the marine environment.⁷⁴ Furthermore, the flag State also has the power to conduct an investigation of any vessel that has violated any applicable international rules or standards on the control of vessel-source pollution, irrespective of where the violations occurred, and thereafter to institute legal proceedings against such a vessel.⁷⁵ The rights of flag States have remained largely unchanged, but their responsibilities have grown considerably,⁷⁶ encompassing areas including ship safety standards and crew training⁷⁷ as well as the control of vessel-source of marine pollution.

Despite being widely acknowledged, this principle remains one of the most frequently debated.⁷⁸ This is due to the weaknesses of flag State jurisdiction itself. This weakness stems from the fact that it is decentralised in nature, and lacks sanctions under international law to take action against

⁷³ Rene-Jean Dupuy and Daniel Vignes, *A Handbook on the New Law of the Sea- Volume 1* (Academie De Droit International, 1991), 406-407; The Netherlands Institute for the Law of the Sea, *International Organizations and The Law of the Sea* (Kluwer, 2000), 41-42; Markus J. Kachel, *Particularly Sensitive Sea Areas: The IMO's Role in Protecting Vulnerable Marine Areas* (Springer-Verlag, 2008), 54-55.

⁷⁴ See LOSC Art. 217(1); Rene-Jean Dupuy and Daniel Vignes, *A Handbook on the New Law of the Sea- Volume 1* (Academie De Droit International, 1991), 407.

⁷⁵ See LOSC Art. 217(4); John Warren Kindt, *Marine Pollution and the Law of the Sea* (William S. Hein & Co., 1986), 1187-1188.

⁷⁶ Camille Goodman, 'The Regime for Flag State Responsibility in International Fisheries Law-Effective Fact, Creative Fiction, or Further Work Required?' (2009) 23 *Australian and New Zealand Maritime Law Journal*, 157.

⁷⁷ The flag State has the responsibility to ensure that the vessel and its crew are fit for sailing. Article 217(2) of the LOSC reads 'States shall...take appropriate measures in order to ensure that vessels flying their flag or of their registry are prohibited from sailing, until they can proceed to sea in compliance with the requirements of the international rules and standards...including requirements in respect of design, construction, equipment and manning of vessels'.

⁷⁸ Camille Goodman, 'The Regime for Flag State Responsibility in International Fisheries Law-Effective Fact, Creative Fiction, or Further Work Required?' (2009) 23 *Australian and New Zealand Maritime Law Journal*, 157.

recalcitrant flag States.⁷⁹ Furthermore, the competitive nature of the shipping industry has directly or indirectly compelled shipping companies to seek to reduce operating costs and increase returns, which ultimately resulted in them resorting to ‘open registers’ or ‘flags of convenience’.⁸⁰ Generally, this ‘flags of convenience’ registration system is preferred as it has a relaxed enforcement of international regulations that allows shipowners to register ships cheaply without having to meet the conditions for registration set by stricter administrations.⁸¹ Therefore, ships may be registered in a State whether or not that State has any national or economic connection to the ship concerned. As stated by Goodman:

...Shipowners are able to move vessels between registries, so if a ship becomes unable to meet the registration requirements of its flag State...it can be re-flagged to a less stringent register that does not take such a responsible attitude toward its international obligations. The ability for vessels to consistently re-flag with less and less vigilant registers further undermines the effective operation of flag State jurisdiction.⁸²

The practice of this ‘open register’ or ‘flags of convenience’ regime has made it difficult to find a genuine link⁸³ between the vessel and the State where it was registered, which causes further

⁷⁹ Robin Warner, *Protecting the Ocean Beyond National Jurisdiction: Strengthening the International Law Framework* (Martinus Nijhoff, 2009), 35-38.

⁸⁰ Nearly two-thirds of the world’s trade is carried on ships from open registries. Panama, Liberia, the Bahamas and the Marshall Islands are currently the four largest open registries in the world. See Daniel J. Mitchell, ‘The Threat to Global Shipping from Unions and High-Tax Politicians: Restrictions on Open Registries Would Increase Consumer Prices and Boost Cost of Government’ (2004) IV(II) *Prosperitas: A Policy Analysis from the Center for Freedom and Prosperity Foundation*, 3-4.

⁸¹ Robin Warner, *Protecting the Ocean Beyond National Jurisdiction: Strengthening the International Law Framework* (Martinus Nijhoff, 2009), 27-40; John N.K. Mansell, *Flag State Responsibility: Historical Development and Contemporary Issues* (Springer-Verlag, 2009), 5-6; Camille Goodman, ‘The Regime for Flag State Responsibility in International Fisheries Law-Effective Fact, Creative Fiction, or Further Work Required?’ (2009) 23 *Australian and New Zealand Maritime Law Journal*, 159-161; Mary George, *Legal Regime of the Straits of Malacca and Singapore* (LexisNexis, 2008), 246-247; Maritime International Secretariat Services Limited (MARISEC), ‘Shipping Industry Guidelines on Flag State Performance’ (MARISEC, 2003), 4-5.

⁸² Camille Goodman, ‘The Regime for Flag State Responsibility in International Fisheries Law-Effective Fact, Creative Fiction, or Further Work Required?’ (2009) 23 *Australian and New Zealand Maritime Law Journal*, 159-160.

⁸³ Genuine link is defined in the United Nations Convention on Conditions for Registration of Ships 1986 (Registration Convention) as ‘the existence of a competent national maritime authority in the flag State, and the effective control by the latter over the companies which own the ships flying its national flag will henceforth be ‘the obligatory minimum elements’ for the link between the ship and the flag to be considered as genuine’. The Registration Convention has been ratified by only a few States and has yet to enter into force. See Rene-Jean Dupuy and Daniel Vignes, *A Handbook on the New Law of the Sea- Volume 1* (Academie De Droit International, 1991),

complications for flag State enforcement jurisdiction.⁸⁴ This is because under the ‘flags of convenience regime’, the company that manages the ship may be different from the flag of a State which the ship is entitled to fly.⁸⁵ In 2001, most open registries; namely, Panama, Liberia, the Marshall Islands and the Bahamas were categorised under the ‘modest category’ in terms of their capacity to regulate the ships on their registers.⁸⁶ In the same year, about 63 per cent of all reported ship losses at sea (measured by tonnage) were accounted for by just 13 flags of convenience registers with the five worst performers being Panama, Cyprus, St. Vincent and the Grenadines, Cambodia and Malta.⁸⁷ Table 6-1 below categorises States into their levels of regulatory capacity:

Regulatory Capacity	Flag
High	Danish Second Register, German Second Register, Kerguelen Islands, Netherlands, Norwegian Second Register, Norway, Philippines, United Kingdom
Good	Bermuda, Canary Islands, Cayman Islands, Cyprus, Estonia, Hong Kong, Isle of Man, Latvia, Madeira, Netherlands, Antilles, Russia, Singapore, Turkey, Ukraine
Modest	Antigua and Barbuda, Bahamas, Barbados , Belize, Bolivia, Equatorial Guinea, Liberia , Malta, Marshall Islands , Panama , Vanuatu
Poor	Cambodia, St. Vincent and the Grenadines

Table 6-1: Grouped Flag State Rankings based on Regulatory Capacity⁸⁸
(Flag State Audit, 2003)⁸⁹

403-404; Camille Goodman, ‘The Regime for Flag State Responsibility in International Fisheries Law-Effective Fact, Creative Fiction, or Further Work Required?’ (2009) 23 *Australian and New Zealand Maritime Law Journal*, 159-160.

⁸⁴ Camille Goodman, ‘The Regime for Flag State Responsibility in International Fisheries Law-Effective Fact, Creative Fiction, or Further Work Required?’ (2009) 23 *Australian and New Zealand Maritime Law Journal*, 159-160.

⁸⁵ Rene-Jean Dupuy and Daniel Vignes, *A Handbook on the New Law of the Sea- Volume 1* (Academie De Droit International, 1991), 403-404.

⁸⁶ Michael Richardson, *Crimes Under Flags of Convenience - in a depressed shipping market, poor nations sell flags for criminal venture* (2002) AustLII <<http://www.austlii.edu.au/au/journals/MarStudies/2002/33.html>>.

⁸⁷ Ibid.

⁸⁸ Note: States in bold are among the largest open registries in the world.

⁸⁹ John N.K. Mansell, *Flag State Responsibility: Historical Development and Contemporary Issues* (Springer-Verlag, 2009), 173.

Nevertheless, the recent flag State performance index, issued in 2010, has shown an improvement in the regulatory capacities of the four largest open registries in the world: Panama, Liberia, Barbados and the Marshall Islands.⁹⁰ The 2010 index indicated that these four States have generally ratified key IMO Conventions pertaining to safety of navigation and control of vessel-source of marine pollution and have performed relatively well in ensuring that ships flying their flags comply with global IMO standards of safe shipping.⁹¹

It is an undeniable fact that the enforcement of international maritime instruments is more often than not reliant upon the jurisdiction of flag and port States.⁹² Certain of these international regulations preceded the LOSC. Nevertheless, through Part XII, the LOSC has acknowledged the application of these important international regulations to prevent, reduce and control pollution of the marine environment from vessel-based sources.⁹³ These international rules act as supplements to the LOSC as they provide more detailed rules and regulations than are generally established by the LOSC.⁹⁴ The international rules on the protection and preservation of the marine environment developed almost concurrently with those regarding the safety of navigation at sea. Undeniably, the protection of the marine environment could be promoted through the promotion of the safety of navigation of vessels plying the seas.⁹⁵

6.3.4 IMO Conventions on Control of Vessel-Source Marine Pollution

The Inter-governmental Maritime Consultative Organization (IMCO), now under its current name, the International Maritime Organization (IMO), was established in 1948 and has been active in developing and maintaining a comprehensive legal framework to regulate international

⁹⁰ Maritime International Secretariat Services Ltd., '2010 Shipping Industry Flag State Performance Table' (Maritime International Secretariat Services, 2010).

⁹¹ Ibid.

⁹² John N.K. Mansell, *Flag State Responsibility: Historical Development and Contemporary Issues* (Springer-Verlag, 2009), 5-6.

⁹³ Alan Khee-Jin Tan, *Vessel-Source Marine Pollution: The Law and Politics of International Regulation* (Cambridge University Press, 2006), 3-11.

⁹⁴ Philippe Sands, *Principles of International Environmental Law (Second Edition)* (Cambridge University Press, 2003), 136-138.

⁹⁵ Mark Heah Eng Siang, 'Safety of Navigation in the Singapore Strait' (1998) 2 *Singapore Journal of International & Comparative Laws*, 497-498.

shipping activities.⁹⁶ The IMO now has 60 international conventions created under its umbrella and these can be categorised as the following:

- (a) Prevention of accidents and marine pollution, including standards for ship designs, construction, equipment, operation and manning;⁹⁷
- (b) Maritime safety, which includes distress and safety communications, search and rescue, and oil pollution preparedness, response and co-operation;⁹⁸
- (c) Compensation and liability regimes.⁹⁹

For the purpose of this discussion, the focus will be on the first category of these IMO conventions; namely, on the prevention of accidents and marine pollution. As already noted, intentional oil discharges from operational discharges of vessels were one of earliest issues discussed by the maritime community and also the first to be internationally regulated.¹⁰⁰ Subsequently, other pollutants followed suit including hazardous and noxious substances (HNS), ballast water and dangerous chemicals. International rules and regulations on control of vessel-sources of marine pollution have developed since 1954, beginning with OILPOL and extending to other related IMO conventions as explained briefly here.

6.3.4.1 The International Convention for the Prevention of Pollution from Ships 1973, as Modified by the Protocol of 1978 Relating Thereto (MARPOL 73/78)

MARPOL 73/78 has its origins from OILPOL 1954, a pioneer convention in controlling vessel-source of marine pollution.¹⁰¹ OILPOL 1954 recognised that operational discharges from ships

⁹⁶ Nazery Khalid and Cheryl Rita Kaur, 'Status of Ratification of IMO Conventions by Malaysia' (2010) 18(1) *MIMA Bulletin*, 25-29.

⁹⁷ *Ibid.*

⁹⁸ *Ibid.*

⁹⁹ *Ibid.*

¹⁰⁰ Ronald B. Mitchell, 'Regime Design Matters: Intentional Oil Pollution and Treaty Compliance' (1994) 48(3) *International Organization, Restructuring Ocean Regimes: Implications of the Third United Nations Conference on the Law of the Sea*, 430-431.

¹⁰¹ GR. J Timagenis, *International Control of Marine Pollution: Volume 1* (Oceana, 1980), 334-336; Mary George, *Legal Regime of the Straits of Malacca and Singapore* (LexisNexis, 2008), 340-341.

are the main contributors to oil pollution,¹⁰² and formulated regulations to limit the oil content of discharges made near shore.¹⁰³ MARPOL 73/78 superseded OILPOL 1954 when it came into force on 2 October 1983, and comprises six annexes. MARPOL 73/78 is the main convention covering the prevention of pollution of the marine environment by ships from operational or accidental causes,¹⁰⁴ and relies on flag and port State jurisdiction.¹⁰⁵ The key objectives of MARPOL 73/78 Annex I and II is to reduce the volumes of harmful substances generated from the routine operations of vessels to be discharged into the sea, which could be in the form of *inter alia*, oily waste, garbage and sewage.¹⁰⁶ Annex I deals with the control of pollution from oil¹⁰⁷ while Annex II relates to noxious liquid substances carried in bulk.¹⁰⁸

¹⁰² Back in the 1950s, the normal practice of routine shipboard operations was simply to wash the tanks out with water and thereafter dumping the resulting mixture of oil and water into the sea. See International Maritime Organization (IMO), *Flag State Implementation* (IMO, 2010), 100; Gini Mattson, 'MARPOL 73/78 and Annex I: An Assessment of its Effectiveness' (2006) 9 *Journal of International Wildlife Law and Policy*, 178-179.

¹⁰³ OILPOL prohibits the discharge of oil from a tanker except in certain conditions namely, when the tanker is proceeding en-route, the instantaneous rate of discharge of oil content does not exceed 60 litres per mile, the total quantity of oil discharged on a ballast voyage does not exceed 1/15, 000 of the total cargo-carrying capacity and that the tanker is more than 50 miles from the nearest land. OILPOL provides a different requirements for ships, where it prohibits the discharge of oil except when the ship is proceeding en route, the instantaneous rate of discharge of oil content does not exceed 60 litres per mile, the oil content of the discharge is less than 100 parts per 1, 000, 000 parts of the mixture and that the discharge is made as far as practicable from land. See Socioeconomic Data and Applications Center (SEDAC), *International Convention for the Prevention of Pollution of the Sea by Oil, 1954* (2009) SEDAC <<http://sedac.ciesin.org/entri/texts/pollution.of.sea.by.oil.1954.html>>.

¹⁰⁴ Nazery Khalid and Cheryl Rita Kaur, 'Status of Ratification of IMO Conventions by Malaysia' (2010) 18(1) *MIMA Bulletin*, 25-29.

¹⁰⁵ The flag and port States play an important role in implementing the MARPOL 73/78. Mattson argued that 'Parties to MARPOL 73/78 may enforce the convention in three ways: through vessel inspections to ensure vessels meet minimum technical standards; by monitoring vessel compliance with discharge standards; and by punishing vessels that violate standards. MARPOL 73/78 relies on the Port State/Flag State dichotomy to implement its terms'. See Gini Mattson, 'MARPOL 73/78 and Annex I: An Assessment of its Effectiveness' (2006) 9 *Journal of International Wildlife Law and Policy*, 181.

¹⁰⁶ John R. Lethbridge, 'MARPOL 73/78 (International Convention for the Prevention of Pollution from Ships)' (The World Bank, 1991), 1-4.

¹⁰⁷ MARPOL Annex I only allows the discharge of oil and oily waste from cargo tanks in certain conditions. The tanker must be navigating in areas which are more than 50 nautical miles from the nearest land and proceeding en route. In addition, the instantaneous rate of discharge of the tanker must be less than 30 litres per nautical mile and that the oil discharge monitoring and control system and slop tank arrangement are operating and functional. See International Maritime Organization (IMO), 'Revised Annex I of MARPOL 73/78: Resolution MEPC. 117(52)' (MEPC 52/24/Add.2, IMO, 2004), 1-109.

¹⁰⁸ MARPOL Annex II has introduced the new four-category categorisation system for noxious and liquid substances that have further improved the regulatory system pertaining to the control of pollution from noxious liquid substances in bulk namely Category X (major hazard), Y, (hazardous), Z (minor hazard) and other hazardous substances which are recognisable hazard to either marine resources or human health, causing minimal harm to amenities or other legitimate uses of the sea. MARPOL Annex II allows the discharge of the substances of categories X, Y and Z if the ship is proceeding en route at a speed of at least 7 knots (for self-propelled ships) or at

Annex III of MARPOL 73/78 regulates and provides general requirements for the issuing of detailed standards on packing, marking, labelling, documentation, stowage, quantity limitations and exceptions as well as notifications for preventing pollution by harmful substances.¹⁰⁹ Annex III comprises regulations aimed at the prevention of pollution by harmful substances transported in packaged form such as packages, freight containers, portable tanks, or tanks for rail or road transport and normally is enforced through flag and port State jurisdiction.¹¹⁰

The main objective of Annex IV of MARPOL 73/78 is to regulate the discharge of sewage from ships into the sea. It administers ships' equipment and systems for the control of sewage discharge and contains provisions on the regulation of facilities at off-shore terminals and ports for the reception of sewage.¹¹¹ Annex V of MARPOL 73/78 regulates the discharge of garbage from vessels into the sea and is intended to reduce solid waste pollution from ships.¹¹² MARPOL Annex V has categorised garbage into four categories; namely, plastic, operational garbage, food waste and ground food waste.¹¹³

least 4 knots (in the case of ships which are not self-propelled). It also allows discharged to be made below the waterline through the underwater discharge outlet(s) not exceeding the maximum rate for which the underwater discharge outlet(s) is/are designed and that the discharge is made in maritime areas of more than 12 nautical miles from the closest shore with the sea depth of more than 25 meters. See Regulations 6(1) of the International Maritime Organization (IMO), 'Revised Annex II of MARPOL 73/78: Resolution MEPC. 188 (52)' (MEPC 52/24/Add.1, IMO, 2004), 1-67; P.G. Wells, T. Höfer and M. Nauke, 'Evaluating the Hazards of Harmful Substances Carried by Ships: The Role of GESAMP and its EHS Working Group' (1999) 237-238 *The Science of the Total Environment*, 334-346.

¹⁰⁹ Edgar Gold, 'Legal Aspects of the Transportation of Dangerous Goods at Sea' (1986) 10(3) *Marine Policy*, 188-189; Edgar Gold, 'Dangerous, hazardous and noxious cargoes: A New Role for Maritime Arbitration' (1990) 14(5) *Marine Policy*, 379-381.

¹¹⁰ International Maritime Organization (IMO), 'Revised Annex III of MARPOL 73/78 (Resolution MEPC. 156(55))' (MEPC 55/23, IMO, 2006), 1-7.

¹¹¹ International Maritime Organization (IMO), 'Revised Annex IV of MARPOL 73/78: Resolution MEPC. 115(51)' (MEPC 51/22, IMO, 2004), 1-13.

¹¹² John R. Henderson, 'A Pre- and Post-MARPOL Annex V Summary of Hawaiian Monk Seal Entanglements and Marine Debris Accumulation in the Northwestern Hawaiian Islands, 1982-1998' (2001) 42(7) *Marine Pollution Bulletin*, 584-585.

¹¹³ MARPOL Annex V puts a total prohibition of the discharge of plastic materials and allows the discharge of operational garbage in areas which are more than 25 nautical miles, food wastes in areas which are more than 12 nautical miles and grinded food waste in areas which is more than 3 nautical miles. See International Maritime Organization (IMO), 'Resolution MEPC.65(37): Amendments to the Annex of the Protocol of 1978 Relating to the International Convention for the Prevention of Pollution from Ships, 1973 (Amendments to Regulation 2 and new Regulation 9 of the Annex V)' (IMO, 1995), 2-3; Christopher C. Joyner and Scot Frew, 'Plastic Pollution in the Marine Environment' (1991) 22(1) *Ocean Development and International Law*, 34-36.

The final annex, Annex VI, is the newest addition to MARPOL 73/78 and came into force on 19 May 2005. Annex VI was introduced to regulate the emission of greenhouse gasses from shipping operations by setting limits on NO_x, SO_x and Non-Methane Volatile Organic Compounds (NMVOC) emissions from ship exhausts and prohibits the deliberate emissions of ozone-depleting substances.¹¹⁴

6.3.4.2 The International Convention on the Control of Harmful Anti-fouling Systems on Ships 2001

The IMO adopted the International Convention on the Control of Harmful Anti-fouling Systems on Ships 2001 (AFS), which prohibits the use of harmful organotins in anti-fouling paints used on ships and at the same time prevents the potential future use of other harmful substances in anti-fouling systems, in October 2001.¹¹⁵ Under the terms of the AFS, which came into force in September 2008, State-parties are required to prohibit and/or restrict the use of harmful anti-fouling systems on ships flying their flags.¹¹⁶ This prohibition also applies to ships not entitled to fly their flags which operate under their authority¹¹⁷ and all ships that enter a port or offshore terminal of a State-party.¹¹⁸

6.3.4.3 The International Convention for the Control and Management of Ships' Ballast Water and Sediments 2004

In 2004 the IMO adopted the International Convention for the Control and Management of Ships' Ballast Water and Sediments 2004 (BWM) to prevent the potentially adverse effects of

¹¹⁴ International Maritime Organization (IMO), 'Revised MARPOL Annex VI: Resolution MEPC.176(58)' (MEPC 58/23/Add.1, IMO, 2008), 1-147.

¹¹⁵ Article 1(1) of the AFS Convention States that 'Each party to this Convention undertakes to give full and complete effect to its provisions in order to reduce or eliminate adverse effects on the marine environment and human health caused by anti-fouling systems'. See International Maritime Organization (IMO), 'International Convention on the Control of Harmful Anti-Fouling Systems on Ships, 2001' (IMO, 2001), 2.

¹¹⁶ Article 3(1)(a) of the AFS prescribes that the AFS shall apply to ships flying the flag of a State-party. See *Ibid.*, 3.

¹¹⁷ Article 3(1)(b) of the AFS specified that the AFS also applies to ships not entitled to fly the flag of a party, but which operate under the authority of a party. See *Ibid.*

¹¹⁸ Article 3(1)(c) of the AFS provides the application of AFS over ships that enter a port, shipyard or offshore terminal of a State-party. See *Ibid.*

the spread of harmful aquatic organisms carried by ships' ballast water from one place to another.¹¹⁹ For now, the BWM is still pending enforcement and will only enter into force 12 months after ratification by 30 States, representing 35 per cent of the world's merchant shipping tonnage.

6.3.5 IMO Conventions on the Safety of Navigation

In addition to providing international rules and regulations on the control of vessel-sources of marine pollution, the IMO has also formulated international rules and regulations on the safety of navigation of vessels. If safe navigation can be promoted, maritime accidents will be avoided, thereby protecting the marine environment from accidental oil and HNS spills. Since 1960, the IMO has adopted the Collision Regulation and this has been followed by the creation of other conventions including the Convention on the International Regulations for Preventing Collisions at Sea 1972 (COLREGs), as amended. COLREGs was introduced to regulate shipping traffic, particularly in busy waterways like the Dover Strait and the Straits of Malacca and Singapore, and came into force on 15 July 1977.¹²⁰ Unlike other IMO Conventions that rely heavily on the

¹¹⁹ Ships carry ballast water to stabilise them when they are not ferrying cargo at sea. The water that they carry onboard ballast tanks have the function of providing stability and enhancing voyage safety, an action described as ballasting. Each year, the world's shipping fleet carries almost 10 billion tonnes of ballast water around the world. Ballast water carries within it invasive marine organism, which when discharged in a new environment, could become pests to local marine communities. See Jeremy Firestone and James J. Corbett, 'Coastal and Port Environments: International Legal and Policy Responses to Reduce Ballast Water Introductions of Potentially Invasive Species' (2005) 36(3) *Ocean Development and International Law*, 291-293; International Maritime Organization (IMO), *International Convention for the Control and Management of Ships' Ballast Water and Sediments* (2011) IMO <[http://www.imo.org/About/Conventions/ListOfConventions/Pages/International-Convention-for-the-Control-and-Management-of-Ships%27-Ballast-Water-and-Sediments-\(BWM\).aspx](http://www.imo.org/About/Conventions/ListOfConventions/Pages/International-Convention-for-the-Control-and-Management-of-Ships%27-Ballast-Water-and-Sediments-(BWM).aspx)>; Stephan Gollasch et al, 'Critical Review of the IMO International Convention on the Management of Ships' Ballast Water and Sediments' (2007) 6 *Harmful Algae*, 585-587; Dennis M. King and Mario N. Tamburri, 'Verifying Compliance with Ballast Water Discharge Regulations' (2010) 41 *Ocean Development and International Law*, 152-154; Brian MacPhee, 'Hitchhikers' Guide to the Ballast water Management Convention: An Analysis of Legal Mechanisms to Address the Issue of Alien Invasive Species' (2007) 10 *Journal of International Wildlife Law and Policy*, 34-35.

¹²⁰ One of the most significant innovations in the 1972 COLREGs was the introduction of traffic separation schemes (TSS). TSS is one of the recognised ways of routeing ships that involves vessels being channeled into lanes or areas of sea so as to reduce risks of grounding, collision or clashes between ships. Being the busiest waterway in the world, the TSS was introduced for the first time in the Dover Strait, initially on a voluntary basis but in 1971, a series of accidents in the English Channel led to calls for making it mandatory. The TSS was implemented in the Straits of Malacca and Singapore in 1977. The LOSC also prescribes the application of TSS for vessels plying through the territorial sea of another State as well as those navigating through straits used for international navigation. The matters on the designation of a TSS are mainly governed by the COLREGs. See International Maritime Organization, *Convention on the International Regulations for Preventing Collisions at Sea, 1972* (2011) International Maritime Organization <[164](http://www.imo.org/OurWork/Safety/Navigation/Pages/Preventing-</p></div><div data-bbox=)

jurisdictions of port and flag States, COLREGs confers regulatory powers upon coastal regions and States bordering straits through the implementation and designation of the Traffic Separation Scheme (TSS) that must be followed by navigating vessels.¹²¹

Besides COLREGs, the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers 1978 (STCW) is also a convention related to ensuring the safety of navigation at sea. STCW prescribes minimum standards relating to training, certification and watchkeeping for seafarers which States are obliged to meet or exceed.¹²² The enforcement of the provisions of the STCW depends substantially on flag and port States jurisdictions.¹²³ Flag States must ensure that ships flying their flags meet the prescribed requirements and port States must forbid ships that have not followed the standards laid down by the STCW to embark upon subsequent voyages.¹²⁴ The STCW came into force on 28 April 1984 and currently has 155 State-parties, representing 98.9 percent of the world's shipping tonnage.

The other convention relating to this matter is the International Convention for the Safety of Life at Sea 1974 (SOLAS), an international convention that relates to the safety of navigation.¹²⁵ SOLAS was formulated with the main objective of stipulating minimum standards for the construction, equipment and operation of ships to facilitate the safe navigation of vessels at sea.¹²⁶ SOLAS relies heavily on flag and port State jurisdiction for its enforcement.

Collisions.aspx>; G. Plant, 'International Traffic Separation Schemes in the New Law of the Sea' (1985) 9(2) *Marine Policy*, 134-135; International Maritime Organization (IMO), 'Resolution A. 375(X): Navigation Through the Straits of Malacca and Singapore' (Res. A.375(X), IMO, 1977).

¹²¹ Article 41(1) of the LOSC states 'In conformity with this Part, States bordering straits may designate sea lanes and prescribe traffic separation schemes for navigation in straits where necessary to promote the safe passage of ships'.

¹²² Nazery Khalid and Cheryl Rita Kaur, 'Status of Ratification of IMO Conventions by Malaysia' (2010) 18(1) *MIMA Bulletin*, 25-29.

¹²³ Erik Jaap Molenaar, *Coastal State Jurisdiction over Vessel-source Pollution* (Kluwer, 1998), 74.

¹²⁴ The Netherlands Institute for the Law of the Sea, *International Organizations and The Law of the Sea* (Kluwer, 2000), 41-42.

¹²⁵ International Maritime Organization (IMO), *International Convention for the Safety of Life at Sea (SOLAS), 1974* (2011) IMO <[http://www.imo.org/about/conventions/listofconventions/pages/international-convention-for-the-safety-of-life-at-sea-\(solas\),-1974.aspx](http://www.imo.org/about/conventions/listofconventions/pages/international-convention-for-the-safety-of-life-at-sea-(solas),-1974.aspx)>.

¹²⁶ Flag States are responsible for ensuring that ships flying their flags to comply with its requirements, and that the vessels have been duly surveyed and certified as prescribed by the SOLAS before embarking upon a voyage. The SOLAS also confers powers on the port States to ensure ships that have not been properly surveyed and certified

The abovementioned conventions provide rules and regulations on the protection of the marine environment from vessel-source pollution. Nevertheless, the provisions of these conventions are not exclusively related to straits used for international navigation. The provision governing environmental safeguards of straits used for international navigation is specifically governed by Article 233 of the LOSC. This particular article is a special provision that underlines the enforcement powers of States bordering straits in regulating shipping transit through territorial straits, which is characteristically different from that of the regime governing the territorial seas. Hence, it is important to appraise and evaluate the effect of the application of Article 233 on the protection and preservation of the marine environment of straits.

6.3.6 Article 233 of the LOSC

As mentioned earlier in Chapter 3 of this Thesis, Article 233 was inserted into the LOSC as a compromise between maritime States and States bordering straits to ensure that the marine environment of straits that form imperative sea lines of communication could be protected from vessel-source pollution. It reads:

Nothing in sections 5, 6 and 7 affects the legal regime of straits used for international navigation. However, if a foreign ship...has committed a violation of the laws and regulations referred to in Article 42, paragraph 1(a) and (b), causing or threatening **major damage** to the marine environment of the straits, the States bordering the straits may take appropriate enforcement measures... (Emphasis added).¹²⁷

As the only legal provision that relates specifically to environmental safeguards with respect to straits used for international navigation, it is therefore crucial to examine the legal effect of Article 233 of the LOSC on the application of the transit passage regime.

accordingly not to sail until they are fit to proceed to sea. See International Maritime Organization (IMO), 'Articles of the International Convention for the Safety of Life at Sea, 1974' in *SOLAS Consolidated Edition, 2004* (IMO, 2004), 1-20.

¹²⁷ As warships are exempted from this provision, States bordering straits have no jurisdiction over these ships as far as the protection and preservation of the marine environment is concerned. See LOSC Art 136; Markus J. Kachel, *Particularly Sensitive Sea Areas: The IMO's Role in Protecting Vulnerable Marine Areas* (Springer-Verlag, 2008), 75-78.

6.3.6.1 The Legal Effect of Article 233 of the LOSC on the Transit Passage Regime

Part III of the LOSC relates specifically to straits used for international navigation. Article 42(1) (a) & (b) of the LOSC allows States bordering straits used for international navigation to pass domestic laws and regulations on the protection of the marine environment which apply to foreign ships transiting such straits. Article 42(1) of the LOSC provides:

Subject to the provisions of this section, 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, as provided in Article 41; (b) the prevention, reduction and control of pollution, by giving effect to applicable international regulations regarding the discharge of oil, oily wastes and other noxious substances in the strait.

If Article 233 of the LOSC is read together with Article 42(1) (a) & (b), it may imply that in the event of a pollution incident, States bordering straits may carry out a physical inspection on the polluting ship to establish the violation,¹²⁸ an act that could be perceived as impeding or hampering navigation.¹²⁹ Nevertheless, this is not as uncomplicated as it may seem to be. Article 233 too must be read together with Article 42(2) of the LOSC that provides:

Such laws and regulations shall not discriminate in form or in fact among foreign ships or in their application have the practical effect of denying, hampering or impairing the right of transit passage...

Part III is also silent on procedural and enforcement matters and does not provide any guidelines for States bordering straits on how to enforce their safety of navigation and marine pollution laws against offending vessels.¹³⁰ In some ways, the collective readings of the provisions of

¹²⁸ Article 220(2) of the LOSC provides ‘Where there are clear grounds for believing that a vessel navigating in the territorial sea of a State has, during its passage therein, violated laws and regulations of that State adopted in accordance with this Convention or applicable international rules and standards for the prevention, reduction and control of pollution from vessels, that State...may undertake physical inspection of the vessel relating to the violation...’.

¹²⁹ Rene-Jean Dupuy and Daniel Vignes, *A Handbook on the New Law of the Sea- Volume 2* (Academie De Droit International, 1991), 967-970.

¹³⁰ Raj Sativale, ‘Transit Passage in the Straits of Malacca’ (2003) *MIMA Bulletin*, 11-12.

Articles 42(1) (a) & (b), Article 42(2) and Article 233 of the LOSC imply that the right of transit passage through straits is inviolable and that the bordering States have no enforcement powers against vessels which breach their safety of navigation and marine pollution laws.¹³¹ Article 233 of the LOSC further imposes a limit on the limits that have been set by Article 42(1) (a) & (b) and Article 42(2).¹³² On this, Kindt explained that:

These provisions basically mean that States bordering narrow straits may enforce the IMO's standard regarding vessel-source pollution. These States may not interfere with the right of transit passage by utilising a claim of protection the marine environment. In any conflict between the rights...of transit passage and the right to protect the marine environment, the freedoms of navigation must prevail.¹³³

This indicates that Article 233 has confirmed the notion that transit passage is non-suspendable and thus reiterates the position of the LOSC in favouring the right of transit passage over the protection of the marine environment of straits.

6.3.6.2 Interpretation of Article 233

Even though Article 233 is a specific provision in the LOSC on environmental safeguards of straits, it has deficiencies in this regard. Firstly, the initial sentence of Article 233 provides that Sections 5, 6 and 7 of Part XII of the LOSC do not affect the legal regime of straits used for international navigation. Sections 5, 6 and 7 of Part XII of the LOSC contain provisions relating to pollution control and matters on the procedural and enforcement measures respectively for States to take action against recalcitrant ships. Therefore the exception of Sections 5, 6 and 7 leave States bordering straits without any procedural and enforcement guidelines to be

¹³¹ Rene-Jean Dupuy and Daniel Vignes, *A Handbook on the New Law of the Sea- Volume 2* (Academie De Droit International, 1991), 967-970.

¹³² *Ibid.*, 968.

¹³³ John Warren Kindt, *Marine Pollution and the Law of the Sea* (William S. Hein & Co., 1986), 1193.

followed.¹³⁴ The second part of Article 233 provides that a State bordering a strait may only take appropriate enforcement measures if:

- (a) A ship has committed a violation of the laws and regulations referred to in Article 42, paragraph 1(a) and (b);¹³⁵
- (b) A ship is causing or threatening to cause major damage to the marine environment of the straits.

Section 5 of Part XII covers the types of pollution that are dealt with by the LOSC, however, Article 233 has expressly excluded the application of Section 5 of Part XII to straits used for international navigation. This leaves a gap in the regulatory regime for protecting and preserving the marine environment of these straits, particularly in relation to the kinds of pollution covered by Article 233. Articles 42(1) (a) & (b) do not appear to be compatible with Article 42(2) which provides that laws and regulations passed by States bordering straits shall not hamper or impair the right of transit passage of navigating vessels. George argues that:

When strait States through their laws and regulations are required to promote safe navigation without correlative powers vested in them to detain ships that violate these laws, such actions could be interpreted as falling within the terms of Article 42(2). It seems therefore that Article 42(1) is nullified by Article 42(2).¹³⁶

In other words, how can States bordering straits take enforcement measures against recalcitrant ships if they are forbidden to hamper or impede the smooth navigation of vessels? It is impractical to take enforcement action against such ships if the option to suspend their transit is unavailable. However, Caminos asserts that States bordering straits do have enforcement safeguards, but that they are only available in certain circumstances. He observes that:

¹³⁴ Mary George, *Legal Regime of the Straits of Malacca and Singapore* (LexisNexis, 2008), 73-77; Jose A. de Yturriaga, *Straits Used For International Navigation: A Spanish Perspective* (Martinus Nijhoff, 1991), 180-183.

¹³⁵ Articles 42(1)(a) & (b) of the LOSC stipulate that States bordering straits may adopt laws on safety of navigation and on prevention, reduction and control of vessel-source of marine pollution by giving effect to applicable international regulations governing these matters.

¹³⁶ Mary George, *Legal Regime of the Straits of Malacca and Singapore* (LexisNexis, 2008), 77.

this provision (i.e. Article 233) confirms the general rule that States bordering straits are not granted enforcement jurisdiction within straits under any circumstances, or in relation to any matter over which they may have regulatory authority, except where a violation of article 42-1(a) and (b) occurs. The specific cross-reference to article 42 limits the applicability of pollution-enforcement safeguards in section 7 of Part XII only to violations of laws and regulations in respect of ‘safety of navigation and regulation of maritime traffic’ and ‘prevention, reduction and control of pollution’.¹³⁷

Caminos’ observation implies that States bordering a strait cannot unilaterally enforce measures to protect the marine environment of the strait *per se*; the environmental protection measures must instead be related to providing or ensuring the safety of navigation of transiting vessels. The second limb of Article 233 emphasises that only pollution to a degree that could cause major damage would allow States bordering straits to take appropriate enforcement action against the offending ship. Reading both limbs together would mean that a strait State can only take enforcement measures under Article 233 when the vessel in question has committed an act or acts in violation of Articles 42(1) (a) & (b) that has caused, or threatens to cause, major damage to the marine environment of the strait.¹³⁸ The question then is what is meant by the terms ‘appropriate enforcement measures’ and ‘major damage’. Does the term ‘appropriate enforcement measures’ connote that States bordering straits could hamper or intercept the passage of vessels?

Before answering this, it is vital to examine what the Vienna Convention on the Law of Treaties 1969 (Vienna Convention) provides. The LOSC is a multilateral treaty and therefore, it should be interpreted in accordance with Article 26 of the Vienna Convention, which provides:

Every treaty in force is binding upon the parties to it and must be performed by them in good faith.¹³⁹

¹³⁷ Hugo Caminos, ‘The Legal Regime of Straits in the 1982 United Nations Convention on the Law of the Sea’ in Academie de Droit International de la Haye (ed), *Rescueil Des Cours, 1987-V* (Kluwer, 1989), 172.

¹³⁸ *Ibid.*, 172-173.

¹³⁹ United Nations (UN), ‘Vienna Convention on the Law of Treaties 1969’ (UN, 2005) <http://untreaty.un.org/ilc/texts/instruments/english/conventions/1_1_1969.pdf>.

The term ‘good faith’ has been commented on in several cases by the International Court of Justice (ICJ). In the *Nuclear Tests Case (Australia-France)*, the court reiterated that one of the basic principles governing the creation and performance of legal obligations, whatever their source, is the principle of good faith. Trust and confidence are inherent in international co-operation, in particular in an age when co-operation in many fields is becoming increasingly essential.¹⁴⁰ In the *Case Concerning the Gabčíkovo-Nagymaros Project (Hungary-Slovakia)*, the ICJ commented that the principle of good faith obliges the parties to apply a treaty in a reasonable way and in such a manner that its purpose can be realised.¹⁴¹ Taking the ICJ’s definition of good faith in the *Gabčíkovo-Nagymaros* case, the reasonable way to apply Article 233 in such a manner that its purpose can be realised is by allowing States bordering straits to intercept or hamper the passage of recalcitrant vessels. This is based on the fact that the reason Article 233 was introduced in the first place is to protect and preserve the marine environment of straits used for international navigation.¹⁴² As Caminos observes:

One of the major concerns of States bordering straits has always been the potential danger to their coastlines presented by various forms of vessel source pollution, particularly oil from tankers, as well as noxious chemicals and other substances...Article 233 of the same Part (Part XII) speaks of pollution control safeguards with respect to straits used for international navigation...

The term ‘good faith’ does carry legal significance as Article 300 of the LOSC provides that ‘State parties shall fulfil in good faith the obligations assumed under this Convention and shall exercise the right, jurisdiction and freedoms recognised in this Convention in a manner which would not constitute an abuse of right’.¹⁴³ However, as far as in justifying States bordering straits

¹⁴⁰ International Court of Justice (ICJ), ‘Nuclear Tests Case (Australia v France), Judgment’ (ICJ, 1974), 268.

¹⁴¹ International Court of Justice (ICJ), ‘Gabčíkovo-Nagymaros Project (Hungary-Slovakia), Judgments’ (ICJ, 1997), 78-79.

¹⁴² Hugo Caminos, ‘The Legal Regime of Straits in the 1982 United Nations Convention on the Law of the Sea’ in Academie de Droit International de la Haye (ed), *Rescueil Des Cours, 1987-V* (Kluwer, 1989), 171-172.

¹⁴³ Chapter 7 of this Thesis discusses the existing co-operation mechanism between the littoral States and the users of the Straits of Malacca and Singapore as recommended in Article 43 of the LOSC. This ongoing Co-operative Mechanism is a good example to illustrate this. Due to the lack of support given on the part of the users particularly private stakeholders of the Straits, there have been calls back in 2007 to propose the littoral States to consider lodging a report to the International Tribunal of the Law of the Sea citing the users for violating Article 300 of the LOSC on good faith and abuse of rights. See Mohd Nizam Basiron, ‘Special Focus: Symposium on the

intercepting the transit of recalcitrant ships is concerned, Article 300 of the LOSC may not carry as much weight as Articles 42(1) (a) & (b), 42(2) and 233 that have explicitly limited the enforcement powers of the States bordering straits in this regard.¹⁴⁴

Furthermore, Article 233 is silent on whether or not the transit passage of such vessels can be terminated or suspended should the vessel commit an act or acts in violation of Articles 233, 42(1) (a) & (b). This omission prompted the Spanish delegation to UNCLOS III to comment on Article 233:

Article 233 has to be considered discriminatory against States bordering straits, inasmuch as it is precisely their geographical narrowness that creates greater risks of accident which could cause damage to the marine environment. Apart from being unjust, this provision is poorly drafted...¹⁴⁵

With regard to the definition of the term ‘major damage’, Nordquist contends that even though the term is not clearly defined, the term can be seen as referring to major maritime calamities in the history of shipping such as Amoco Cadiz and other similar incidents.¹⁴⁶ In addition, Koh suggests that two factors must be considered:

- (a) The occurrence of accidents in the concerned strait as a result of a breach of a navigation rule;¹⁴⁷
- (b) The extent of the damage that occurred depending upon the type of ships and goods carried.¹⁴⁸

Enhancement of Safety of Navigation and the Environmental Protection of the Straits of Malacca and Singapore’ (2007) 14(1) *MIMA Bulletin*, 23-25.

¹⁴⁴ As earlier mentioned, the collective readings of Articles 42(1)(a) & (b), 42(2) and 233 of the LOSC have resulted in the regulatory powers of States bordering straits to be very limited, so much so that transit rights of vessels could not be suspended by utilising a claim to protect the marine environment. See John Warren Kindt, *Marine Pollution and the Law of the Sea* (William S. Hein & Co, 1986), 1193.

¹⁴⁵ Jose A. de Yturriaga, *Straits Used For International Navigation: A Spanish Perspective* (Martinus Nijhoff, 1991), 180.

¹⁴⁶ Myron H. Nordquist, *United Nations Convention on the Law of the Sea 1982: A Commentary (Volume IV)* (Martinus Nijhoff, 1991), 301.

¹⁴⁷ Koh KL, *Straits in International Navigation: Contemporary Issues* (Oceana, 1982), 162-163.

¹⁴⁸ *Ibid.*

Any maritime casualties that occur in straits may cause pollution that would be detrimental to the economic survival of the States bordering them. Therefore, if the views by Nordquist and Koh are put together, the term major damage could be defined and interpreted as ‘any forms of pollution caused by navigating vessels that may socio-economically affect the well-being of the coastal population that benefits directly or indirectly from the economic activities generated from the usage of the straits’. Beckman comments on the effect of the phrase ‘major damage’ to the enforcement powers of States bordering straits as follows:

If a vessel exercising the right of transit passage violates obligations under Article 39(2)¹⁴⁹, but the vessel in question does not come into port, and the violation in question does not cause or threaten major damage to the marine environment of the straits, the rights of the littoral State are more limited. The littoral State would not have the right to interfere with the passage of the vessel or a right to arrest it. However, the littoral State would not be without a remedy. It could make a formal complaint to the flag State of the offending vessel, alleging violation of the 1982 UNCLOS.¹⁵⁰

Beckman’s interpretation is that until the term ‘major damage’ is clearly defined, the powers of States bordering straits to intercept the passage of vessels in straits used for international navigation remains limited.

Given the ambiguous wording of Article 233, consultations were held among delegations from the States bordering straits during the UNCLOS III negotiations to reach a common understanding regarding the purpose and meaning of Article 233 of the LOSC in its application to the Straits of Malacca and Singapore.¹⁵¹ A letter was sent by the representative of Malaysia, Z.B.M. Yatim, to the President of UNCLOS III containing an annex which indicated the understandings reached and the statement made relating to Article 233 of the draft convention on

¹⁴⁹ Article 39(2) of the LOSC underlines the duties of ships whilst transiting straits used for international navigation. Ships exercising transit passage must comply with generally accepted international regulations, procedures and practices for safety at sea as well as for the prevention, reduction and control of pollution from ships. See Section 4.2.2 of Chapter 4 of this Thesis.

¹⁵⁰ Robert Beckman, ‘Transit Passage Regime in the Straits of Malacca : Issues for Consideration’ (Paper presented at the Building A Comprehensive Security Environment in the Straits of Malacca, Kuala Lumpur, 2004), 250.

¹⁵¹ United Nations, ‘DOCUMENT A/CONF.62/L.145 : Letter dated 28 April from the representative of Malaysia to the President of the Conference’ (A/CONF.62/L.145, United Nations, 1982).

the Law of the Sea in its application to the Straits of Malacca and Singapore.¹⁵² The understandings were:

- (a) Laws and regulations enacted by States bordering straits under Article 42(1) (a) refer to laws and regulations on TSS and the determination of under keel clearance;¹⁵³
- (b) Any violation on the limitation of under keel clearance would be deemed to be a violation of Article 233, and States bordering the Straits of Malacca and Singapore may take appropriate enforcement measures as provided by Article 233 to prevent the passage of the vessel. Such an act cannot be deemed as hampering, denying and impairing transit passage as enumerated in Article 42 of the LOSC;¹⁵⁴
- (c) States bordering the Straits of Malacca and Singapore may take appropriate enforcement measures against ships that have caused or are threatening to cause major pollution to the marine environment of the Straits;¹⁵⁵
- (d) Although the wording of Article 233 has excepted the application of Sections 5, 6 and 7 of Part XII, States bordering the Straits of Malacca and Singapore may observe the provisions on safeguards in Section 7 of Part XII in taking appropriate enforcement measures as provided in Article 233 against recalcitrant ships;¹⁵⁶
- (e) Article 42 and 233 do not affect the rights of States bordering straits to take action against ships which are not in the exercise of transit passage;¹⁵⁷
- (f) Anything contained in the letter regarding Article 233 is not intended to impair the sovereign immunity of ships enumerated in Article 236 and the duties of ships and aircraft during transit passage in Article 39.¹⁵⁸

¹⁵² Ibid.

¹⁵³ Ibid.

¹⁵⁴ Ibid.

¹⁵⁵ Ibid.

¹⁵⁶ Ibid.

¹⁵⁷ Ibid.

¹⁵⁸ Myron H. Nordquist, *United Nations Convention on the Law of the Sea 1982: A Commentary (Volume IV)* (Martinus Nijhoff, 1991), 388-389.

Letters signed by both Indonesia's M. Kusumaatmadja¹⁵⁹ and Singapore's T.T.B. Koh¹⁶⁰ confirm the statement and the contents of the letter sent by Malaysia's representative. These understandings were subsequently acknowledged by the main user States of the Straits; namely, Australia, France, Germany, Indonesia, Japan, the United Kingdom and the United States.¹⁶¹ As a result, Article 233 was attributed to Malaysia.¹⁶² By way of these understandings, the determination of under keel clearance is brought within the scope of Articles 41 and 42(1) (a) of the LOSC, and the violation of under keel clearance limits is deemed a violation of Article 233.¹⁶³

From the wording of Malaysia's letter, it seems that the understanding was only intended to be effective in relation to the navigational safety measures of that time. For instance, the understanding refers to laws and regulations under Article 42(1) (a) on TSS and the determination of under keel clearance and do not refer to prospective measures on the safety of navigation and marine environmental protection such as the ongoing development of the Marine Electronic Highway (MEH) project, the potential designation of all or part of the Straits of Malacca and Singapore as a Particularly Sensitive Sea Area (PSSA) and as a Special Area under MARPOL 73/78.¹⁶⁴ Could States bordering straits intercept the transit of vessels violating these subsequently introduced navigation safety measures? This remains open to question until these future measures are fully implemented in the Straits of Malacca and Singapore and they have been considered by member States of the IMO.

¹⁵⁹ United Nations, *DOCUMENT A/CONF.62/L.145/ADD.1*, United Nations Conferences on the Law of the Sea Official Records (William S. Hein & Co, 2000), 250-251.

¹⁶⁰ United Nations, *DOCUMENT A/CONF.62/L.145/ADD.2*, United Nations Conferences on the Law of the Sea: Official Records (William S. Hein & Co, 2000), 250-251.

¹⁶¹ Erik Jaap Molenaar, *Coastal State Jurisdiction over Vessel-source Pollution* (Kluwer, 1998), 316-318.

¹⁶² Mary George, 'Transit Passage and Pollution Control in Straits under the 1982 Law of the Sea' (2002) 33(2) *Ocean Development and International Law*, 198.

¹⁶³ Erik Jaap Molenaar, *Coastal State Jurisdiction over Vessel-source Pollution* (Kluwer, 1998), 316-318.

¹⁶⁴ The discussion on MEH is dealt in Section 7.3 of Chapter 7 of this Thesis. The discussion on potential designation of the Straits of Malacca and Singapore as a PSSA or a Special Area is elaborated in Sections 8.2 and 8.3 of Chapter 8 of this Thesis.

George contends that the legal validity of the letter from the Malaysian representative to UNCLOS III may be questioned.¹⁶⁵ It is not an amendment to Article 233 as it was only a letter written by the representative of Malaysia to the President of the Conference.¹⁶⁶ She argues that the statement has very limited legal significance for the user States.¹⁶⁷ However, this may not be entirely true. In 1977, the IMO came up with Resolution A.375(X) that set out the provisions pertaining to the TSS designation and the minimum under keel clearance requirement of 3.5 metres.¹⁶⁸ Therefore, the letter, which was issued later in 1982, indeed had legal significance as it had the effect of reiterating the application of TSS and the minimum under keel clearance requirement in the Straits of Malacca and Singapore that, thus far, have been strictly followed by ships plying the Straits.

6.3.6.2.1 The Application of Article 233 in State Practices

The application of Article 233 can be seen in State practice in the Straits of Malacca and Singapore themselves. Statistics show that between the 19-year period of 1975–2000, there were six casualties that took place in the Straits of Malacca and Singapore which have caused major damage to the marine environment of the Straits.¹⁶⁹ Those that took place after 1994, the year when the LOSC came into force, include the grounding of the MT Natuna Sea in 2000, the collision of the MV Ostende Max with the MT Formosa Product Brick in 2009 as well as the collision between the MV Waily and MT Bunga Kelana 3 in 2010. These incidents are good examples of the application of Article 233 by littoral States of the Straits of Malacca and Singapore.

¹⁶⁵ Mary George, *Legal Regime of the Straits of Malacca and Singapore* (LexisNexis, 2008), 79.

¹⁶⁶ *Ibid.*

¹⁶⁷ *Ibid.*

¹⁶⁸ International Maritime Organization (IMO), 'Resolution A. 375(X): Navigation Through the Straits of Malacca and Singapore' (Res. A.375(X), IMO, 1977).

¹⁶⁹ Mohd Nizam Basiron and Tan Kim Hooi, 'The Environmental Impact of Increased Vessel Traffic in the Straits of Malacca and Singapore' (2007) 14(1) *MIMA Bulletin*, 16.

The grounding of the MT Natuna Sea took place on 3 October 2000 in an area near the Sambu Islands in Indonesian territory.¹⁷⁰ The Sambu Islands are located in the Strait of Singapore between Singapore and Batam Island. The tanker, carrying about 523,088 barrels of crude oil struck a reef in Batam waters, spilling approximately 20 per cent of its total cargo.¹⁷¹ The grounding resulted in major pollution to Indonesian waters, causing the Indonesian authorities to suspend the passage of the vessel and to detain it in Batam.¹⁷² Subsequently, the Batam local government signed a Memorandum of Understanding with the London Steam Ship Owners Mutual Insurance Association Ltd, the insurer of the vessel, to release the vessel with a guaranteed bond for it to sail to Singapore for dry docking.¹⁷³

In 2009, a British registered tanker, MV Ostende Max, collided with the MT Formosa Product Brick, a Liberian-flagged tanker, causing minor naphtha spills in the Strait of Malacca off the coast of Port Dickson.¹⁷⁴ The collision set the MT Formosa Product Brick ablaze.¹⁷⁵ Even though the spill was minor, due to the fact that the collision had damaged both tankers, resulting in them being rendered unfit for navigation, with both tankers remaining at sea and thus at risk of causing or threatening to cause major damage to the marine environment of the Strait, the passages of both vessels were suspended and they were anchored off Port Dickson's port limit.¹⁷⁶

The application of Article 233 of the LOSC can also be illustrated in the 2010 collision between the MV Waily and MT Bunga Kelana 3 in the TSS area within the Strait of Singapore.¹⁷⁷ As a result of the collision, both vessels sustained damage and the MT Bunga Kelana 3 spilled about

¹⁷⁰ Etty R. Agoes, 'Indonesia's Law and Regulations Concerning Pollution of the Sea By Oil: Case Studies on Compensation For Oil Pollution Damages' in Michael Faure and James Hu (eds), *Prevention and Compensation of Marine Pollution Damage: Recent Developments in Europe, China and the US* (Kluwer, 2006), 114-115.

¹⁷¹ Ibid.

¹⁷² Ibid.

¹⁷³ Ibid.

¹⁷⁴ Heidi Foo, 'Nine Sailors Feared Dead', *New Straits Times* (Port Dickson), 2009.

¹⁷⁵ BERNAMA, *No Oil Spills Near Burning Tanker* (2009) Bernama.com <<http://web7.bernama.com/maritime/news.php?id=434366&lang=en>>.

¹⁷⁶ Heidi Foo, 'Nine Sailors Feared Dead', *New Straits Times* (Port Dickson), 2009.

¹⁷⁷ Maritime and Port Authority of Singapore (MPA), *Collision Between MT Bunga Kelana 3 and MV Waily in the Singapore Strait* (2010) MPA <http://www.news.gov.sg/public/sgpc/en/media_releases/agencies/mpa/press_release/P-20100525-1.html>.

2,000 tonnes of light crude oil into the sea.¹⁷⁸ Subsequently, the passage rights of both vessels were suspended and they were anchored in the Port of Singapore.¹⁷⁹

6.3.6.2.2 Defining ‘Major Damage’

Despite there not being a proper definition of the meaning of ‘major damage’ in the LOSC, State practice as described in these three instances demonstrates that the term is being interpreted consistently with the combined views of Koh and Nordquist on this matter; that is to say. the meaning ‘major damage’ refers to oil spill incidents that have devastating effects such as those of the Exxon Valdez or Amoco Cadiz and where such incidents may cause or are likely to cause environmental harm to the coastal population.¹⁸⁰ As far as the enforcement powers of States bordering straits are concerned, this definition seems to be the most feasible and based on the examples given above, has virtually been adopted into practice. These instances of State practice tend to show that States bordering straits have the power to suspend vessels exercising transit passage should they cause major damage to the Straits. Therefore, Kindt’s view that the LOSC favours transit passage over the protection of the marine environment is accurate, but this may only be the case as long as ships in transit do not cause major pollution of the marine environment of the straits. However these relatively few instances of State practice do not entirely clarify the term ‘major damage’ and the meaning of the term could still be debated.

George has argued that ‘so-called’ unimpeded transit passage for all ships should be equitably adjusted to logically enable States bordering straits to properly exercise their regulatory and enforcement powers against recalcitrant ships.¹⁸¹ The lack of a precise definition of ‘major damage’ in the LOSC results in transiting vessels being permitted to pollute the marine environment of the straits without enforcement consequences if the damage caused is relatively

¹⁷⁸ See Table 5-8 of Chapter 5 of this Thesis.

¹⁷⁹ Maritime and Port Authority of Singapore (MPA), *Collision Between MT Bunga Kelana 3 and MV Waily in the Singapore Strait* (2010) MPA <http://www.news.gov.sg/public/sgpc/en/media_releases/agencies/mpa/press_release/P-20100525-1.html>.

¹⁸⁰ Myron H. Nordquist, *United Nations Convention on the Law of the Sea 1982: A Commentary (Volume IV)* (Martinus Nijhoff, 1991), 301.

¹⁸¹ Mary George, *Legal Regime of the Straits of Malacca and Singapore* (LexisNexis, 2008), 84.

minor. If the term ‘major damage in Article 233’ is interpreted in a restrictive way, this could be viewed as a violation of Article 192, which is the general obligation in Part XII that requires States to protect and preserve the marine environment. Undeniably, the core difficulty is that there is no definition for major or minor damage provided in the LOSC.¹⁸² Article 233 needs further interpretation to be effective.¹⁸³ It could be argued that Article 233 is contrary to one of the key objectives of the preamble of the LOSC, which is to promote ‘a legal order for the seas and oceans which will facilitate international communication, and will promote the...protection and preservation of the marine environment’. To remedy this inconsistency, Article 233 could be amended taking into considerations the following matters:

- (a) There could be a clear nexus between Part III of the LOSC and Article 233;¹⁸⁴
- (b) Since Sections 5, 6 and 7 of Part XII are not applicable in so far as Article 233 is concerned, specific provisions on procedural and enforcement guidelines could be articulated in relation to marine pollution in straits used for international navigation. In other words, Article 233 could clarify whether the States bordering straits have the right to suspend the transit of vessels should they violate or abuse their transit passage rights by polluting the marine environment of the strait;¹⁸⁵
- (c) The phrase ‘major damage’ in Article 233 should be adequately defined;¹⁸⁶
- (d) The application of Articles 42(2) and 44 on non-suspension of transit passage could be qualified to take into account instances of major pollution by transiting vessels;
- (e) Like the regime of innocent passage where the LOSC explains the circumstances of which the passage is deemed to be no longer innocent, the LOSC could also clearly enunciate when and how transiting ships and vessels cease to exercise the right of transit passage and what are the rights of littoral States to prevent passage which breaches other provisions of the LOSC relating to marine pollution;

¹⁸² Mary George, *An Alternate Regime of Liability and Compensation For Oil Pollution From Tankers in the Straits of Malacca and Singapore* (Doctor of Philosophy Thesis, University of Sydney, 2000), 236-237.

¹⁸³ Ibid.

¹⁸⁴ Mary George, *Legal Regime of the Straits of Malacca and Singapore* (LexisNexis, 2008), 73-77.

¹⁸⁵ Ibid.

¹⁸⁶ Ibid.

- (f) Since Article 233 excludes the application of Section 5 of Part XII, the article could stipulate the types of pollution it deals with;¹⁸⁷
- (g) Given that Article 233 does not stipulate any links with Part III of the LOSC, there should be an explanation on how it is to be applied; does it apply to all straits used for international navigation or only is restricted to straits where transit passage is applicable? This would take into account the fact that not all straits used for international navigation are subjected to the regime of transit passage.

As earlier explained in Chapter 4, there are two types of straits used for international navigation; namely, straits where transit passage applies and straits where transit passage does not apply. Since there is no nexus between Article 233 and Part III of the LOSC, it is unclear which type of straits it applies to. Article 233 of the LOSC mentions specifically that States bordering straits may take action against any ships that have breached their marine pollution laws enacted based on the provision of Article 42(1) of the LOSC. Article 42(1) states that:

Subject to the provisions of this section, States bordering straits may adopt laws and regulations relating to **transit passage** through straits...

It is clear from the wordings of Article 42(1) that it is explicitly related to transit passage. Hence, from this explanation, it could be understood that Article 233 of the LOSC may apply only to straits used for international navigation where transit passage is applicable. This is further discussed and deliberated in Chapter 9 of this Thesis.

As global shipping has steadily risen, the LOSC and the related IMO conventions have been significant in curtailing the risk of marine pollution generated from vessels and ships and ensuring safe navigation at sea. Singapore and Port Klang are among the busiest ports in the world situated along the Straits of Malacca and Singapore.¹⁸⁸ It is therefore crucial to briefly examine the incorporation of the international law provisions on protection of the marine environment of straits into the littoral States' domestic applications.

¹⁸⁷ Ibid., 71-73.

¹⁸⁸ See Table 2-10 of Chapter 2 of this Thesis.

6.4 THE INCORPORATION OF INTERNATIONAL REGULATIONS INTO DOMESTIC APPLICATIONS

Treaties are made to be upheld or performed in good faith.¹⁸⁹ *Pacta sunt servanda* is the fundamental principle of customary international law and it has been crystallised in Article 26 of the Vienna Convention on the Law of Treaties 1969 (Vienna Convention), which reads ‘Every treaty in force is binding upon the parties to it and must be performed in good faith’. International law, including the law of treaties, applies to States as the integral actors in international law.¹⁹⁰

Each State has its own ways of incorporating international treaties into its domestic law. As a member of the Commonwealth that follows the British system, the legislative power in Malaysia is vested in the Parliament.¹⁹¹ Therefore, any international treaties, conventions or pacts will only become part of Malaysian law when the Parliament passes a statute, giving legal effect to the treaty in Malaysia.¹⁹²

Indonesia has its own procedures for ratifying international treaties. The government of the Republic of Indonesia has issued Law No. 24 Year 2000 (Law 24/2000) that deals with this matter.¹⁹³ Article 3 of Law 24/2000 provides that Indonesia may bind itself to international treaties by signature, accession, exchange of documents and any other means agreed by the contracting parties. Article 10 of Law 24/2000 reads:

¹⁸⁹ Malgosia Fitzmaurice and Olufemi Elias, *Contemporary Issues in the Law of Treaties* (Eleven International, 2005), 2-3.

¹⁹⁰ Anthony Aust, *Handbook of International Law* (Cambridge University Press, 2005), 13-14.

¹⁹¹ Article 74(1) of the Federal Constitution of Malaysia states ‘Without prejudice to any power to make laws conferred on it by any other Article, Parliament may make laws with respect to any matters...’.

¹⁹² Abdul Ghafur Hamid @ Khin Maung Sein, ‘Malaysia’s Commitments Under International Convention and the Need for a Harmonized Legal Regime Regulating Marine Pollution’ (2007) 6 *Malayan Law Journal*, 124-148.

¹⁹³ Sekretariat Negara Republik Indonesia, ‘Undang-undang Republik Indonesia Nomor 24 Tahun 2000’ (2000) <http://www.setneg.go.id/index.php?option=com_perundangan&id=233&task=detail&catid=1&Itemid=42&tahun=2000>.

An international treaty shall be incorporated by way of a law when it involves these following matters:

- a. politics, peace, defence and internal security;
- b. alterations or delimitations of the territory of Indonesia;
- c. sovereignty or sovereign rights of the nation;
- d. human rights and the environment;
- e. the formation of a new legal norm;
- f. foreign loans and/or grant-aid.¹⁹⁴

Article 11 of Law No. 24/2000 elucidates that treaties that do not involve matters stipulated in Article 10 of Law No. 24/2000 would be ratified by way of a presidential decree.¹⁹⁵ Therefore, as far as treaties or conventions on maritime and navigational matters are concerned, they would be ratified by way of a law as they fall under the category of State security, sovereignty and the environment. Article 13 of Law 24/2000 further provides that every law or presidential decree concerning the ratification of a treaty shall be published in the State Gazette.¹⁹⁶

Like Malaysia, Singapore follows the British system of allowing the executive to act as the main institution in treaty-making.¹⁹⁷ The Singaporean practice generally requires that an international treaty be first incorporated into Singaporean law before it takes effect in the national system.¹⁹⁸ In other words, international treaties cannot be incorporated into national law without corresponding national laws.¹⁹⁹ Table 6-2 below summarises the maritime-related conventions ratified by Malaysia, Indonesia and Singapore:

¹⁹⁴ Ibid.

¹⁹⁵ Ibid.

¹⁹⁶ Ibid.

¹⁹⁷ Simon SC Tay, 'The Singapore Legal System and International Law: Influence or Interference' in Kevin YL Tan (ed), *The Singapore Legal System* (Singapore University Press, 1989) , 471-473.

¹⁹⁸ Ibid.

¹⁹⁹ Ibid.

Name of Convention	Malaysia	Singapore	Indonesia
International Maritime Organisation (IMO) Convention 1948	Ratified	Ratified	Ratified
International Convention for the Safety of Life at Sea 1974 (SOLAS)	Ratified	Ratified	Ratified
Convention on the International Regulations for Preventing Collisions at Sea, 1972 (COLREGs)	Ratified	Ratified	Ratified
International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 (STCW)	Ratified	Ratified	Ratified
International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78) Annex I & II	Ratified	Ratified	Ratified
MARPOL 73/78 Annex III	Ratified	Ratified	
MARPOL 73/78 Annex IV	Ratified	Ratified	
MARPOL 73/78 Annex V	Ratified	Ratified	
MARPOL 73/78 Annex VI	Ratified	Ratified	
United Nations Convention on the Law of the Sea 1982 (LOSC)	Ratified	Ratified	Ratified
Anti-Fouling Convention 2001		Ratified	
Ballast Water & Sediments Convention	Has yet to enter into force		

Table 6-2: Maritime-Related Conventions Ratified by Malaysia, Singapore and Indonesia
(Source: Rusli (2010))²⁰⁰

This table shows that the littoral States of the Straits of Malacca and Singapore have signed and ratified the main IMO Conventions on control of vessel-source marine pollution and safety of navigation. This is a good initiative, as it ensures that the laws of the littoral States on environmental management of the Straits of Malacca and Singapore are up to international standards. Based on earlier discussion, given that most of these IMO Conventions are primarily enforced through the powers of either the flag and/or port States, this effort may not be entirely sufficient to ensure that the marine environment of the Straits of Malacca and Singapore is effectively protected. More than half of the vessels transiting the Straits do not call at any of the ports of the littoral States along the Straits of Malacca and Singapore, and most vessels that transit the Straits do not fly the flags of the littoral States.²⁰¹

²⁰⁰ Mohd Hazmi bin Mohd Rusli, 'The Incorporation of International Law Rules in Regulating Shipping in Straits of Malacca and Singapore: A Study of the Littoral States' National Laws and Policies' (Paper presented at the Third International Conference on International Studies, Kuala Lumpur, 2010).

²⁰¹ Joshua H. Ho, 'Enhancing Safety, Security and Environmental Protection of the Straits of Malacca and Singapore: The Co-operative Mechanism' (2009) 40(2) *Ocean Development and International Law*, 242-243; Mohd Hazmi bin Mohd Rusli, 'The Application of Compulsory Pilotage in Straits Used for International Navigation: A Study of the Straits of Malacca and Singapore' (Paper presented at the 4th Oceanic Conference on International Studies, Auckland, 2010); Mark J. Valencia, *Co-operation in the Malacca and Singapore Straits: A Glass Half-Full* (2010) Nautilus Institute for Security and Sustainability

Even if the littoral States have properly incorporated these international regulations into domestic applications, their powers still remain limited as these States may only formulate laws by giving effect to accepted international regulations as provided for by Part III of the LOSC. This restriction, stipulated under international law, would affect the operations of the domestic legislations, which are devised based on accepted international standards. International law, through the LOSC, does not confer enforcement powers upon States bordering straits to hamper or impede vessels exercising the right of transit passage.

Not all provisions of the conventions ratified by the littoral States have been incorporated into the domestic legislation of Malaysia, Indonesia and Singapore. A good example is on Part III of the LOSC governing the passage of vessels transiting straits used for international navigation. Indonesia is the only littoral State that has enacted laws on the application of transit passage through the Indonesian side of the Straits of Malacca and Singapore.²⁰² However, there is no domestic provision in Indonesia that covers the application of Article 233 of the LOSC on environmental safeguards in straits used for international navigation. Malaysian and Singaporean domestic law is silent on transit passage, as well as on Article 233 of the LOSC.²⁰³ This would create a situation which may be described as a lacuna within a lacuna.

<<http://www.nautilus.org/publications/essays/napsnet/forum/security/06103Valencia.html/>>; Table 2-7 of Chapter 2 of this Thesis shows that in 2007, most vessels that navigated the Straits of Malacca and Singapore were either Panamanian or Liberian-flagged vessels.

²⁰² Article 13(1) of the Government Regulation No. 36 Year 2002 on the Rights and Duties of Foreign Vessels in Exercising Innocent Passage through Indonesian waters provides for the application of transit passage through Indonesian waters forming straits used for international navigation namely the Straits of Malacca and Singapore. See Badan Pengawasan Keuangan dan Pembangunan, *Peraturan Pemerintah Nomor 36 Tahun 2002 Tentang Hak dan Kewajiban Kapal Asing Dalam Melaksanakan Lintas Damai Melalui Perairan Indonesia* (2002) Badan Pengawasan Keuangan dan Pembangunan <<http://www.bpkp.go.id/unit/hukum/pp/2002/036-02.pdf>>.

²⁰³ Even though Singaporean laws are silent on transit passage, Singapore has issued a number of Port Marine Circulars enforced under the Maritime and Port Authority Act on navigation through Straits of Malacca and Singapore. For example, Port Marine Circular No. 65 of 1998 provides for the application of the mandatory ship reporting system in the Straits of Malacca and Singapore. In addition, Port Marine Circular No. 20 of 2006 stipulates the rules on safety of navigation in the Singapore Strait while Port Marine Circular No. 13 of 1999 governs the navigation in the Singapore Strait TSS. See Maritime and Port Authority of Singapore (MPA), *Port marine circulars* (2009) MPA <http://www.mpa.gov.sg/sites/port_and_shipping/circulars_and_notices/port_marine_circulars.page>. Like Singapore, Malaysian law has no provisions on the transit passage regime. Malaysia has a regulation namely the Merchant Shipping (Collision Regulations) (Rules for Vessels Navigating through the Straits of Malacca and Singapore) Order which regulates vessels transiting the Malaysian side of the Straits of Malacca and Singapore. This regulation incorporated the IMO Resolution A. 375(X) on Navigation through the Straits of Malacca and Singapore into the Malaysian domestic application. See Mohd Hazmi bin Mohd Rusli, 'The Incorporation of International Law Rules in Regulating Shipping in Straits of Malacca and Singapore: A Study of the Littoral States' National Laws and Policies' (Paper presented at the Third International Conference on International Studies, Kuala Lumpur, 2010).

It is an established fact that the application of the transit passage regime has placed the littoral States in a disadvantaged position, where these States have no power to impede or hamper the passage of transiting ships.²⁰⁴ The littoral States can detain vessels that do not comply with the laws and regulations on marine pollution only if these vessels enter or call at any of their ports.²⁰⁵ The failure of the littoral States to enact domestic laws on transit passage complicates this situation. This is based on the fact that there are no domestic laws governing transit passage while this is the navigational regime exercised by the approximately 399 vessels passing the Straits of Malacca and Singapore every day.²⁰⁶

Should an offending vessel violate any rules of transit passage as stipulated in Article 233 of the LOSC, it would thus be difficult for the littoral States to take action against the offending vessel as there are no domestic provisions on the application of the transit passage regime to be referred to. The already limited powers conferred by the LOSC through the regime of transit passage are rendered even more limited by the absence of domestic provisions governing the passage of vessels through the Straits of Malacca and Singapore. Ultimately, the littoral States may have to directly refer to the provisions of the LOSC and not their domestic provision governing the transit passage regime.

6.5 CONCLUSION

Following the introductory section, the second part of this Chapter examined and analysed the key conventions relating to the protection and preservation of the marine environment of straits used for international navigation. The LOSC is now regarded as the constitution that governs the laws on the protection and preservation of the marine environment. It acknowledges and recognises the operations of many important international conventions; namely, MARPOL 73/78, COLREGs and SOLAS, all of which were created by the IMO. Part XII of the LOSC

²⁰⁴ Article 44 of the LOSC stipulates that ‘States bordering straits shall not hamper transit passage... There shall be no suspension of transit passage’.

²⁰⁵ Mary George, *Legal Regime of the Straits of Malacca and Singapore* (LexisNexis, 2008), 284.

²⁰⁶ Shigeki Sakamoto, ‘Non-State Actors’ Role in the Co-operative Mechanism for the Straits of Malacca and Singapore- Seeking to Substantiate UNCLOS Article 43’ (Paper presented at the International Symposium on Safety and Protection of the Marine Environment in the Straits of Malacca and Singapore, Kuala Lumpur, 2008), 2.

confers an obligation on all States to devise and formulate international regulations to protect and preserve the marine environment.

The issue raised in the third part of this Chapter is on the nexus between Part III and Article 233 of Part XII of the LOSC, which is unclear. The language used in Article 233 is ambiguous, to the extent that it can cause confusion in its implementation. Article 233 only allows the littoral States to take appropriate measures against vessels transiting straits used for international navigation if they have caused ‘major damage’ to the marine environment of the strait. As a result of the uncertainty in the interpretation of the term ‘major damage’, it is arguable that transiting vessels may indirectly be permitted to pollute the strait if the pollution is minor.

The fourth part of this Chapter briefly discussed the status of the littoral States’ ratification of the related IMO conventions on safety of navigation and the control of vessel-source pollution. The key point drawn here is that the LOSC has placed limitations on the littoral States, to the extent that they may only formulate laws by giving effect to the accepted international regulations. The limitations stipulated under international law affect the operations of the domestic legislation that are formulated based on the accepted international standards.

Based on these findings, this Chapter concludes firstly that Article 233 of the LOSC is not effective in assisting the States bordering straits to protect and preserve the marine environment of their territorial straits. Second, it is not too simplistic to contend that the LOSC favours shipping over the protection of the marine environment of straits.

In order to remedy the limited enforcement powers of States bordering straits, the LOSC has recommended that voluntary co-operation should be fostered between States bordering straits and the user States to protect and preserve the marine environment of straits. The co-operative mechanisms operating in the Straits of Malacca and Singapore are discussed further in Chapter 7 of this Thesis.

CHAPTER 7. INTERNATIONAL AND REGIONAL CO-OPERATION FRAMEWORKS

7.1 INTRODUCTION

The LOSC has provided the international legal framework on environmental safeguards with respect to the protection of straits from vessel-source marine pollution. However, the current legal framework confers limited enforcement powers on States bordering straits as transit passage is a navigational right that could not be suspended.¹ Therefore, Article 43 was inserted in the LOSC with the objective of encouraging States bordering straits, as well as the user States, to work together and co-operate in managing the marine environment of straits.²

This Chapter is structured into four parts. The first part discusses the application of Article 43 of the LOSC on the Straits of Malacca and Singapore. The second part focuses on the global level co-operation between the littoral States and the user States. The third part elaborates on the co-operation forged between the littoral States at the regional level under the Tripartite Technical Experts Group (TTEG). The fourth part of the Chapter concludes that the current co-operation frameworks have not been effective in protecting the marine environment of the Straits of Malacca and Singapore from the effects of heavy shipping activities.

* This Chapter has been published (wholly or in part) in the following peer-reviewed journals:

- (a) Mohd Hazmi bin Mohd Rusli, 'The Legal Feasibility of the Imposition of a Traffic Limitation Scheme in Straits Used for International Navigation: A Study of the Straits of Malacca and Singapore' (2011) 1(6) *International Journal of Humanities and Social Science*, 122-130;
- (b) Mohd Hazmi bin Mohd Rusli, 'The Application of Compulsory Pilotage in Straits Used for International Navigation: A Study of the Straits of Malacca and Singapore' (2011) 3(4) *Asian Politics & Policy*, 501-526;
- (c) Mohd Hazmi bin Mohd Rusli, 'The Legal Feasibility of Imposing Shipping Controls in Straits Used for International Navigation: A Study of the Straits of Malacca and Singapore' (2011) 2(9) *OIDA International Journal of Sustainable Development*, 69-82;
- (d) Mohd Hazmi bin Mohd Rusli, 'Protecting Vital Sea Lines of Communication: A Study of the Proposed Designation of the Straits of Malacca and Singapore as a Particularly Sensitive Sea Area' (2012) 57 *Ocean & Coastal Management*, 79-94.

¹ Article 44 of the LOSC stipulates that 'States bordering straits shall not hamper transit passage... There shall be no suspension of transit passage'.

² Satya N. Nandan, 'The Management of Straits used for International Navigation: International Cooperation in Malacca and Singapore Straits' (1999) 3 *Singapore Journal of International & Comparative Laws*, 433-436.

7.2 ARTICLE 43 OF THE LOSC

Most straits around the world, such as the Strait of Dover, the Strait of Gibraltar and the Straits of Malacca and Singapore are busy international maritime chokepoints and therefore they are likely to be highly exposed to the threats of marine pollution.³ The issue relating to compensation to States bordering straits was discussed by the Sea-Bed Committee during UNCLOS III.⁴ Considering the significant duties of States bordering straits to maintain and facilitate safe passage, which could be expensive, Malta proposed the establishment of a charging mechanism scheme to impose equitable charges without discrimination that would be payable by all vessels using the straits.⁵

Malaysia also submitted an informal proposal on provisions for levying charges on foreign ships.⁶ Nevertheless, these proposals did not receive sufficient support from UNCLOS III delegates.⁷ In attempting to balance the needs of the maritime States as well as States bordering straits, the UK proposed to include a provision that may allow both to co-operate in safeguarding the marine environment of straits.⁸ This proposal from the UK was supported and was inserted into the LOSC as Article 43, which reads:

User States and States bordering a strait should by agreement cooperate:

- (a) in the establishment and maintenance in a strait of necessary navigational and safety aids or other improvements in aid of international navigation; and;
- (b) for the prevention, reduction and control of pollution from ships.

³ See Section 5.2.2 of Chapter 5 of this Thesis.

⁴ Myron H. Nordquist (ed), *United Nations Convention on the Law of the Sea 1982: A Commentary (Volume II)*, Second Committee: Articles 1 to 85, Annexes I and II and Final Act, Annex II (Martinus Nijhoff, 1993), 380-383; See Section 3.3.1.3 of Chapter 3 of this Thesis.

⁵ Myron H. Nordquist (ed), *United Nations Convention on the Law of the Sea 1982: A Commentary (Volume II)*, Second Committee: Articles 1 to 85, Annexes I and II and Final Act, Annex II (Martinus Nijhoff, 1993), 380-383.

⁶ *Ibid.*

⁷ *Ibid.*

⁸ S.N. Nandan and D.H. Anderson, 'Straits Used for International Navigation: A Commentary on Part III of the United Nations Convention on the Law of the Sea 1982' in Hugo Caminos (ed), *Law of the Sea* (Dartmouth, 2001), 101-102.

As earlier discussed in Chapter 3, Malaysia and Indonesia were among the States bordering straits that were adamant in contending that innocent passage should be the regime governing the passage of all vessels through straits used for international navigation.⁹ Article 43 was adopted as an inducement to States bordering straits to accept the regime of transit passage through straits used for international navigation, as they would only do so if assurance could be provided on improvements to the safety of navigation and on the protection of the environment from vessel-source pollution.¹⁰ The provisions of Article 43 seem to provide a framework of promoting sustainable development in straits used for international navigation.

Article 43 seeks to promote the establishment of co-operative measures between user States and States bordering straits in controlling vessel-source pollution and in maintaining the well-being of the marine environment of straits used for international navigation.¹¹ It is left to the littoral States, user States and other stakeholders to establish the mode and mechanisms of co-operation.¹² Based on the wording of Article 43, it could be understood that it only mandates co-operation if there is some form of arrangement by virtue of agreement between States bordering straits and the user States.¹³ Since Article 26(1) of the LOSC has confined the coastal State's regulatory powers in regulating shipping traffic to its territorial strait, the most appropriate way to compensate this situation may be through fostering bilateral or multilateral co-operation between States bordering straits and the user States.¹⁴

Instead of using the mandatory word 'shall', Article 43 of the LOSC employed the word 'should' indicating that co-operation is not mandatory and is more of a declaration of intention rather than

⁹ See Section 3.3.1.3 of Chapter 3 of this Thesis.

¹⁰ Hasjim Djalal, 'Funding and Managing International Partnership for the Malacca and Singapore Straits Consonant with Article 43 of the UNCLOS 1982' (1999) 3 *Singapore Journal of International & Comparative Laws*, 457.

¹¹ S.N. Nandan and D.H. Anderson, 'Straits Used for International Navigation: A Commentary on Part III of the United Nations Convention on the Law of the Sea 1982' in Hugo Caminos (ed), *Law of the Sea* (Dartmouth, 2001), 101.

¹² S. Tiwari, 'Legal Mechanisms for Establishing a Fund' (1999) 3 *Singapore Journal of International & Comparative Laws*, 470-474.

¹³ Bernard H. Oxman, 'Observations on the Interpretation and Application of Article 43 of UNCLOS with Particular Reference to the Straits of Malacca and Singapore' (1998) 2 *Singapore Journal of International & Comparative Laws*, 409-410.

¹⁴ Jose A. de Yturriaga, *Straits Used For International Navigation: A Spanish Perspective* (Martinus Nijhoff, 1991), 201.

a source of real obligation for both users and States bordering straits.¹⁵ Although the term ‘should’ may connote that co-operation under Article 43 is ‘recommendatory’ in nature, it nevertheless does imply a measure of obligation for co-operation between the user States and the littoral States.¹⁶ Nonetheless, such assistance is not a condition of passage.¹⁷ Should a user state refuse to co-operate, Article 43 does not provide the States bordering straits any powers to impede the passage of ships flying the flag of that State, as Article 38 of the LOSC has specifically stipulated that transit passage is a right that is not subject to suspension.¹⁸

Article 43 uses the term ‘user States’ rather than ‘users’, which as far as terminology is concerned, may have a narrower meaning than the term ‘user’. Anderson opined that although the concept of ‘user States’ is not defined, it nevertheless includes port States (whether of departure or destination) and the flag States of ships passing through a strait or any States which benefit directly or indirectly from navigation through a strait.¹⁹ Van Dyke shared the same view by reiterating that the term ‘user States’ must include all States that benefit from using the straits, which includes exporting States, receiving States and States of ship-owners, insurers of ships and cargoes, and major oil corporations whose global trade is facilitated by using the straits.²⁰

From its wording, it is clear that Article 43 does not contemplate the idea put forward by Malta on a system of tolls or user charges as co-operation is voluntary in nature and this can only be achieved if there is an agreement between States bordering straits and the users on toll

¹⁵ Ibid.

¹⁶ Satya N. Nandan, ‘The Management of Straits used for International Navigation: International Cooperation in Malacca and Singapore Straits’ (1999) 3 *Singapore Journal of International & Comparative Laws*, 429-433; Hasjim Djalal, ‘Funding and Managing International Partnership for the Malacca and Singapore Straits Consonant with Article 43 of the UNCLOS 1982’ (1999) 3 *Singapore Journal of International & Comparative Laws*, 466-468.

¹⁷ Satya N. Nandan, ‘The Management of Straits used for International Navigation: International Cooperation in Malacca and Singapore Straits’ (1999) 3 *Singapore Journal of International & Comparative Laws*, 432-433.

¹⁸ Article 38(1) of the LOSC reads ‘...all ships and aircraft enjoy the right of transit passage, which shall not be impeded...’.

¹⁹ David H. Anderson, ‘Funding and Managing International Partnerships for the Malacca and Singapore Straits, Consonant with Article 43 of the UN Convention on the Law of the Sea’ (1999) 3 *Singapore Journal of International & Comparative Laws*, 447.

²⁰ Jon M. Van Dyke, ‘Transit Passage Through International Straits’ in Aldo Chircop, Ted L. McDorman and Susan J. Rolston (eds), *The Future of Ocean Regime-Building: Essays in Tribute to Douglas M. Johnston* (Martinus Nijhoff, 2009), 193-194.

imposition.²¹ Moreover, as mentioned earlier, it is generally recognised that Article 43 signifies a measure of obligation on user States to co-operate with States bordering straits.²² However, the States bordering straits are the parties that must take the leading role to decide on the nature and extent of assistance they seek in such a co-operative scheme.²³

Not much emphasis was given to Article 43 of the LOSC in the first 20 years since the LOSC came into force in 1982.²⁴ However, given the increase in shipping traffic which has caused problems of vessel-source pollution and maritime security, co-operation has taken place between the littoral States of the Straits of Malacca and Singapore with the users of the Straits both at the regional and international levels, executed in accordance with the provisions of Article 43 of the LOSC.²⁵ It is therefore imperative to examine and observe the effectiveness of the co-operation schemes advocated by Article 43 of the LOSC in promoting sustainable development in these two critical sea lines of communication.

7.3 CO-OPERATION MECHANISMS

For the Straits of Malacca and Singapore, co-operation on the safety of navigation and protection of the marine environment has occurred at both global and regional levels. Global level co-operation mechanisms include those between the littoral States and the IMO and those between the littoral States and certain user States. At the regional level, these co-operation mechanisms include the co-operation forged between the littoral States themselves under the TTEG. There is ongoing co-operation between the littoral States and the Association of South East Asian Nations (ASEAN) on the protection on the environment. Nevertheless the co-operation between the

²¹ Myron H. Nordquist (ed), *United Nations Convention on the Law of the Sea 1982: A Commentary (Volume II)*, Second Committee: Articles 1 to 85, Annexes I and II and Final Act, Annex II (Martinus Nijhoff, 1993), 380-383.

²² United Nations (UN), 'Oceans and the Law of the Sea: Report of the Secretary-General (Fifty-fifth Session)' (UN, 2000), 17-18.

²³ S. Tiwari, 'Legal Mechanisms for Establishing a Fund' (1999) 3 *Singapore Journal of International & Comparative Laws*, 471-472.

²⁴ Hasjim Djalal, 'The Regime of Managing Safety and Security in the Straits of Malacca and Singapore' (Paper presented at the Sixth MIMA Conference of the Straits of Malacca: Charting the Future, Kuala Lumpur, 2009), 131-136.

²⁵ *Ibid.*

littoral States and ASEAN is not the one promoted by Article 43 of the LOSC and does not focus specifically on the protection of the marine environment of the Straits of Malacca and Singapore. As such, matters relating to the existing co-operation between the littoral States and ASEAN are not discussed in this Chapter.

7.3.1 Efforts to Ensure Safe Navigation in the Straits of Malacca and Singapore

The earliest efforts to manage the administration of the Straits at the global level were initiated well before the LOSC entered into force, with the establishment of the Malacca Straits Council (MSC), a co-operative arrangement between the three littoral States and Japan.²⁶ With its initial capital of US \$8 million injected by Japan, the MSC, together with the littoral States, has carried out works such as surveys, dredging activities, removal of wrecks and installing aids to navigation devices along the Straits of Malacca and Singapore.²⁷ Through the MSC, Japan contributed a total of US \$113 million for the maintenance of navigational aids from 1968–2005 and a total of US \$13 million for environmental protection from the period of 1973–2005.²⁸

In 1981, the MSC (for and on behalf of the Japanese Non-Governmental Associations) and the Governments of Malaysia, Indonesia and Singapore signed a Memorandum of Understanding (MOU) with Japan to create a Revolving Fund to combat oil pollution from ships in the Straits of Malacca and Singapore with initial contributions amounting to ¥ 400 million.²⁹ The Fund was used by Malaysia and Indonesia in combating the oil spill from the Nagasaki Spirit in 1992 and

²⁶ Nippon Maritime Center (NMC), *Malacca Straits Council: Towards Enhancing the Navigational Safety and Preserving the Marine Environment in the Straits* (2005) NMC <<http://www.nmc.com.sg/MSC.pdf>>; Abdul Aziz bin Abdullah and Rakish Suppiah, 'Safety of Navigation and Institutional Framework in the Straits of Malacca' in H.M. Ibrahim and Hairul Anuar Husin (eds), *Profile of the Straits of Malacca: Malaysia's Perspective* (Maritime Institute of Malaysia, 2008), 177-178.

²⁷ Nippon Maritime Center (NMC), *Malacca Straits Council: Towards Enhancing the Navigational Safety and Preserving the Marine Environment in the Straits* (2005) NMC <<http://www.nmc.com.sg/MSC.pdf>>.

²⁸ Joshua H. Ho, 'Enhancing Safety, Security and Environmental Protection of the Straits of Malacca and Singapore: The Co-operative Mechanism' (2009) 40(2) *Ocean Development and International Law*, 237-240.

²⁹ Amelia Emran, *The Regulation of Vessel-Source Pollution in the Straits of Malacca and Singapore* (Master of Maritime Studies (Research) Thesis, University of Wollongong, 2007), 157-158; Teh Kong Leong, 'The Revolving Fund: A Unique Facility' in Hamzah Ahmad (ed), *The Straits of Malacca: International Co-operation in Trade, Funding & Navigational Safety* (Pelanduk, 1997), 247-250; Jalila Abdul Jalil, 'Policies and Legislative Practices in the Straits of Malacca' in H.M Ibrahim and Hairul Anuar Husin (eds), *Profile of the Strait of Malacca: Malaysia's Perspective* (Maritime Institute of Malaysia, 2008), 169.

by the Indonesian government in 2000 in handling the oil spill caused by the Natuna Sea grounding.³⁰ In the former case, Malaysia used US \$580,000 and Indonesia withdrew US \$660,000 from the Fund. In the latter case, Indonesia accessed US \$500,260 from the Revolving Fund.³¹ Between the years 1969–2003, the MSC engaged in the following activities (see Table 7-1):

Activities	Periods
Hydrographic survey and production of navigational charts	1969–1975
Installation and maintenance of aids to navigation	1969–1975
Clearance of navigable channels	1973–1981
Donation of an oil skimming vessel and buoy tenders	1975–1976 2002–2003
Tide and current observation	1976–1979
Donation of Revolving Fund for combating oil spills from ships and to Aids to Navigation Fund	1981–2010

Table 7-1: Principal Activities Performed by the MSC
(Source: Nippon Maritime Centre)³²

Co-operation between Japan and the littoral States of the Straits of Malacca and Singapore continued after the LOSC came into force in 1994. Since 1969, Japan has been a user State that has consistently assisted the littoral States in maintaining the marine environment and promoting safe navigation in the Straits through financial means or via technological assistance.³³ The TTEG³⁴ and the MSC, with the assistance of the Japanese government and other Japanese bodies

³⁰ Teh Kong Leong, 'The Revolving Fund: A Unique Facility' in Hamzah Ahmad (ed), *The Straits of Malacca: International Co-operation in Trade, Funding & Navigational Safety* (Pelanduk, 1997), 247-250.

³¹ Ibid.

³² Nippon Maritime Center (NMC), *Malacca Straits Council: Towards Enhancing the Navigational Safety and Preserving the Marine Environment in the Straits* (2005) NMC <<http://www.nmc.com.sg/MSM.pdf>>.

³³ Tommy Koh, 'New Milestone in Better Straits Cooperation: Article 43 of UNCLOS Helps Keep Malacca, Singapore Straits Safe, Secure and Clean', *Business Times* (Singapore), 2007; Andrin Raj, 'Japan's Initiatives in Security Cooperation in the Straits of Malacca on Maritime Security and in Southeast Asia: Piracy and Maritime Terrorism' (The Japan Institute for International Affairs (JIIA), 2009), 34-39.

³⁴ The TTEG had its roots in 1975 when the three littoral States of Indonesia, Malaysia and Singapore, in view that the Straits of Malacca and Singapore are to be treated as a single strait in matters pertaining to navigation, have decided to co-operate in the enhancement of navigational safety in the Straits. See S. Jayakumar, 'Straits of Malacca and Singapore: Meeting the Challenges Ahead' (1998) 2 *Singapore Journal of International & Comparative Laws*, 429-430. Further discussion on the formation of the TTEG is elaborated in Section 7.3.4 of this Chapter.

such as the Nippon Foundation, have implemented various safety of navigation measures in the Straits of Malacca and Singapore, including:

- (a) The establishment and implementation of the Routeing System in the Straits of Malacca and Singapore, which incorporates the Traffic Separation Schemes (TSS);³⁵
- (b) The imposition of a 3.5 metre minimum under keel clearance. The under keel clearance refers to the distance between a ship's keel and the seabed;³⁶
- (c) The introduction and implementation of the mandatory ship reporting system, the STRAITREP;³⁷
- (d) The installation of modern and reliable navigational aids along the Straits.³⁸

The northern part of the Strait of Malacca has deep water but the shallower southern part has a two-lane ship routeing system or TSS.³⁹ The first TSS was introduced in 1977 and was adopted by the IMO through an Assembly Resolution A.375(X) 1977. It involved areas including One Fathom Bank, the Strait of Singapore and the Horsburgh Lighthouse Area.⁴⁰ The water depths on the eastbound and westbound lanes within the TSS are 23.0 metres and 16.0 metres respectively. The TSS was amended in 1981⁴¹ and was again adjusted and extended in 1998 to accommodate the increased shipping traffic in the Straits of Malacca and Singapore.⁴² It is the longest stretch of such a TSS in the world and extends up to 265 nautical miles from both ends.⁴³ Once a vessel has

³⁵ International Association of Independent Tanker Owners (INTERTANKO), *Straits of Malacca and Singapore Tripartite Technical Experts Group's (TTEG) 25th Anniversary* (2000) INTERTANKO <<http://www.intertanko.com/templates/Page.aspx?id=33614>>.

³⁶ Ibid.

³⁷ Ibid.

³⁸ Ibid.

³⁹ Peter B. Marlow and Bernard M. Gardner, 'The Marine Electronic Highway in the Straits of Malacca and Singapore - An Assessment of Costs and Key Benefits' (2006) 33(2) *Maritime Policy & Management*, 187.

⁴⁰ International Maritime Organization (IMO), 'Resolution A. 375(X): Navigation Through the Straits of Malacca and Singapore' (Res. A.375(X), IMO, 1977), 117-124.

⁴¹ International Maritime Organization (IMO), 'Resolution A.476(XII) 1981, Navigation Through the Straits of Malacca and Singapore' (Res. A.476(XII), IMO, 1981), 158-159.

⁴² Raj Sativale, 'Transit Passage in the Straits of Malacca' (2003) *MIMA Bulletin*, 8-9.

⁴³ Peter B. Marlow and Bernard M. Gardner, 'The Marine Electronic Highway in the Straits of Malacca and Singapore - An Assessment of Costs and Key Benefits' (2006) 33(2) *Maritime Policy & Management*, 187.

entered the TSS from the west, the vessel is committed to completing the passage.⁴⁴ In accordance with Article 41(7) of the LOSC, vessels traversing the straits are bound to follow the prescribed TSS.⁴⁵

Due to the pressing need to promote safe navigation in two of the world's shallowest straits that carry the largest volume of maritime traffic in the Asia Pacific,⁴⁶ the minimum under keel clearance requirement was endorsed by the IMO in 1977 in the Straits of Malacca and Singapore.⁴⁷ The TTEG on Safety of Navigation also discussed the minimum under keel clearance required for vessels transiting the Straits. It became a contentious issue given that the waters of the Straits are relatively shallow making them environmentally and navigationally dangerous for large tankers of over 200,000 Dead Weight Tonnes (DWT).⁴⁸ Malaysia initially proposed a 4.5 metre under keel clearance, Indonesia 4.4 metres and Singapore 2.5 metres.⁴⁹ As a compromise, the TTEG on maritime safety agreed on an under keel clearance of 3.5 metres and this was endorsed by the IMO through the Assembly Resolution A 375(X).⁵⁰ To further enhance the navigational safety of vessels plying the Straits, the littoral States, through Resolution A 375(X), have also introduced the designated deep water route by deep draught vessels.⁵¹ In

⁴⁴ Ibid.

⁴⁵ Article 41(7) of the LOSC States 'Ships in transit passage shall respect applicable sea lanes and traffic separation schemes established in accordance with this article'.

⁴⁶ Mary George, 'The Regulation of Maritime Traffic in Straits Used for International Navigation' in Alex G. Oude Elferink and Donald R. Rothwell (eds), *Oceans Management in the 21st Century: Institutional Framework and Responses* (Martinus Nijhoff, 2004), 30-33.

⁴⁷ Phiphat Tangsubkul, *ASEAN and the Law of the Sea* (Institute of Southeast Asia Studies, 1982), 25-34.

⁴⁸ Chia Lin Sien, 'The Importance of The Straits of Malacca and Singapore' (1998) 2 *Singapore Journal of International & Comparative Laws*, 304.

⁴⁹ Raj Sativale, 'Transit Passage in the Straits of Malacca' (2003) *MIMA Bulletin*, 12-13.

⁵⁰ International Maritime Organization (IMO), 'Resolution A. 375(X): Navigation Through the Straits of Malacca and Singapore' (Res. A.375(X), IMO, 1977); Hashim Djalal, 'The Malacca-Singapore Straits Issue' (Paper presented at the Building A Comprehensive Security Environment in the Straits of Malacca, Kuala Lumpur, 2004), 278-280.

⁵¹ Wan Awang bin Wan Yaacob, 'Regional Co-operation And The Straits of Malacca' in Hamzah Ahmad (ed), *The Straits of Malacca: International Co-operation In Trade, Funding & Navigational Safety* (Pelanduk, 1997), 18-19; Resolution A. 375(X): Navigation Through the Straits of Malacca and Singapore' (Res. A.375(X), International Maritime Organization, 1977), 122-123.

addition, very large crude carriers and deep draught vessels are also required not to navigate at a speed of more than 12 knots over the ground.⁵²

Besides the TSS and under keel clearance requirements, the littoral States, with the assistance of the members of the international community, have implemented various navigational safety measures in the Straits such as the Vessel Traffic Management System (VTS) in 1997 and the Mandatory Ship Reporting System (STRAITREP) in 1998.⁵³ STRAITREP came into force through IMO Resolution MSC.73 (69) following the recommendation of the three littoral States.⁵⁴ All tankers that transit the Straits which are of 300 Gross Registered Tonnage and above and those that are 50 metres or more in length are required to report to STRAITREP.⁵⁵ The Masters of these vessels must report to the VTS Control Centres providing details including the name of their ship, their call sign, IMO identification number, position, hazardous cargo and deficiencies affecting the ship that may interrupt navigation.⁵⁶ The Strait of Malacca is equipped with state-of-the art VTS Control Centres established in Port Klang and Tanjung Piai, with 7 sectors of monitoring stations, starting from the northern part of the Strait and extending to the entrance to the Strait of Singapore at Tanjung Piai.⁵⁷

In 2004, the safety of navigation in the Strait of Malacca was further enhanced with the installation of 7 Automatic Identification System (AIS) bases in One Fathom Bank, Bukit Jugra, Tanjung Tuan, Pulau Undan, Bukit Segenting, Mudah Selatan and Tanjung Piai which together cover an area of approximately 180 nautical miles in that particular segment of the Strait of

⁵² Rule 6 of Annex V of Resolution A. 375(X): Navigation Through the Straits of Malacca and Singapore' (Res. A.375(X), International Maritime Organization, 1977), 122-123.

⁵³ International Maritime Organization (IMO), 'Routeing Measures Other Than Traffic Separation Schemes: Amended Rules for Vessels Navigating Through the Straits of Malacca and Singapore (Annex I)' (SN/Circ. 198, IMO, 1998).

⁵⁴ International Maritime Organization (IMO), 'Resolution MSC.73 (69): Mandatory Ship Reporting Systems' (I:\MSC\69\22-A1.WPD, IMO, 1998).

⁵⁵ Ibid.

⁵⁶ Abdul Aziz bin Abdullah and Rakish Suppiah, 'Safety of Navigation and Institutional Framework in the Straits of Malacca' in H.M. Ibrahim and Hairul Anuar Husin (eds), *Profile of the Straits of Malacca: Malaysia's Perspective* (Maritime Institute of Malaysia, 2008), 176-177.

⁵⁷ Ibid.

Malacca.⁵⁸ The control centre of the AIS is in Port Klang.⁵⁹ The AIS enables the exchange of data between the control centre and the ship. Ships may obtain details on sailing conditions in the Strait, the wind velocity and direction, air temperature, current sea levels and directions as well as tidal height and the control centre may request vessel information including identification, destination, estimated time of arrival and type of cargo carried.⁶⁰ With the increasing volume of shipping traffic in the Straits, especially over the last decade, efforts have been made to increase the co-operation between user States and the littoral States under Article 43 of the LOSC.

7.3.2 Towards the Creation of a Co-operative Mechanism

The 2005 IMO Jakarta Meeting on the Straits of Malacca and Singapore: Enhancing Safety, Security and Environmental Protection (Jakarta Meeting) between the littoral States, user States and the IMO was one of the products of Protection of Vital Shipping Lanes Initiative of the IMO in 2004.⁶¹ This meeting was a milestone in fostering better co-operation between these entities in managing the safety of navigation and the protection of the marine environment of the Straits of Malacca and Singapore.⁶² The Jakarta Meeting led to the endorsement of the Jakarta Statement on Enhancement of Safety, Security and Environmental Protection in the Straits of Malacca and Singapore which established a mechanism through which the three littoral States could meet with the users to discuss matters relating to maritime safety and security as well as the environmental

⁵⁸ Ibid., 173-174.

⁵⁹ Ibid.

⁶⁰ Ibid.

⁶¹ The 'Protection of Vital Shipping Lane' initiative was conceived by the IMO in 2004 that aimed towards promoting a comprehensive approach to addressing security, safety and pollution in critical shipping ways around the world that include the Straits of Malacca and Singapore. This initiative was the starting point of the creation of Co-operation Mechanism that has, until now become the main forum for both littoral States and users to share the burden to promote safe shipping and protection of the marine environment of the Straits of Malacca and Singapore. See International Maritime Organization (IMO), 'Agenda Item 15 - Protection of Vital Shipping Lanes (C 93/15 and Add.1; C 92/D)' (C 93/SR.9, IMO, 2004), 3; Maritime and Port Authority of Singapore (MPA), *Opening Session Welcome Address H.E. Mr. Raymond Lim Siang Keat Minister for Transport and Second Minister for Foreign Affairs Singapore* (2007) MPA <http://www.mpa.gov.sg/sites/global_navigation/news_center/speeches/speeches_detail.page?filename=sp040907g.xml>; Joshua H. Ho, 'Enhancing Safety, Security and Environmental Protection of the Straits of Malacca and Singapore: The Co-operative Mechanism' (2009) 40(2) *Ocean Development and International Law*, 233-247.

⁶² Joshua Ho, 'The International Maritime Organisation - Littoral State Meetings on Enhancing the Safety, Security and Environmental Protection of the Straits of Malacca and Singapore' (2007) 2(152) *Maritime Studies*, 16.

protection of the Straits.⁶³ This included the possibility of fostering more comprehensive burden sharing between the littoral States and the user States.⁶⁴ The developments achieved in Jakarta were further discussed at the 2006 Kuala Lumpur Meeting on the Straits of Malacca and Singapore: Enhancing Safety, Security and Environmental Protection (Kuala Lumpur Meeting). The Kuala Lumpur Meeting led to the adoption of the Kuala Lumpur Statement on Enhancement of Safety, Security and Environmental Protection in the Straits of Malacca and Singapore, which included agreement on the following matters:

- (a) Support for the work of the TTEG on Safety of Navigation, in enhancing the safety of navigation and in protecting the marine environment in the Straits,⁶⁵
- (b) Support for the continuous efforts of the littoral States and the proposed co-operative mechanism as presented by the littoral States on safety of navigation and environmental protection, which will promote dialogue and facilitate close co-operation between the littoral States, user States, shipping industry and other stakeholders;⁶⁶
- (c) Support for the projects presented at the Kuala Lumpur Meeting for enhancing the safety of navigation and environmental protection;⁶⁷
- (d) That the littoral States, user States, the shipping industry and other stakeholders should co-operate towards the establishment of a mechanism for voluntary funding of the above projects and the maintenance and renewal of the aids to navigation in the Straits;⁶⁸

⁶³ International Maritime Organization (IMO), 'Jakarta Statement on Enhancement of Safety, Security and Environmental Protection in the Straits of Malacca and Singapore, IMO/JKT 1/2 (2005)' (IMO, 2005); International Association of Independent Tanker Owners (INTERTANKO), *Straits of Malacca and Singapore* (2005) INTERTANKO <<http://www.intertanko.com/templates/Page.aspx?id=36071>>.

⁶⁴ Amelia Emran, *The Regulation of Vessel-Source Pollution in the Straits of Malacca and Singapore* (Master of Maritime Studies (Research) Thesis, University of Wollongong, 2007), 150-156. During the Jakarta Meeting in 2005, among the User States that have shown interests to extend long-term assistance to the littoral States on safety of navigation issues were China and South Korea. See N. Hassan Wirajuda, *Keynote Address by Dr. N. Hassan Wirajuda Minister for Foreign Affairs of the Republic of Indonesia at the Jakarta Meeting on the Straits of Malacca and Singapore "Enhancing Safety, Security and Environmental Protection in the Straits"* (2005) Department of Foreign Affairs, Indonesia <<http://www.indonesia-ottawa.org/information/details.php?type=speech&id=69>>.

⁶⁵ International Maritime Organization (IMO), 'Kuala Lumpur Statement on the Straits of Malacca and Singapore: Enhancing Safety, Security and Environmental Protection' (IMO/KUL 1/4, IMO, 2006), 1-5.

⁶⁶ Ibid.

⁶⁷ Ibid.

⁶⁸ Ibid.

- (e) That the littoral States should continue their efforts towards enhancing maritime security in the Straits.⁶⁹

During the Kuala Lumpur Meeting, Japan indicated that it may have to reduce its funding for maintenance activities in the Straits of Malacca and Singapore.⁷⁰ This was due to a more competitive business environment as well as the fact that Japan's usage of the Straits had decreased over the 10-year period from 1994–2004.⁷¹ Following these setbacks at the Kuala Lumpur Meeting, the Nippon Foundation, together with MIMA, the Centre for Southeast Asian Studies, Indonesia and the S. Rajaratnam School of International Studies (RSIS), Singapore organised a Symposium on the Enhancement of Safety of Navigation and the Environmental Protection of the Straits of Malacca and Singapore (2007 Symposium) in Kuala Lumpur, Malaysia. This Symposium produced a consensus document which concluded that:

- (a) The enhancement of safety of navigation and environmental protection of the Straits of Malacca and Singapore should be based on these points:
- i. The Straits would continue to be important for shipping in prospective years. Hence, with more transiting ships, the pollution risks to the biodiversity of the marine environment would also increase;⁷²
 - ii. The increasing density of navigational traffic means that the cost of providing state-of-the-art aids to navigation facilities would also soar;⁷³
 - iii. The application of Article 43 should be reinforced; considering that shipping industries and other users gain direct benefit from using the Straits, the burden of maintaining the Straits should not rest solely on the shoulders of the littoral States;⁷⁴

⁶⁹ Ibid.

⁷⁰ Joshua H. Ho, 'Enhancing Safety, Security and Environmental Protection of the Straits of Malacca and Singapore: The Co-operative Mechanism' (2009) 40(2) *Ocean Development and International Law*, 238-239.

⁷¹ Ibid., 238-240.

⁷² Mohd Nizam Basiron, 'Special Focus: Symposium on the Enhancement of Safety of Navigation and the Environmental Protection of the Straits of Malacca and Singapore' (2007) 14(1) *MIMA Bulletin*, 33-35.

⁷³ Ibid.

⁷⁴ Ibid.

- (b) The burden sharing regime should be based on the principle of Article 43, respecting the sovereignty of the littoral States;⁷⁵
- (c) A fund for safety of navigation and environmental protection, like the one discussed in the Kuala Lumpur Meeting, should be established to provide a channel for shipping companies and other users to voluntarily provide financial support to maintain the aids to navigation in the Straits of Malacca and Singapore. The fund is described as the Aids to Navigation Fund;⁷⁶
- (d) The 2007 Symposium welcomes any support and interest shown from various parties namely the Nippon Foundation, the Japanese Shipowner's Association, the International Chamber of Shipping and INTERTANKO;⁷⁷
- (e) The 2007 Symposium supports the work towards strengthening co-operation between the littoral States and the users.⁷⁸

The developments achieved in both the Kuala Lumpur and Jakarta Meetings were affirmed and continued in the 2007 IMO Singapore Meeting on the Straits of Malacca and Singapore: Enhancing Safety, Security and Environmental Protection (Singapore Meeting). Although this meeting did not introduce any new measures,⁷⁹ it did issue the Singapore Statement on Enhancement of Safety, Security and Environmental Protection in the Straits of Malacca and Singapore where the littoral States, user States and the IMO agreed on the following matters:

- (a) The work of the TTEG on Safety of Navigation, in enhancing the safety of navigation and in protecting the marine environment in the Straits, should continue to be supported and encouraged;⁸⁰

⁷⁵ Ibid.

⁷⁶ Ibid.

⁷⁷ Ibid.

⁷⁸ Ibid.

⁷⁹ Robert Beckman, 'The Establishment of Cooperative Mechanism for the Straits of Malacca and Singapore under Article 43 of the United Nations Convention on the Law of the Sea' in Aldo Chircop, Ted L. McDorman and Susan J. Rolston (eds), *The Future of Ocean Regime-Building-Essays in Tribute to Douglas M. Johnston* (Martinus Nijhoff, 2009), 250-252.

⁸⁰ International Maritime Organization (IMO), 'Singapore Statement on Enhancement of Safety, Security and Environmental Protection in the Straits of Malacca and Singapore' (IMO/SGP 1/4, IMO, 2007), 1- 5.

- (b) The Co-operative Mechanism should be supported and encouraged;⁸¹
- (c) User States, the shipping industry and other stakeholders should seek to participate in and endeavour to contribute, on a voluntary basis, to the work of the Co-operative Mechanism;⁸²
- (d) The projects presented at the Kuala Lumpur Meeting or parts thereof which have not yet attracted sponsors should be supported;⁸³ and
- (e) The littoral States should continue their efforts towards enhancing maritime security in the Straits and such efforts should be supported and encouraged.⁸⁴

7.3.2.1 The Co-operative Mechanism

The idea of forming a Co-operative Mechanism was put forward in the Kuala Lumpur Meeting in 2006 and was fully endorsed at the Singapore Meeting a year later.⁸⁵ The Co-operative Mechanism was formally accepted by the Malaysian, Singaporean and Indonesian Governments and was recognised as a permanent agenda item of the TTEG on the Safety of Navigation in the Straits of Malacca and Singapore at its 32nd meeting in Manado, Indonesia, in October 2007.⁸⁶ The Co-operative Mechanism reflects the success in enhancing co-operation between the littoral States and the user States supported by the LOSC itself in Article 43.⁸⁷ In fact, this co-operative mechanism is the first attempt by the international community to put Article 43 of the LOSC into application.⁸⁸ The scope of the Co-operative Mechanism focuses on three components:

⁸¹ Ibid.

⁸² Ibid.

⁸³ Ibid.

⁸⁴ Ibid.

⁸⁵ Muhammad Razif bin Ahmad and Mohd. Fairoz bin Rozali, 'The Cooperative Mechanism Between the Littoral States and User States on Safety of Navigation and Environmental Protection in the Straits of Malacca and Singapore: The Way Forward' (Paper presented at the Sixth MIMA Conference on the Straits of Malacca: Charting the Future, Kuala Lumpur, 2009), 66-71.

⁸⁶ Ibid.

⁸⁷ Maritime and Port Authority of Singapore (MPA), *Opening Session Welcome Address H.E. Mr. Raymond Lim Siang Keat Minister for Transport and Second Minister for Foreign Affairs Singapore* (2007) MPA <http://www.mpa.gov.sg/sites/global_navigation/news_center/speeches/speeches_detail.page?filename=sp040907g.xml>.

⁸⁸ Robert Beckman, 'The Establishment of Cooperative Mechanism for the Straits of Malacca and Singapore under Article 43 of the United Nations Convention on the Law of the Sea' in Aldo Chircop, Ted L. McDorman and Susan

- (i) A Co-operation Forum for dialogue and discussion;⁸⁹
- (ii) A Project Co-ordination Committee (PCC) on the implementation of projects in co-operation with sponsoring users/stakeholders;⁹⁰ and
- (iii) The Aids to Navigation Fund (the Fund) to receive direct financial contributions for renewal and maintenance of aids to navigation.⁹¹

7.3.2.1.1 The Co-operation Forum

Kuala Lumpur hosted the first Co-operation Forum (the Forum) on 27 and 28 May 2009, which was attended by about 90 participants from the littoral States, 17 user States and nine organisations.⁹² The Forum explored possible areas of co-operation under the Co-operative Mechanism and the participants of the Forum were updated on the state of preparedness to respond to oil spill incidents in the Straits as well as the status and conditions of aids to navigation and traffic in the Straits.⁹³ In other words, the Forum acts as the main avenue for interested user States and other interested parties to meet and co-operate with the littoral States, and any outcomes of the Forum should then be communicated to the TTEG and subsequently to the IMO if necessary.⁹⁴

J. Rolston (eds), *The Future of Ocean Regime-Building-Essays in Tribute to Douglas M. Johnston* (Martinus Nijhoff, 2009), 258-259; Joshua H. Ho, 'Enhancing Safety, Security and Environmental Protection of the Straits of Malacca and Singapore: The Co-operative Mechanism' (2009) 40(2) *Ocean Development and International Law*, 234.

⁸⁹ Robert Beckman, 'The Establishment of Cooperative Mechanism for the Straits of Malacca and Singapore under Article 43 of the United Nations Convention on the Law of the Sea' in Aldo Chircop, Ted L. McDorman and Susan J. Rolston (eds), *The Future of Ocean Regime-Building-Essays in Tribute to Douglas M. Johnston* (Martinus Nijhoff, 2009), 250-252.

⁹⁰ Ibid.

⁹¹ Ibid.

⁹² Muhammad Razif bin Ahmad and Mohd. Fairuz bin Rozali, 'The Cooperative Mechanism Between the Littoral States and User States on Safety of Navigation and Environmental Protection in the Straits of Malacca and Singapore: The Way Forward' (Paper presented at the Sixth MIMA Conference on the Straits of Malacca: Charting the Future, Kuala Lumpur, 2009), 66-71.

⁹³ Ibid.

⁹⁴ Joshua Ho, 'The IMO-KL Meeting on the Straits of Malacca and Singapore' (2006) 107(2006) *IDSS Commentaries*, 1-2.

The second Co-operation Forum was held in Singapore in concurrence with the TTEG of Safety of Navigation in the Straits of Malacca and Singapore from 12–13 of October 2009.⁹⁵ This meeting was mainly focused on the issue of the shipping traffic carrying capacity of the Straits of Malacca and Singapore.⁹⁶

The third Co-operation Forum was held in Yogyakarta, Indonesia, in October 2010, and a number of projects relating to the safety of navigation and marine environmental protection were discussed.⁹⁷ The IMO representatives to the Forum presented updates on the IMO Straits Trust Fund and other ongoing projects including the Marine Electronic Highway (MEH) Project,⁹⁸ which was reported to have undergone positive progress.⁹⁹ Besides the MEH, the IMO also introduced e-Navigation, a navigational technology that will harmonise the collection, integration, exchange, presentation and analysis of marine information on board and ashore by electronic means, which will then improve navigational safety of plying vessels.¹⁰⁰

⁹⁵ Joshua Ho, 'The Strait of Malacca and Singapore: Ensuring Safe and Efficient Shipping' (2009) *RSIS Commentaries* <<http://www.rsis.edu.sg/publications/Perspective/RSIS1192009.pdf>>.

⁹⁶ *Ibid.*

⁹⁷ Tripartite Technical Experts Group (TTEG), '3rd Co-operation Forum under the Co-operative Mechanism on the Safety of Navigation and Environmental Protection in the Straits of Malacca and Singapore' (CF 3/REPORT, 2010), 1-14.

⁹⁸ The Marine Electronic Highway (MEH) project was officially initiated through a memorandum of understanding signed between the Governments of Indonesia, Malaysia, Singapore and the IMO at the Jakarta Meeting in 2005. The MEH is a further development of the Strait of Malacca Automatic Identification System aimed at providing safer shipping through precision navigation utilising information technology to facilitate safer shipping. This is achieved by having smooth communication and data exchange between onshore, sea-based and ship-based transponder facilities. It is based on Electronic Navigation Charts that display hydrographic information in digital electronic form and can be used with a computerised navigation system, namely the Electronic Chart Display and Information System (ECDIS). ECDIS is deemed to be a state-of-the-art tool in navigational technology that guarantees the exact position of a vessel, within an accuracy of 1.5 metres. The application of the MEH could result in a possible reduction in the required under keel clearance which in turn could lead to greater payloads and fewer ships being used, hence contributing to less congestion and greater safety for international shipping activities in the Straits of Malacca and Singapore. This project is still at an early stage and being gradually developed in the Straits focusing on areas where TSS is applicable. See MEH Demonstration Project, *MEH Demonstration Project: Project Development, Objectives and Phases* (2009) MEH Demonstration Project Website <<http://www.meh-project.com/the-project>>; Koji Sekimizu, Jean-Claude Sainlos and James N.Paw, 'The Marine Electronic Highway in the Straits of Malacca and Singapore- An Innovative Project for the Management of Highly Congested and Confined Waters' (2001) *Tropical Coasts* <http://www.imo.org/includes/blastDataOnly.asp/data_id%3D3668/marineelectronichighwayarticle.pdf>; Lloyd's List DCN, 'Malacca Strait 'highway' Costs Soar', *Lloyd's List* (Kuala Lumpur), 2008.

⁹⁹ Tripartite Technical Experts Group (TTEG), '3rd Co-operation Forum under the Co-operative Mechanism on the Safety of Navigation and Environmental Protection in the Straits of Malacca and Singapore' (CF 3/REPORT, 2010), 1-14.

¹⁰⁰ *Ibid.*

At the same forum, Singapore raised the issue of criss-crossing traffic through the TSS along the Straits of Malacca and Singapore.¹⁰¹ As discussed in Chapter 5, this has been one of the main navigational hazards for ships transiting the Straits.¹⁰² The Malaysian delegation presented updates of the two projects led by Malaysia under the Project Co-ordination Committee (PCC).¹⁰³ Overall, like the first and the second Co-operation Forums, the 2010 Co-operation Forum in Yogyakarta demonstrated close co-operation and positive commitments from both users and littoral States to ensure safe navigation and marine environmental protection are promoted in the Straits of Malacca and Singapore.¹⁰⁴ Based on these positive developments, the Co-operation Forum will continue to play its role in promoting future co-operative ventures in due course. Recently, the fourth Co-operation Forum was successfully held in Melaka, Malaysia in October 2011, and many issues relating to the enhancement of the protection of the marine environment of Straits of Malacca and Singapore were discussed.¹⁰⁵

7.3.2.1.2 The Project Co-ordination Committee

The first Meeting of the PCC was held in Kuala Lumpur on 29 May 2008, and was attended by the littoral States, Australia, China, Japan, South Korea and the US, and included interested organisations such as the Oil Companies International Marine Forum (OCIMF) and the IMO.¹⁰⁶ The PCC Meeting discussed the status of seven projects proposed at the Kuala Lumpur and Singapore Meetings.¹⁰⁷ Table 7-2 shows the status of these projects:

¹⁰¹ Ibid.

¹⁰² See Section 5.2.2.1.1 of Chapter 5 of this Thesis.

¹⁰³ Tripartite Technical Experts Group (TTEG), '3rd Co-operation Forum under the Co-operative Mechanism on the Safety of Navigation and Environmental Protection in the Straits of Malacca and Singapore' (CF 3/REPORT, 2010), 4-8.

¹⁰⁴ Ibid., 1-14.

¹⁰⁵ Tripartite Technical Experts Group (TTEG), 'Provisional Agenda :Cooperation Forum under the Co-operative Mechanism on the Safety of Navigation and Environmental Protection in the Straits of Malacca and Singapore' (CF 4/1, TTEG, 2011).

¹⁰⁶ Muhammad Razif bin Ahmad and Mohd. Fairuz bin Rozali, 'The Cooperative Mechanism Between the Littoral States and User States on Safety of Navigation and Environmental Protection in the Straits of Malacca and Singapore: The Way Forward' (Paper presented at the Sixth MIMA Conference on the Straits of Malacca: Charting the Future, Kuala Lumpur, 2009), 66-71.

¹⁰⁷ Ibid.

Projects	Status
<u>Project 1:</u> Removal of wrecks in the TSS in the Straits	The US has indicated its willingness to explore the possibility of participating in this project. India agreed to share its expertise in conducting a hydrographic survey in the Straits of Malacca and Singapore.
<u>Project 2:</u> Co-operation and capacity building on hazardous and noxious substance (HNS) preparedness and response in the Straits	Australia has assisted in the establishment of an HNS databank and the methodology to develop computer-based risk assessment. The US has agreed to explore the possibility of developing a Joint Standard Operating Procedure for HNS response in the Straits of Malacca and Singapore.
<u>Project 3:</u> Demonstration project of Class B Automatic Identification System (AIS) transponder on small ships	Japan and South Korea agreed to provide transponder hardware in the form of ship-based AIS Class B transponders. Australia has indicated its intention to provide technical expertise towards the AIS design.
<u>Project 4:</u> Setting up of a tide, current and wind measurement system for the Straits	China is interested in providing technical expertise for the implementation of this project by conducting an on-site survey to determine the exact project scope. The US is prepared to share its expertise particularly in implementing the system currently in operation in the US to be used in the Straits of Malacca and Singapore.
<u>Project 5:</u> Replacement and maintenance of aids to navigation in the Straits	Japan and South Korea reiterated their commitments to assist in replacing the damaged and defunct aids to navigation under this project.
<u>Project 6:</u> Replacement of aids to navigation destroyed or damaged by tsunami in December 2004	China and Indonesia will undertake jointly to replace 7 aids to navigation on the northern part of the province of Aceh, Indonesia.
<u>Project 7:</u> Feasibility Study on the Establishment of Emergency Towing Vessel service in the Straits of Malacca and Singapore	This project is the newest inclusion to the PCC and is sponsored by the IMO and Australia.

Table 7-2: The Status of the Six Projects under the Co-operative Mechanism in the Straits of Malacca and Singapore (Source: Marine Department of Malaysia)¹⁰⁸

Each littoral State has agreed to lead two of these projects with Malaysia co-ordinating Projects 1 and 2, Singapore to manage Projects 3, 4 and 7 while Indonesia will run Projects 5 and 6.¹⁰⁹

¹⁰⁸ Muhammad Razif Ahmad, 'An Overview of the Cooperative Mechanism between littoral States and user States on Safety of Navigation and Environmental Protection in the Straits of Malacca and Singapore' (CF 4/2/1, Marine Department of Malaysia, 2011), 1-11.

¹⁰⁹ Ibid.

During the Third Co-operation Forum held in 2008, Malaysia updated the developments of Project 1 and reported that there are currently approximately 11 identified wrecks within the TSS.¹¹⁰ These wrecks may cause a bottleneck effect as some of them are located at the narrow bend of the TSS.¹¹¹ Therefore, Malaysia has proposed to call for more potential contributors to participate in areas to be explored, which include hydrographic surveying, capacity building and wreck monitoring.¹¹² India has shown interest by organising a Truncated Course Bathymetric Survey and Wreck Investigation early in March 2010 in which the littoral States participated.¹¹³ Germany has consulted with Malaysia to explore possible areas in which Germany may be able co-operate in the future.¹¹⁴

With regard to Project 2, Malaysia reiterated that once this project is up and running, it will enhance the preparedness and response capability of the littoral States to manage any ship-sourced pollution incidents involving HNS.¹¹⁵ Malaysia noted that the estimated cost for the entire Project 2 were around US \$3.5 million.¹¹⁶ China and the US assisted Malaysia in conducting the assessment study for this Project in 2007.¹¹⁷ In 2008, Australia contributed its technical expertise towards the realisation of Project 2 in establishing an HNS Databank and developing a computer-based risk assessment to combat HNS spill incidents.¹¹⁸ Malaysia is currently in consultation with the IMO and has submitted a proposal to apply for the utilisation of the IMO Straits Trust Fund.¹¹⁹ to finance this project.¹²⁰ The European Commission (EC)

¹¹⁰ Tripartite Technical Experts Group (TTEG), '3rd Co-operation Forum under the Co-operative Mechanism on the Safety of Navigation and Environmental Protection in the Straits of Malacca and Singapore' (CF 3/REPORT, 2010), 5.

¹¹¹ Ibid.

¹¹² Ibid.

¹¹³ Ibid.

¹¹⁴ Ibid.

¹¹⁵ Thai Low Ying-Huang, 'Update on Straits Projects' (Paper presented at the 4th Cooperative Mechanism Between the Littoral States and User States on Safety of Navigation and Environmental Protection in the Straits of Malacca and Singapore, Melaka, Malaysia, 2011), 1-6.

¹¹⁶ Ibid.

¹¹⁷ Ibid.

¹¹⁸ Ibid.

¹¹⁹ The IMO Straits Trust Fund was institutionalised when the littoral States of Malaysia, Indonesia and Singapore concluded a Joint Technical Agreement with the IMO to establish a trust fund to support co-operation among stakeholders towards enhancing safety and marine environment protection in the Straits of Malacca and Singapore.

concluded a Grant Agreement with the Secretariat of the IMO Straits Trust Fund in December 2010 for the contribution of € 500,000 to the Co-operative Mechanism for Project 2;¹²¹ hence the future development of this project looks promising.¹²²

As the co-ordinator of Projects 3 and 4, Singapore reported that Project 3 has been successfully completed and Project 4 is still ongoing.¹²³ Project 4 has the objective of enhancing safety of navigation by providing real-time tidal information for vessels transiting in shallow waters and accurate tide, current and wind data to promote an efficient response to any pollution incidents occurring in the Straits.¹²⁴ Project 4 has received support from China and India, which have been participating since 2007 and 2008 respectively.¹²⁵ The Fund currently holds US \$1,021,032.22 contributed by China and India for the implementation of Stage 1 of Project 4.¹²⁶ The Emergency Towing Vessel service is the newest inclusion in the PCC, and Singapore is the leader of this project. During the 4th Co-operation Forum held in October 2011 it was reported that this project is still undergoing an assessment study sponsored by the IMO and Australia.¹²⁷

This IMO Straits Trust Fund is different with that of Aids to Navigation Fund established under the Co-operation Mechanism as the former is directly administered by the IMO. Between the years of 2009 to 2011, the IMO Straits Trust Fund has received USD 1 million from Greece, USD140, 000.00 from Germany and €500, 000.00 from the EC. See Maritime and Port Authority of Singapore (MPA), *IMO Fund Raises Straits Co-operation to a New High* (2009) MPA <http://www.news.gov.sg/public/sgpc/en/media_releases/agencies/mpa/press_release/P-20091014-1.print.html?AuthKey=>; International Maritime Organization (IMO), 'Protection of Vital Shipping Lanes: Recent Developments of the Co-operative Mechanism for the Straits of Malacca and Singapore' (C 106/12, IMO, 2011), 1-3.

¹²⁰ Tripartite Technical Experts Group (TTEG), 'Updates on Project 2 - Hazardous Noxious Substances (HNS) Preparedness' (TTEG 35 Annex K, TTEG, 2010), 1-8.

¹²¹ International Maritime Organization (IMO), 'Protection of Vital Shipping Lanes: Recent Developments of the Co-operative Mechanism for the Straits of Malacca and Singapore' (C 106/12, IMO, 2011), 1-3.

¹²² Ibid.

¹²³ Tripartite Technical Experts Group (TTEG), '3rd Co-operation Forum under the Co-operative Mechanism on the Safety of Navigation and Environmental Protection in the Straits of Malacca and Singapore' (CF 3/REPORT, 2010), 5-6.

¹²⁴ Ibid.

¹²⁵ Ibid.

¹²⁶ International Maritime Organization (IMO), 'Protection of Vital Shipping Lanes: Recent Developments of the Co-operative Mechanism for the Straits of Malacca and Singapore' (C 106/12, IMO, 2011), 1-3.

¹²⁷ Muhammad Razif Ahmad, 'An Overview of the Cooperative Mechanism between littoral States and user States on Safety of Navigation and Environmental Protection in the Straits of Malacca and Singapore' (CF 4/2/1, Marine Department of Malaysia, 2011), 1-11.

Projects 5 and 6 on the replacement and maintenance of aids to navigation in the Straits of Malacca and Singapore are led by Indonesia. With regard to Project 5, at the 4th Cooperation Forum it was reported that the 2010 maintenance work programme had been completed and the 2011 work programme was underway.¹²⁸ Project 6 involves the replacement of aids to navigation that were destroyed or damaged by the tsunami in December 2004.¹²⁹ Indonesia and China are currently co-operating on the replacement of two of seven identified aids to navigation; namely, Ule Lhuee and the Malahayati Light Beacon in Aceh.¹³⁰

The support and encouraging responses given by various user States including the US, Australia, China, India, Japan and South Korea towards these projects are positive developments towards promoting more voluntary participation and contribution to the seven projects of the PCC which currently are still at their initial stages of implementation.¹³¹

7.3.2.1.3 The Aids to Navigation Fund

The littoral States have consistently asserted that the burden of maintaining aids to navigation in the Straits of Malacca and Singapore should not be exclusively placed upon the littoral States of the Straits.¹³² Given the sheer volume of shipping and traffic, it has been a constant challenge to

¹²⁸ Raymond Ivan Sianturi, 'Update on straits project (Project 5 and Project 6)' (CF 4-3-2 - Project 5, Directorate General of Sea Transportation, Ministry of Transportation, Indonesia, 2011), 1-3.

¹²⁹ Indonesia Ministry of Transportation, 'Status Update: Replacement of Aids to Navigation Damaged by the Tsunami in December 2004' (CF 4/3/3-Project 6, Directorate General of Sea Transportation, Ministry of Transportation, Indonesia, 2011).

¹³⁰ Ibid.

¹³¹ Since 2009, the user States have shown more support towards the projects organised by the PCC. For example, besides collaborating with Indonesia in Project 6, China had also in 2009, responded positively to Projects 2 and 4, initiated by Malaysia and Singapore respectively. See Yu Hong, 'China's Perspective on the Straits of Malacca' (Paper presented at the Sixth MIMA International Conference on the Straits of Malacca: Charting the Future, Kuala Lumpur, 2009), 22-24. In view of the increasing shipping traffic of about 25% between 1994 to 2004, Japan has acknowledged the importance of the Straits and has shown commitments to further enhance regional development and co-operation between the users and the littoral States of the Straits. See Jun Tsunekawa, 'Japan's Perspective on the Straits of Malacca' (Paper presented at the Sixth MIMA International Conference on the Straits of Malacca: Charting the Future, Kuala Lumpur, 2009), 31-39.

¹³² H.M. Ibrahim, 'Straits Safety Not Just Littoral States' Burden', *New Straits Times* (Kuala Lumpur), 25 November 2008; Sam Bateman, 'Burden Sharing in the Straits: Not So Straightforward' (2006) 17(2006) *IDSS Commentaries*, 1-3; Mark J. Valencia, 'Co-operation in the Malacca and Singapore Straits: A Glass Half-Full' (2006) *Policy Forum Online* 06-103A <<http://www.nautilus.org/publications/essays/napsnet/forum/security/06103Valencia.html>> .

the littoral States to ensure that navigational safety, environmental protection and maritime security are guaranteed for mariners in the Straits of Malacca and Singapore.¹³³ There are currently about 51 aids to navigation instruments along the waters of the Straits of Malacca and Singapore with 18 in Malaysian waters, 28 in Indonesian waters and 5 in Singaporean waters.¹³⁴

Two of the littoral States are developing economies and as such they do not have the financial means available to their developed counterparts which are major users of the Straits.¹³⁵ For instance, over the years Malaysia has spent more than US \$60 million to install, maintain and upgrade various navigational aids in the Strait of Malacca, a considerable sum to be borne by a developing country which has limited resources and other more pressing needs.¹³⁶ For these reasons, the Aids to Navigation Fund (the Fund) was established in 2007 under the umbrella of the Co-operative Mechanism. The Fund may accept direct financial contributions for the renewal and maintenance of aids to navigation from any State or interested organisation.¹³⁷ This Aids to Navigation Fund is different to that of Projects 5 and 6 led by Indonesia on the maintenance of aids to navigation, as the Fund is not a project created under the PCC.

At present, only Malaysia and Indonesia are utilising the Fund as Singapore has indicated that it will manage the maintenance of five aids to navigation facilities within its territorial waters

¹³³ S. Ramesh, 'Malaysia, Indonesia and Singapore set up to co-operative mechanism' (2007) *Channel News Asia* <<http://www.channelnewsasia.com/stories/singaporelocalnews/view/297801/1/.html>>.

¹³⁴ Tripartite Technical Experts Group (TTEG), '1st Aids to Navigation (Fund) Meeting under the Co-operative Mechanism in the Straits of Malacca and Singapore: Assessment Survey of Aids to Navigation in the Straits of Malacca and Singapore' (ANF 1/5/1, TTEG, 2008), 2.

¹³⁵ H.M. Ibrahim, 'Straits Safety Not Just Littoral States' Burden', *New Straits Times* (Kuala Lumpur), 25 November 2008; Teh Eng Hock, 'Malaysia Seeks to Limit Maritime Traffic in Straits of Malacca' (2008) *The Star Online* <<http://thestar.com.my/news/story.asp?sec=nation&file=/2008/10/22/nation/2335917>>; Nazery Khalid and Mohd Nizam Basiron, 'Securing Energy Transportation in the Straits of Malacca' (2008) 22 *Ocean Yearbook*, 523-525.

¹³⁶ Mohd Hazmi bin Mohd Rusli, 'Balancing Navigational Rights and Marine Environmental Protection in Straits Used for International Navigation: A Study on the Straits of Malacca and Singapore' (Paper presented at the 3rd International Conference on Southeast Asia, Kuala Lumpur, 2009); Nazery Khalid and Mohd Nizam Basiron, 'Securing Energy Transportation in the Straits of Malacca' (2008) 22 *Ocean Yearbook*, 523-525.

¹³⁷ Muhammad Razif bin Ahmad and Mohd. Fairoz bin Rozali, 'The Cooperative Mechanism Between the Littoral States and User States on Safety of Navigation and Environmental Protection in the Straits of Malacca and Singapore: The Way Forward' (Paper presented at the Sixth MIMA Conference on the Straits of Malacca: Charting the Future, Kuala Lumpur, 2009), 66-71.

itself.¹³⁸ In realising the ten-year Plan Maintenance Programme (PMP) for aids to navigation in the Straits of Malacca and Singapore, the Marine Department of Malaysia, which acted as the Secretariat to the Fund, conducted an assessment survey in 2008. This survey showed that the maintenance and replacement costs of aids to navigation under the PMP for Malaysia and Indonesia is estimated to be around US \$54,823,998 as shown in Table 7-3:

	Cost Year 1–Year 10 (US \$)
Indonesia	
Maintenance	8,538,871
Operational	6,512,500
Replacement	16,986,842
Total	32,038,213
Malaysia	
Maintenance	9,890,374
Operational	4,094,523
Replacement	8,800,888
Total	22,785,785
TOTAL (MALAYSIA+INDONESIA)	54,823,998

Table 7-3: PMP on the Operations and Maintenance of Aids to Navigation: 10 Year Budget Estimation (Source: TTEG)¹³⁹

Based on these figures, the average maintenance cost would be US \$5,482,399.80 or approximately around US \$5.5 million per year.

Malaysia was the first host of the Aids to Navigation Fund (the Fund) for a period of three years until 31 December 2010, and the official currency for the Fund is the American dollar.¹⁴⁰

¹³⁸ Tripartite Technical Experts Group (TTEG), ‘1st Aids to Navigation (Fund) Meeting under the Co-operative Mechanism in the Straits of Malacca and Singapore: Assessment Survey of Aids to Navigation in the Straits of Malacca and Singapore’ (ANF 1/5/1, TTEG, 2008), 2-3.

¹³⁹ Tripartite Technical Experts Group (TTEG), ‘Report of 4th Aids to Navigation By Malaysia: Update on the Aids to Navigation Fund Under the Cooperative Mechanism Between the Littoral States on Safety of Navigation and Environmental Protection in the Straits of Malacca and Singapore’ (TTEG 35 Annex G, TTEG, 2010), 1-3; Tripartite Technical Experts Group (TTEG), ‘The Administration, Operation and Activities of the Aids to Navigation Fund’ (Paper presented at the 3rd Co-operation Forum under the Co-operative Mechanism on the Safety of Navigation and Environmental Protection in the Straits of Malacca and Singapore, Yogyakarta, 2010).

Malaysia's tenure as host and Chairman of the Fund ended on 31 December 2010. However, during the 5th Aids to Navigation Fund Committee Meeting in Langkawi, Malaysia proposed that its tenure as a host or chairman of the Fund should be extended for another two years until the end of 2012.¹⁴¹ Malaysia argued that without the distraction of the change in the fund's administration in such a short time, it would be more feasible for Malaysia and its littoral counterparts to focus on promoting and encouraging more user States to make contributions.¹⁴² The proposal was granted and Malaysia is now the Chairman of the Fund until 2012.¹⁴³

The Marine Department of Malaysia was appointed to manage the Fund.¹⁴⁴ To put the Fund into operation, a trust account in the name of the 'Aids to Navigation Fund' was opened with a local bank in Malaysia.¹⁴⁵ The Director General of the Marine Department was the Chairman of the Fund Committee and a Secretariat was formed to manage the daily operations of the Fund during the Fund Committee Meetings.¹⁴⁶ The Fund Committee met four times between the years 2008–2009, in Penang, Kuching, Malacca and Johor Bahru, and these meetings were attended by representatives from China, Greece, Japan, South Korea, the United Arab Emirates (UAE), the Nippon Foundation, the MSC, the Middle East Navigation Aids Service (MENAS) and the

¹⁴⁰ Tripartite Technical Experts Group (TTEG), 'Report of 4th Aids to Navigation By Malaysia: Update on the Aids to Navigation Fund Under the Cooperative Mechanism Between the Littoral States on Safety of Navigation and Environmental Protection in the Straits of Malacca and Singapore' (TTEG 35 Annex G, TTEG, 2010), 1-3.

¹⁴¹ Tripartite Technical Experts Group (TTEG), '5th Aids to Navigation Fund (Fund) Committee Meeting under the Cooperative Mechanism in the Straits of Malacca and Singapore: Administration and Operation of the Fund-Proposal on the 2nd Host of the Aids to Navigation Fund' (TTEG, 2010), 1-2.

¹⁴² Ibid.

¹⁴³ Muhammad Razif bin Ahmad and Mohd. Fairoz bin Rozali, 'The Cooperative Mechanism Between the Littoral States and User States on Safety of Navigation and Environmental Protection in the Straits of Malacca and Singapore: The Way Forward' (Paper presented at the Sixth MIMA Conference on the Straits of Malacca: Charting the Future, Kuala Lumpur, 2009), 66-71.

¹⁴⁴ Muhammad Razif Ahmad, 'An Update on the Implementation of the Cooperative Mechanism between the Littoral States and User States on Safety of Navigation and Environmental Protection in the Straits of Malacca and Singapore' (2010) 17(4) *MIMA Bulletin*, 4-7.

¹⁴⁵ Ibid.

¹⁴⁶ Muhammad Razif bin Ahmad and Mohd. Fairoz bin Rozali, 'The Cooperative Mechanism Between the Littoral States and User States on Safety of Navigation and Environmental Protection in the Straits of Malacca and Singapore: The Way Forward' (Paper presented at the Sixth MIMA Conference on the Straits of Malacca: Charting the Future, Kuala Lumpur, 2009), 66-71.

IMO.¹⁴⁷ So far, Japan and the UAE have consistently contributed to the Fund and hence, in 2008, a sum of almost US \$1.31 million was raised.

In 2009, the UAE and MENAS contributed another US \$100,000 and US \$1 million respectively to the Fund.¹⁴⁸ The same year, Japan, through MSC, agreed to donate US \$500,000 to the Fund.¹⁴⁹ South Korea too, has shown their readiness to contribute in US dollars a sum valued at 100 million Korean Won.¹⁵⁰ With increasing numbers of parties showing interest in participating and making contributions, it is expected that the Fund will receive more contributions in the future. If the Fund continues to receive more financial assistance over the coming years, this will help to realise an active co-operative mechanism that may benefit both the littoral States and the users. Table 7-4 summarises the contributions from 2008–2010.

Year	2008	2009	2010	2011
Contribution (US \$)	1,451,000	5,007,532	3,228,235	2,934,500

Table 7-4: Total Contributions to the Aids to Navigation Fund (2008–2011)
(Source: MIMA & Marine Department of Peninsular Malaysia)¹⁵¹

As shown in Table 7-4, contributions have decreased since 2009, with only approximately US \$2.94 million contributed by the end of 2011. In contrast, the average cost for maintaining the aid to navigation facilities has increased from approximately US \$1.4 million to US \$5.5 million, as shown in Table 7-5:

¹⁴⁷ Ibid.

¹⁴⁸ Muhammad Razif bin Ahmad and Mohd. Fairoz bin Rozali, ‘The Cooperative Mechanism Between the Littoral States and User States on Safety of Navigation and Environmental Protection in the Straits of Malacca and Singapore: The Way Forward’ (Paper presented at the Sixth MIMA Conference on the Straits of Malacca: Charting the Future, Kuala Lumpur, 2009), 66-71.

¹⁴⁹ Ibid.

¹⁵⁰ Hasjim Djalal, ‘The Regime of Managing Safety and Security in the Straits of Malacca and Singapore’ (Paper presented at the Sixth MIMA Conference of the Straits of Malacca: Charting the Future, Kuala Lumpur, 2009), 131-140.

¹⁵¹ Muhammad Razif Ahmad, ‘An Overview of the Cooperative Mechanism between littoral States and user States on Safety of Navigation and Environmental Protection in the Straits of Malacca and Singapore’ (CF 4/2/1, Marine Department of Malaysia, 2011), 1-11.

Year	Contribution (US \$)	Annual Average Cost (US \$)
2008	1,451,000	1,354,000
2009	5,007,532	5,500,000
2010	3,228,235	5,500,000
2011	2,934,500	5,500,000

Table 7-5: Contributions versus Annual Cost of Maintenance of Aid to Navigation Facilities
(Source: MIMA and TTEG)¹⁵²

Based on the data shown in Table 7-4 and Table 7-5, it is clear that the support given to the Fund has been inadequate to cope with the rising costs of the maintenance of the existing aid to navigation facilities.¹⁵³ Undeniably, the funds collected are not sufficient to maintain the existing facilities and in some cases, the littoral States themselves have had to bear these costs.¹⁵⁴

7.3.3 Developments after the Jakarta, Kuala Lumpur and Singapore Meetings

Following the Jakarta, Kuala Lumpur and Singapore Meetings, the Nippon Foundation and the Round Table of International Shipping Associations (RTisa) organised the International Symposium on Safety and Protection of the Marine Environment in the Straits of Malacca and Singapore, held on 24 November 2008 (2008 Symposium) in Kuala Lumpur. The purpose of the 2008 Symposium was to share updated information and exchange views among the littoral States, user States and users of the Straits, along with the Nippon Foundation and RTisa, on the latest developments following the launch of the Co-operative Mechanism at the 2007 IMO Singapore Meeting and to discuss the various contributions by stakeholders, including the

¹⁵² Ibid.; Tripartite Technical Experts Group (TTEG), 'The Administration, Operation and Activities of the Aids to Navigation Fund' (Paper presented at the 3rd Co-operation Forum under the Co-operative Mechanism on the Safety of Navigation and Environmental Protection in the Straits of Malacca and Singapore, Yogyakarta, 2010).

¹⁵³ Tripartite Technical Experts Group (TTEG), 'Report of 4th Aids to Navigation By Malaysia: Update on the Aids to Navigation Fund Under the Cooperative Mechanism Between the Littoral States on Safety of Navigation and Environmental Protection in the Straits of Malacca and Singapore' (TTEG 35 Annex G, TTEG, 2010), 1-3. Despite the existence of the co-operation mechanism, the users of the Straits, particularly private organisations and stakeholders are generally reluctant to contribute. Since 2007, this issue has been consistently raised resulting in a proposal that the littoral States consider lodging a complaint to the International Tribunal on the Law of the Sea citing the users for violating Article 300 on good faith and abuse of rights. See Mohd Nizam Basiron, 'Special Focus: Symposium on the Enhancement of Safety of Navigation and the Environmental Protection of the Straits of Malacca and Singapore' (2007) 14(1) *MIMA Bulletin*, 23-25.

¹⁵⁴ Nazery Khalid and Mohd Nizam Basiron, 'Securing Energy Transportation in the Straits of Malacca' (2008) 22 *Ocean Yearbook*, 523-525.

shipping industry, under the framework of the Co-operative Mechanism to ensure the safety and protection of the marine environment.¹⁵⁵ The 2008 Symposium acknowledged the importance of the concept of Corporate Social Responsibility (CSR) that holds that private stakeholders should consider, and as a result, make further voluntary contributions to maintain safe navigation in the Straits.¹⁵⁶ CSR can be described as:

Action taken in all business processes that contributes to the betterment of society at large...in social responsibility, the stakeholders to whom a company bears a measure of responsibility have extended beyond the conventional framework of stakeholders, consumers, employees and other parties relevant to business transactions to include international and local communities, the environment (both global and regional), governments, non profit and nongovernmental organisations, and all other segments of society that are affected markedly by the company's business activities.¹⁵⁷

CSR is a concept that encourages shipping companies and other business entities that benefit from the Straits of Malacca and Singapore to contribute towards the management of the Straits.¹⁵⁸ This may include contributions in the form of financial aid, or any other projects that help the littoral States to protect the marine environment of the Straits of Malacca and Singapore that may have been affected by the use of the Straits for international shipping activity. Within the topic of CSR, the matters discussed in the 2008 Symposium included the burden sharing mechanism to maintain the aid to navigation facilities along the Straits of Malacca and Singapore and the significance of these facilities in assisting vessels to navigate the Straits, particularly within the TSS region.¹⁵⁹ The high cost of maintaining aid to navigation infrastructure and

¹⁵⁵ Nippon Foundation, *Joint Statement on Safety and Marine Environment in the Malacca Straits* (2008) Nippon Foundation <<http://www.nippon-foundation.or.jp/eng/news/2008/20081201MalaccaSymposiumJointStatement.html>>.

¹⁵⁶ Ibid.

¹⁵⁷ Jiro Hanyu, 'Corporate Social Responsibility' (Paper presented at the International Symposium on Safety and Protection of the Marine Environment in the Straits of Malacca and Singapore Kuala Lumpur, 2008), 39.

¹⁵⁸ Ibid., 39-43.

¹⁵⁹ Nippon Foundation, 'Information Paper: The Co-operative Mechanism Between the Littoral States and User States on Safety of Navigation and Environmental Protection in the Straits of Malacca and Singapore' (Paper presented at the International Symposium on Safety and Protection of the Marine Environment in the Straits of Malacca and Singapore, Kuala Lumpur, 2008), 1-6.

facilities was also addressed.¹⁶⁰ In summary, the 2008 Symposium did not introduce any new developments and primarily discussed matters that had been discussed in previous symposia and meetings. As with the 2007 Symposium, the 2008 Symposium also aimed to establish a better co-operative mechanism between the littoral States and the users of the Straits of Malacca and Singapore.

The 2008 Symposium was followed by the Sixth MIMA Conference on the Straits of Malacca: Charting the Future (the 2009 Conference) on 23 June 2009 in Kuala Lumpur. The 2009 Conference discussed the matters already mentioned in previous Symposia, including the Co-operative Mechanism, issues of maritime security and safety of navigation in the Straits of Malacca and Singapore. Other matters discussed were the potential designation of the Straits of Malacca and Singapore as a 'Particularly Sensitive Sea Area' (PSSA),¹⁶¹ the ongoing Trans-Peninsula Pipeline Project to divert traffic away from the Straits as well as the shipping traffic carrying capacity of the Straits of Malacca and Singapore.¹⁶²

The user States of Japan, China, India and the US participated actively in the 2009 Conference by reiterating their stand that the Straits of Malacca and Singapore should always be open for navigation.¹⁶³ Any attempts to impede the free flow of shipping transit would be detrimental to the global economy.¹⁶⁴ The littoral States, particularly Malaysia, stressed that any plan of action involving the Straits must always consider the need to respect the sovereignty of nations.¹⁶⁵ Indonesia expressed its concern over the increasing number of vessels plying the Straits of Malacca and Singapore and put forward the idea of developing a Straits of Malacca Transit

¹⁶⁰ Ibid.

¹⁶¹ Mohd Nizam Basiron and Cheryl Rita Kaur, 'Designating a Particularly Sensitive Sea Area in the Straits of Malacca: Specifics and Processes' (Paper presented at the Sixth MIMA International Conference on the Straits of Malacca: Charting the Future, Kuala Lumpur, 2009), 124-130.

¹⁶² Nazery Khalid, 'The Trans-Peninsula Pipeline Project: Prospects and Potential Effects on the Straits of Malacca' (Paper presented at the 6th MIMA Conference on the Straits of Malacca: Charting the Future, Kuala Lumpur, 2009), 78-91.

¹⁶³ Kevin Johnson, 'United States' Perspective on the Straits of Malacca and Singapore' (Paper presented at the Sixth MIMA International Conference on Straits of Malacca and Singapore: Charting the Future, Kuala Lumpur, 2009), 16-21.

¹⁶⁴ Ibid.

¹⁶⁵ Hasnan Zahedi Ahmad Zakaria, 'Malaysia's Perspective on the Straits of Malacca' (Paper presented at the Sixth MIMA International Conference on South East Asia: Charting the Future, Kuala Lumpur 2009), 44-48.

Corridor (SMTC) to further enhance navigational safety and maritime security in the Straits.¹⁶⁶ At the 2009 Conference, Singapore asserted that as the Straits are indispensable to international shipping, it is crucial that adequate aid to navigation facilities are provided to minimise the risks of maritime accidents.¹⁶⁷ Singapore has also pledged to work towards ensuring safe shipping and promoting marine environmental protection in these critical waterways.¹⁶⁸

Overall, the Co-operative Mechanism established in the Straits of Malacca and Singapore between the user States and States bordering straits is seen as a historic breakthrough, since it represents the first implementation of the provisions of Article 43 of the LOSC world-wide.¹⁶⁹ The Co-operative Mechanism has been regarded as a successful forum for encouraging burden sharing within the ambit of the LOSC without jeopardising the sovereignty of the littoral States.¹⁷⁰

7.3.4 The Co-operative Mechanism at the Regional Level

The earliest initiative to co-operate at the regional level occurred in a Joint Statement of the Governments of Indonesia, Malaysia and Singapore on Malacca Strait, issued on 16 November 1971 (Joint Statement) which provided that:

¹⁶⁶ The SMTC is a proposed corridor in the Straits of Malacca and Singapore where all vessels may choose to sail in for better security while plying the Straits. The first corridor of the SMTC is envisioned to span between the Strait of Malacca's northern entrance to One Fathom Bank and the second corridor between One Fathom Bank to the Strait of Singapore. See Rachmat Budiman, 'Indonesia's Perspectives on the Straits of Malacca' (Paper presented at the Sixth MIMA International Conference on the Straits of Malacca: Charting the Future, Kuala Lumpur, 2009), 49-52.

¹⁶⁷ Joshua Ho How Hoang, 'Singapore's Perspective on the Straits of Malacca and Singapore' (Paper presented at the Sixth MIMA International Conference on the Straits of Malacca: Charting the Future, Kuala Lumpur, 2009), 53-60.

¹⁶⁸ Ibid.

¹⁶⁹ Joshua H. Ho, 'Enhancing Safety, Security and Environmental Protection of the Straits of Malacca and Singapore: The Co-operative Mechanism' (2009) 40(2) *Ocean Development and International Law*, 242-243.

¹⁷⁰ Ibid.

- (a) The three governments agree that the safety of navigation in the Straits of Malacca and Singapore is the responsibility of the coastal States concerned;¹⁷¹
- (b) The three governments agree on the need for tripartite co-operation on the safety of navigation in the two Straits;¹⁷²
- (c) The three governments agree that a body for co-operation to coordinate efforts towards safe navigation in the Straits of Malacca and Singapore be established as soon as possible and that such body be composed of only the three coastal States concerned;¹⁷³
- (d) The three governments also agree that the problem of the safety of navigation and the question of internationalisation of the Straits are two separate issues;¹⁷⁴
- (e) The governments of the Republic of Indonesia and Malaysia agree that the Straits of Malacca and Singapore are not international straits while fully recognising their use for international shipping in accordance with the principle of innocent passage. The Government of Singapore takes note of the position of the Governments of the Republic of Indonesia and Malaysia on this point;¹⁷⁵
- (f) On the basis of this understanding the three governments approve the continuation of the hydrographic survey.¹⁷⁶

By virtue of this Joint Statement, the three littoral States have agreed that for the purposes of safety of navigation and marine environmental protection, the Straits of Malacca and Singapore should be treated as one strait.¹⁷⁷ The littoral States have also agreed to leave the question of the

¹⁷¹ 'The 1971 Joint Statement of the Government of Indonesia, Malaysia and Singapore on the Malacca Strait' as quoted in Michael Leifer, 'Malacca, Singapore and Indonesia' in Gerard J. Mangone (ed), *International Straits of the World* (Sijthoff & Noordhoff, 1978), 204.

¹⁷² Ibid.

¹⁷³ Ibid.

¹⁷⁴ Ibid.

¹⁷⁵ Ibid.

¹⁷⁶ Ibid.

¹⁷⁷ Hasjim Djalal, 'Funding and Managing International Partnership for the Malacca and Singapore Straits Consonant with Article 43 of the UNCLOS 1982' (1999) 3 *Singapore Journal of International & Comparative Laws*, 459-462; Satya N. Nandan, 'The Management of Straits used for International Navigation: International Cooperation in Malacca and Singapore Straits' (1999) 3 *Singapore Journal of International & Comparative Laws*, 431-432.

legal status of the Straits to the ongoing UNCLOS III.¹⁷⁸ This Joint Statement symbolised the agreement achieved between the three littoral States as an initial step towards further co-operation.¹⁷⁹ From the Joint Statement, it can be understood that at that time Indonesia and Malaysia were adamant in rejecting any proposition which intended to internationalise the Straits while Singapore had a more liberal viewpoint on this, as it did not share the same position as its littoral neighbours on this issue.¹⁸⁰

The 1971 Statement was followed by the Joint Statement on Safety of Navigation in the Straits of Malacca and Singapore in 1977 (1977 Joint Statement) which reiterated the measures on the safety of navigation in the Straits of Malacca and Singapore, including the minimum under keel clearance of 3.5 metres, the delineation of TSS lanes and the establishment of a joint policy to deal with marine pollution.¹⁸¹ Most of the recommendations in the 1977 Joint Statement have been implemented.¹⁸² As planned in the 1971 Joint Statement, particularly in its Paragraph (c), a TTEG on the safety of navigation was established in 1975. The TTEG, comprising officials from the three littoral States of Indonesia, Malaysia and Singapore, has taken major steps towards enhancing navigational safety in the Straits of Malacca and Singapore.¹⁸³ The TTEG is a body that is responsible for matters concerning the improvement of safety of navigation in the Straits

¹⁷⁸ Hasjim Djalal, 'Funding and Managing International Partnership for the Malacca and Singapore Straits Consonant with Article 43 of the UNCLOS 1982' (1999) 3 *Singapore Journal of International & Comparative Laws*, 461.

¹⁷⁹ Satya N. Nandan, 'The Management of Straits used for International Navigation: International Cooperation in Malacca and Singapore Straits' (1999) 3 *Singapore Journal of International & Comparative Laws*, 430-432.

¹⁸⁰ Hashim Djalal, 'The Malacca-Singapore Straits Issue' (Paper presented at the Building A Comprehensive Security Environment in the Straits of Malacca, Kuala Lumpur), 273-274.

¹⁸¹ 'The 1977 Joint Statement on Safety of Navigation in the Straits of Malacca and Singapore', as quoted in Michael Leifer, 'Malacca, Singapore and Indonesia' in Gerard J. Mangone (ed), *International Straits of the World* (Sijthoff & Noordhoff, 1978), 205.

¹⁸² The IMO Resolution A.375(X) which set up the Rules for Navigating the Straits of Malacca and Singapore is based on the 1977 Statement. In 1981, the IMO Resolution A.375(X) has been replaced with Resolution A.476(XII) that has made certain amendments to the earlier Resolution. See Resolution A.476(XII) 1981, Navigation Through the Straits of Malacca and Singapore' (Res. A.476(XII), International Maritime Organization, 1981); Amelia Emran, *The Regulation of Vessel-Source Pollution in the Straits of Malacca and Singapore* (Master of Maritime Studies (Research) Thesis, University of Wollongong, 2007), 163.

¹⁸³ Maritime and Port Authority of Singapore (MPA), *Work and Close Co-operation of the Tripartite Technical Experts Group (Tteg) Have Contributed Significantly To The Safety of Navigation in the Straits of Malacca and Singapore- MPA Hosts 25th Anniversary Celebration of Tteg* (2009) MPA <http://www.mpa.gov.sg/sites/global_navigation/news_center/mpa_news/mpa_news_detail.page?filename=000509.xml>.

through the promotion of co-operation and co-ordination on anti-pollution policies and measures as well as fostering consultation between the littoral States, the IMO and the users.¹⁸⁴ Safety of navigation measures in the Straits of Malacca and Singapore including the TSS and STRAITREP would not have been successful without the involvement of the TTEG.¹⁸⁵

Almost 40 years since the 1971 Joint Statement was made, co-operation among the littoral States appears to be strengthening. In 2005, the littoral States convened the Fourth Tripartite Meeting of Foreign Ministers of the Littoral States of the Straits of Malacca and Singapore (2005 Meeting) which discussed the safety of navigation, environmental protection and maritime security in the Straits. The 2005 Meeting endorsed the Batam Joint Statement in which the littoral States agreed on the following matters:

- (a) The Ministers of the littoral States reaffirmed the sovereignty of the littoral States over the Straits of Malacca and Singapore, and therefore the primary responsibility for safety of navigation, environmental protection and maritime security lies with the littoral States;¹⁸⁶
- (b) Measures taken in respect of the Straits must be based on the LOSC;¹⁸⁷
- (c) The Ministers recognised the importance of fostering co-operation and continued discussion with States bordering the funnels leading to the Straits of Malacca and Singapore, the major users of the Straits, as well as with ASEAN on matters relating to the safety of navigation, protection of the marine environment and maritime security;¹⁸⁸

¹⁸⁴ International Association of Independent Tanker Owners (INTERTANKO), *INTERTANKO Participates in TTEG Meeting on Safety of Navigation in the Straits of Malacca* (2006) INTERTANKO <<http://www.intertanko.com/templates/Page.aspx?id=32062>>.

¹⁸⁵ Maritime and Port Authority of Singapore (MPA), *Work and Close Co-operation of the Tripartite Technical Experts Group (Tteg) Have Contributed Significantly To The Safety of Navigation in the Straits of Malacca and Singapore- MPA Hosts 25th Anniversary Celebration of Tteg* (2009) MPA <http://www.mpa.gov.sg/sites/global_navigation/news_center/mpa_news/mpa_news_detail.page?filename=000509.xml>.

¹⁸⁶ Singapore Ministry of Foreign Affairs, *The Batam Joint Statement of the 4th Tripartite Ministerial Meeting on the Littoral States on the Straits of Malacca and Singapore* (2005) Ministry of Foreign Affairs, Singapore <http://app.mfa.gov.sg/2006/press/view_press.asp?post_id=1406>.

¹⁸⁷ Ibid.

¹⁸⁸ Ibid.

- (d) Co-operation between the littoral States and the IMO is encouraged;¹⁸⁹
- (e) The Ministers agreed to establish a TTEG on Maritime Security to complement the TTEG on Safety of Navigation and the Revolving Fund Committee.¹⁹⁰

With the establishment of the Co-operative Mechanism in 2007, Article 43 of the LOSC has been successfully implemented in the Straits of Malacca and Singapore. The littoral States have now worked not only between themselves but have also co-operated with the users of the Straits of Malacca and Singapore. These initiatives demonstrate that ongoing co-operation is progressively ensuring that the marine environment of the Straits of Malacca and Singapore is protected and preserved.

Almost all projects under the Co-operation Mechanism are aimed at providing safety of navigation rather than focusing on the protection and preservation of the marine environment of the Straits. The general perception is that accidents can be avoided if there is a regime to promote safer shipping in the Straits. If accidents can be avoided, the marine environment of the Straits can be spared from unwarranted oil and other noxious substances spills. This perception may have been accurate one or two decades ago when the volume of shipping traffic was not as high. With the projected steady increase in maritime traffic in the Straits over the next decade, the importance of environmental protection and preservation schemes beyond the perspective of the enhancement of the safety of navigation in the Straits will become apparent to the littoral States. Eventually, there will be a need not only to control vessel movements in the Straits through the usage of a state-of-the-art ship routing system, but also a need to control the traffic volume of ships sailing through the Straits. Logic dictates that the Straits have a maximum carrying capacity to safely accommodate shipping traffic and if the density of shipping traffic goes beyond that carrying capacity, the consequent effects on the marine environment of the Straits of Malacca and Singapore could be disastrous.

¹⁸⁹ Ibid.

¹⁹⁰ Ibid.

7.4 CONCLUSION

This Chapter has discussed the application of Article 43 of the LOSC in forging co-operation between the littoral States and the user States of the Straits of Malacca and Singapore. These co-operations have been fostered at the regional and global levels. Co-operation at the regional level refers to partnership forged among the littoral States themselves, while co-operation at the global level involves collaboration between the littoral States and the IMO as well as the users of the Straits of Malacca and Singapore.

It is true that the Co-operation Mechanism is receiving positive feedback from the user States and other interested organisations and stakeholders. Conversely, it can also be argued that the development of this co-operation has not been consistent with the increasing volume of shipping traffic each year. Even though more States have shown interest in projects organised by the PCC, the voluntary monetary contributions received by the Aids to Navigation Fund have not been encouraging. This is justified by the figures shown in Table 7-4 and Table 7-5, which demonstrate that the contributions received have not been sufficient to cover the expenses necessary for the maintenance of the aid to navigation facilities installed along the Straits of Malacca and Singapore.

Given the predicted steady increase in shipping traffic in the years to come, this Chapter concludes that if the present Co-operation Mechanism could no longer sustain and promote sustainable utilisation of the Straits, there may be a future need for the littoral States to impose or implement other prospective measures that go beyond the scope of the international legal framework laid down in the LOSC. This could be done either through IMO-endorsed measures or any other potential unilateral measures that the littoral States may consider. Chapter 8 discusses the proposed designations of the Straits of Malacca and Singapore as a Special Area under MARPOL as well as a Particularly Sensitive Sea Area.

CHAPTER 8.

POTENTIAL FUTURE IMO MEASURES ON SAFETY OF NAVIGATION AND THE CONTROL OF VESSEL-SOURCE POLLUTION

8.1 INTRODUCTION

Since the introduction of the LOSC, international law on the protection of the marine environment has developed enormously through various conventions and treaties. This development can be categorised into four levels,¹ each representing different types of degree of environmental protection under international law.² As discussed earlier in Chapter 6, it can be

* This Chapter has been published (wholly or in part) in the following peer-reviewed journals:

- (a) Mohd Hazmi bin Mohd Rusli, 'The Legal Feasibility of the Imposition of a Traffic Limitation Scheme in Straits Used for International Navigation: A Study of the Straits of Malacca and Singapore' (2011) 1(6) *International Journal of Humanities and Social Science*, 122-130;
- (b) Mohd Hazmi bin Mohd Rusli, 'Balancing the Tensions between Shipping and Marine Environmental Protection in the Straits of Malacca and Singapore: Have the Straits Reached an Environmental Tipping Point' (2011) 7(2) *The International Journal of Environmental, Cultural, Economic and Social Sustainability*, 39-50;
- (c) Mohd Hazmi bin Mohd Rusli, 'The Application of Compulsory Pilotage in Straits Used for International Navigation: A Study of the Straits of Malacca and Singapore' (2011) 3(4) *Asian Politics & Policy*, 501-526;
- (d) Mohd Hazmi bin Mohd Rusli, 'Protecting Vital Sea Lines of Communication: A Study of the Proposed Designation of the Straits of Malacca and Singapore as a Particularly Sensitive Sea Area' (2012) 57 *Ocean & Coastal Management*, 79-94.

¹ Aldo Chircop, 'The Designation of Particularly Sensitive Sea Areas: A New Layer in the Regime for Marine Environmental Protection From International Shipping' in Aldo Chircop, Ted L. McDorman and Susan J. Rolston (eds), *The Future of Ocean Regime-Building-Essays in Tribute to Douglas M. Johnston* (Martinus Nijhoff, 2009), 573-608.

² Level 1 consists of general obligations for States to protect the marine environment from vessel-source pollution, as found in the LOSC and other international conventions. Level 2 provides a higher degree of protection including specific measures such as vessel source discharge restrictions under the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 (MARPOL 73/78). Level 3 involves an even more specific type of protection through IMO guidelines such as those concerning the designation of 'Particularly Sensitive Sea Areas' (PSSA) and its entailing associate protective measures. Level 4 concerns an extraordinary situation where coastal States in particular regions, motivated by serious concerns over the environment and due to imminent danger of marine pollution, are empowered to intervene in relation to shipping casualties. See *Ibid.* The 1969 maritime tragedy of Torrey Canyon was a clear example on this point. The Liberian-flagged Torrey Canyon was a supertanker capable of carrying a cargo of 120, 000 tonnes of crude oil, was navigating near the waters off the English Channel when it struck Pollard's Rock on Seven Stones reef between Cornwall on mainland Britain and the Scilly Isles off the western tip of Cornish Peninsula on 18 March 1967. The vessel spilled 119, 000 tonnes of oil into the sea, contaminating 80km of French coast and 120 km of Cornish Coast on the British mainland. Due to the huge impact of this incident which could pose imminent danger to the coastal States of Britain and France, both States worked together to contain the oil slicks from spreading to other areas within that region that may endanger the marine environment and the well-being of the coastal population. See Patrick Barkham, *Oil spills: Legacy of the Torrey Canyon* (2010) *The Guardian* <<http://www.guardian.co.uk/environment/2010/jun/24/torrey-canyon-oil-spill-deepwater-bp>>. Examples could also be drawn from incidents that have taken place in the Straits of Malacca and

said that the Straits of Malacca and Singapore enjoy the first level of environmental protection.³ The littoral States and the users of the Straits have a general obligation to protect and preserve the marine environment of the Straits, as provided under international law.⁴ Even though the littoral States are State-parties to most of these conventions, nevertheless, their powers to regulate shipping in their territorial Straits are limited by the application of Parts III and XII of the LOSC. The provisions of these IMO conventions can only be effectively carried out via the flag State or port State jurisdictions and not through the coastal State jurisdiction.⁵

To remedy this incapacity, the LOSC has encouraged the formation of co-operation between States bordering straits and the user States, as stipulated in its Article 43.⁶ Chapter 7 revealed that the Co-operative Mechanism is still developing, with more user States now willing to contribute, particularly to projects undertaken by the Project Co-ordination Committee.⁷ Nonetheless, voluntary contribution to the Aids to Navigation Fund has been disappointing, with the contributions raised to date not being able to fully cover the cost of maintenance and replacement of navigational aid facilities.⁸

Singapore. The Evoikos and Orapin Global collision in 1997 has spilled 29, 000 tonnes of crude oil into the Strait of Singapore which then flowed into the Malaysian side of the Strait of Malacca, polluting the coastal areas as far north as Selangor threatening the livelihood of local fishermen. Realising the imminent danger of this incident to the marine environment, the coastal States of Malaysia and Singapore intervened and worked together in the clean up operations. In 2010, the collision between the vessel MV Waily and MT Bunga Kelana 3 spilled 2, 000 tonnes of light crude oil into the Strait of Singapore. The passage of both vessels was suspended and the local authorities co-operate to contain the oil from drifting to the shores. See Section 5.2.2.2 of Chapter 5 of this Thesis.

³ This general obligation to protect the marine environment of the Straits from vessel-source pollution is spelled out in the LOSC and IMO conventions on vessel-source pollution such as the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78) and its six technical Annexes as well as the International Convention on the Control of Harmful Anti-fouling Systems on Ships (BWM). See Section 6.3.4 of Chapter 6 of this Thesis.

⁴ As safe navigation would minimise the risk of maritime casualties which would ultimately protect the marine environment from vessel-source pollution, the IMO has also introduced international rules and regulations as embodied in the Convention on the International Regulations for Preventing Collisions at Sea, 1972 (COLREGs), as amended and the International Convention for the Safety of Life at Sea 1974 (SOLAS). See Section 6.3.5 of Chapter 6 of this Thesis.

⁵ See Sections 6.3.1, 6.3.2 and 6.3.3 of Chapter 6 of this Thesis.

⁶ Article 43 of the LOSC reads ‘User States and States bordering a strait should by agreement cooperate: (a) in the establishment and maintenance in a strait of necessary navigational and safety aids or other improvements in aid of international navigation; and (b) for the prevention, reduction and control of pollution from ships’.

⁷ See Section 7.3.2.1.2 of Chapter 7 of this Thesis.

⁸ See Section 7.3.2.1.3 of Chapter 7 of this Thesis.

Shipping traffic in the Straits of Malacca and Singapore is projected to increase up to 150,000 vessels per annum by 2020.⁹ As a result, the application of Level 1 category environmental protection measures in the Straits of Malacca and Singapore may not be entirely sufficient to effectively protect and preserve the marine environment of the Straits from vessel-source pollution. Given that transiting shipping accounts for over 80 per cent of the overall traffic in the Straits and brings with it the principal risks of navigational and pollution hazards,¹⁰ this Chapter discusses the potential designation of the Straits as a ‘Special Area’ under MARPOL 73/78 and as a Particularly Sensitive Sea Area (PSSA) under the IMO Guidelines. The legal implications arising from such designations are analysed and appraised. This Chapter concludes by suggesting the best IMO measure to be utilised in protecting the marine environment of the Straits of Malacca and Singapore.

8.2 ‘SPECIAL AREAS’ UNDER MARPOL 73/78

The first potential IMO tool available to protect the marine environment of the Straits of Malacca and Singapore specifically from operational vessel-source pollution is by the proposed designation of the Straits as a Special Area. Resolution A. 927(22) on ‘Guidelines for the Designation of “Special Areas” under MARPOL 73/78 and Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas’ of 29 November 2001 described a Special Area as:

...a sea area where for recognised technical reasons in relation to its oceanographical and ecological conditions and to the particular character of its traffic, the adoption of special mandatory methods for the prevention of sea pollution by oil, noxious liquid substances, or garbage, as applicable, is required’.¹¹

⁹ H.M. Ibrahim, ‘Straits Safety Not Just Littoral States’ Burden’, *New Straits Times* (Kuala Lumpur), 25 November 2008.

¹⁰ Peter B. Marlow and Bernard M. Gardner, ‘The Marine Electronic Highway in the Straits of Malacca and Singapore - An Assessment of Costs and Key Benefits’ (2006) 33(2) *Maritime Policy & Management*, 188.

¹¹ International Maritime Organization (IMO), ‘Resolution A.927 (22): Guidelines for the Designation of Special Areas Under MARPOL 73/78 and Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas’ (A 22/Res. 927, IMO, 2002), 1-22.

The terms ‘oceanographical’,¹² ‘ecological conditions’¹³ and ‘particular character of its traffic’¹⁴ are defined in Resolution A. 927(22). Any States proposing to designate a given area within their territorial Sea or EEZ as a Special Area must submit a proposal, containing the definition of the proposed area for designation, including its precise geographical co-ordinates, to the Marine Environment Protection Committee (MEPC) for its consideration.¹⁵ The proposal should also include details and information of the eligibility of the proposed area to be designated as a Special Area based on its oceanographic and ecological characteristics and also the existing environmental pressures from ship-generated pollution.¹⁶ Under MARPOL 73/78, Special Areas are provided with a higher level of protection against operational vessel-source pollution than other areas of the sea.¹⁷ At the moment, there are seven sea areas that have been designated as Special Areas under Annex I.¹⁸ These maritime areas are designated as Special Areas for the following reasons:

¹² Article 2.4 of Resolution A. 927 (22) mentions that consideration for the designation of a ‘Special Area’ would be given to areas having oceanographic conditions which may cause the concentration or retention of harmful substances in the waters or sediments of the area, including conditions of extreme ice state and adverse winds. See International Maritime Organization (IMO), ‘Resolution A.927 (22): Guidelines for the Designation of Special Areas under MARPOL 73/78 and Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas’ (A 22/Res. 927, IMO, 2002).

¹³ Article 2.5 of Resolution A. 927 (22) explains on the ecological conditions to be fulfilled for a sea area to be considered for a ‘Special Area’ designation. The sea area should *inter alia* contain depleted, threatened or endangered marine species, possess high natural productivity as well as having rare or fragile ecosystems such as coral reefs, mangroves, seagrass beds and wetlands. It should also be an important spawning and breeding ground for marine species and represent important migratory routes for sea-birds and marine mammals. In addition, it should be a critical habitat for marine resources and supports large marine ecosystems. See *Ibid*.

¹⁴ In determining the requirements for the fulfillment of vessel traffic characteristics to support a ‘Special Area’ designation, Article 2.6 of Resolution A. 927(22) stipulates that the sea area should be an area used for shipping activities to an extent that the operational discharge of vessel-source harmful substances within the requirements of MARPOL 73/78 would be unacceptable in the light of the existing oceanographic and ecological conditions in that area. See *Ibid*.

¹⁵ *Ibid*.

¹⁶ Markus J. Kachel, *Particularly Sensitive Sea Areas: The IMO’s Role in Protecting Vulnerable Marine Areas* (Springer-Verlag, 2008), 96-98.

¹⁷ International Maritime Organization (IMO), ‘Resolution A.927 (22): Guidelines for the Designation of Special Areas Under MARPOL 73/78 and Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas’ (A 22/Res. 927, IMO, 2002), 1-22.

¹⁸ Among the areas that have been designated as Special Areas under Annex I of MARPOL are the Mediterranean Sea, Baltic Sea, Red Sea, Gulfs Area, Gulf of Aden and Oman area of the Arabian Sea. See International Maritime Organization (IMO), *Special Areas under MARPOL* (2010) IMO <<http://www.imo.org/OurWork/Environment/PollutionPrevention/SpecialAreasUnderMARPOL/Pages/Default.aspx>>.

- (a) Areas such as the Baltic and the Red Seas are enclosed bodies of maritime space, which are exposed to high risks of pollution;¹⁹
- (b) Some of the areas listed as Special Areas, such as the Baltic Sea, experience cold temperatures all year long. This may slow down the chemical and biological degradation process of certain pollutants;²⁰
- (c) The Baltic region, for example, has many complex archipelagos and deeply cut and indented coastlines, such as areas around the Finnish Aaland Islands and the Ostrobothnia region. This may result in difficulties in carrying out clean-up operations should an oil or other chemical spill take place in that area;²¹
- (d) These areas have a high concentration of certain pollutants. For example, there are large oil slicks in the Gulfs Areas;²²
- (e) Some of the designated areas are important chokepoints for oil transportation and possess high navigational traffic, such as the Red Sea and the Gulfs Areas;²³
- (f) The areas need to be protected as they are scientifically and socio-economically important for the coastal population. For instance, the Red Sea and the Gulf Areas are rich in marine biodiversity and the coastal populations depend on them to carry out fishing activities.²⁴

The Revised Annex I of MARPOL 73/78 imposes stricter conditions on oil tankers discharging oil or oily mixtures both in Special Areas and non-Special Areas, shown in Table 8-1:

¹⁹ GR. J Timagenis, *International Control of Marine Pollution: Volume 1* (Oceana, 1980), 350-363; Helsinki Commission, *The nature of the Baltic Sea* (2011) Helsinki Commission: Baltic Marine Environment Protection Commission <http://www.helcom.fi/environment2/nature/en_GB/nature/>.

²⁰ GR. J Timagenis, *International Control of Marine Pollution: Volume 1* (Oceana, 1980), 350-363.

²¹ Ibid.

²² Ibid.

²³ Ibid.

²⁴ Ibid.

<p style="text-align: center;">Non-Special Areas (Regulation 34(A) of Resolution MEPC 117(52))</p>	<p style="text-align: center;">Special Areas (Regulation 34 (B) of Resolution MEPC 117(52))</p>
The tanker may discharge oil or oily mixtures if it is more than 50 nautical miles from the nearest land	Any discharge into the sea of oil or oily mixture from the cargo area of an oil tanker shall be prohibited while in a special area. Nevertheless, the prohibition does not apply to the discharge of clean or segregated ballast into the sea
The tanker is proceeding en route	
The instantaneous rate of discharge of oil content does not exceed 30 litres per nautical mile	
The total quantity of oil discharged into the sea does not exceed for tankers delivered on or before 31 December 1979, 1/15000 of the total quantity of the particular cargo of which the residue formed a part, and for tankers delivered after 31 December 1979, 1/30,000 of the total quantity of the particular cargo of which the residue formed a part	
The tanker has in operation an oil discharge monitoring and control system and a slop tank arrangement	

Table 8-1: The Differences between the Permissible Discharge of Oil by Oil Tankers in Special Areas and Non-Special Areas (Source: IMO)²⁵

Table 8-1 shows that there are major differences between the oil discharge prohibitions in Special Areas and non-Special Areas. As waterways that are burdened with heavy navigational activities, the Straits of Malacca and Singapore are potential candidates for designation as Special Areas under MARPOL 73/78.²⁶ However, it is important to examine whether the Straits fulfil the criteria prescribed in the IMO Guidelines for designation as Special Areas and what would be the political issues surrounding such a designation.

The Straits of Malacca and Singapore are comparable to the Red Sea and the Gulfs Area, which are also among the world’s most significant sea routes for oil transportation and which have been designated as Special Areas. Like the Straits of Malacca and Singapore, the Red Sea and the Gulfs Area are not exposed to icy conditions as these marine areas are located in a tropical climate zone where the weather is hot and humid with air temperatures ranging from 22°C to

²⁵ International Maritime Organization (IMO), ‘Annex 2 Resolution MEPC. 117(52): Amendments to the Annex of the Protocol of 1978 Relating to the International Convention for the Prevention of Pollution From Ships, 1973’ (MEPC 52/24/Add.2, IMO, 2004), 62-63.

²⁶ Alan Tan Khee-Jin, ‘Control of Pollution in the Straits of Malacca and Singapore: Modalities of Co-operation-Rapporteur’s Report’ (1998) 2 *Singapore Journal of International & Comparative Laws*, 278; Mohd Hazmi bin Mohd Rusli, ‘Balancing Navigational Rights and Marine Environmental Protection in Straits Used for International Navigation: A Study on the Straits of Malacca and Singapore’ (Paper presented at the 3rd International Conference on Southeast Asia, Kuala Lumpur, 2009).

30°C.²⁷ The Strait of Hormuz in the Gulfs Area is an important waterway for oil transportation, accounting for about 40 per cent of the world traded oil.²⁸ The Strait is deep and wide enough to accommodate the world's largest crude oil tankers and two-thirds of oil shipments carried by tankers transiting the Strait of Hormuz are in excess of 150,000 deadweight tonnes (DWT).²⁹

Similarly, the Straits of Malacca and Singapore are important maritime highways for oil transportation, particularly for transporting oil between the Middle East and the Far East, specifically to Japan, which in 2006 depended on the Middle East and Africa for 84.7 per cent of its crude oil supply and 25.9 per cent of its liquefied natural gas supply.³⁰ In 2007, oil was the most shipped commodity travelling eastbound via the Straits of Malacca and Singapore and amounted to 679 million tonnes in weight.³¹ In the same year, approximately 14 million barrels per day (bpd) was transported via the Straits.³² Due to the economic downturn in 2008, this figure fell to 13.6 million bpd in 2009.³³

The Persian Gulf is rich in marine biodiversity.³⁴ A wide variety of marine life is found in the Gulf, including sea turtles, marine birds, dugongs, whales, dolphins and over 500 fish species.³⁵

²⁷ C Hase et al, 'A System in Balance? - Implications of Deep Vertical Mixing for the Nitrogen Budget in the Northern Red Sea, Including the Gulf of Aqaba (Eilat)' (2006) 3 *Biogeosciences Discuss*, 383-388; Ruth Lapidot-Eschelbacher, 'The Red Sea and the Gulf of Aden' in Gerard J. Mangone (ed), *International Straits of the World* (Martinus Nijhoff, 1982) vol 5, 6-7.

²⁸ Anthony H. Cordesman, 'Iran, Oil and the Strait of Hormuz' (Center for Strategic and International Studies, 2007), 2-3.

²⁹ US Energy Information Administration, 'World Oil Transit Chokepoints: Background' (US Energy Information Administration, 2011), 2.

³⁰ Shigeki Sakamoto, 'Non-State Actors' Role in the Co-operative Mechanism for the Straits of Malacca and Singapore- Seeking to Substantiate UNCLOS Article 43' (Paper presented at the International Symposium on Safety and Protection of the Marine Environment in the Straits of Malacca and Singapore, Kuala Lumpur, 2008), 2.

³¹ See Table 2-8 of Chapter 2 of this Thesis.

³² US Energy Information Administration, 'World Oil Transit Chokepoints: Background' (US Energy Information Administration, 2011), 2-3.

³³ Ibid.

³⁴ Francesco Pietra, *Biodiversity and Natural Product Diversity* (Elsevier Science, 2002), 35-41.

³⁵ Environmental Management of Enclosed Coastal Areas (EMECS), *Persian Gulf* (2009) Environmental Management of Enclosed Coastal Areas <http://www.emecs.or.jp/eMenu/M1.cgi?M2=englishver2/whatemecs/what_er.html>.

These animals are endemic to the Gulf and rely heavily on its environment for their survival.³⁶ The fishing industry in the Persian Gulf has been important to the coastal population for centuries, but the per capita fish catch has been slowly dwindling.³⁷ This is due to adverse climatic and ecological conditions and unsustainable fishing practices.³⁸ The abundance of major target species like shrimp, Spanish mackerel and various other fish stocks is declining.³⁹

As discussed in Chapter 2, the Straits of Malacca and Singapore are also rich in marine biodiversity.⁴⁰ Certain areas in the Straits are high in coral reef concentration with a total assessed value of US \$563 million for tourism, shoreline protection, fisheries and scientific research potential.⁴¹ The coastal areas along the Straits of Malacca and Singapore have abundant mangrove forests, seagrass beds, coastal peat swamps, mudflats and sandy beaches, which are home to various species of flora and fauna.⁴² Fisheries industries are also important in the Straits, particularly in the Strait of Malacca. Almost 44 per cent of fish landings in Malaysia came from the Strait of Malacca in 2007.⁴³

The Red Sea contributes significantly to Egypt's marine tourism industries. The rich concentration of coral reefs has lured 1.2 million tourists annually, generating US \$1.2 billion in

³⁶ Ibid.

³⁷ Abdoukarim Esmaili, 'Technical efficiency analysis for the Iranian fishery in the Persian Gulf' (2006) 63 *ICES Journal of Marine Science*, 1759-1760.

³⁸ Ibid.

³⁹ Environmental Management of Enclosed Coastal Areas (EMECS), *Persian Gulf* (2009) Environmental Management of Enclosed Coastal Areas <http://www.emecs.or.jp/eMenu/M1.cgi?M2=englishver2/whatemecs/what_er.html>.

⁴⁰ A G Mazlan et al, 'On the current status of coastal marine biodiversity in Malaysia' (2005) 34(1) *Indian Journal of Marine Sciences*, 76-77; Ishak Haji Omar, 'Executive Summary of Malaysian National Report' (Universiti Putra Malaysia, 2006) <http://www.fao.org/fi/oldsite/BOBLME/website/sum_rep/MALAYSIA_SUMMARY.pdf>, 1-4.

⁴¹ Nasrah Nur, *Reefs at Risk: Conserving Malaysia's Coral Reefs* (2005) wildasia.org <http://www.wildasia.org/main.cfm/support/Coral_Reef_Conservation>.

⁴² Tan Kim Hooi, 'Natural Resources Exploitation and Utilisation' in H.M. Ibrahim and Hairil Anuar Husin (eds), *Profile of the Straits of Malacca: Malaysia's Perspective* (Maritime Institute of Malaysia, 2008), 75; See Section 2.5.2 of Chapter 2 of this Thesis.

⁴³ Maritime Institute of Malaysia, 'Executive Summary' in H. M. Ibrahim and Hairil Anuar Husin (eds), *Profile of the Straits of Malacca: Malaysia's Perspective* (Maritime Institute of Malaysia, 2008), xiii-xvi; See Section 2.5.1 of Chapter 2 of this Thesis.

foreign exchange and creating more than 275,000 jobs.⁴⁴ Similar circumstances apply in the Straits of Malacca and Singapore. The marine tourism industries of the littoral States depend on the appealing beaches and islands located along the length of the Straits.⁴⁵ Unlike the coastal areas along the Straits of Malacca and Singapore which are highly urbanised, the coastal area along the Red Sea is not intensively urbanised.⁴⁶ One of the main sources of pollution in the Red Sea comes from shipping activities, as it is a main route connecting Europe and Asia, particularly after the opening of the Suez Canal.⁴⁷ Any ship-sourced pollution incidents would adversely affect the well-being of the littoral States' economies.⁴⁸

Based on these facts, it is arguable that not only do the Straits of Malacca and Singapore potentially fit the requirements for the designation of a Special Area set by Resolution A. 927 (22), they also have similar attributes to other sea areas that have been designated as Special Areas under MARPOL 73/78, particularly the Gulfs Area and the Red Sea. A case could be mounted for their designation as a Special Area under the IMO Guidelines to further protect the marine environment of the Straits of Malacca and Singapore from vessel-source pollution.⁴⁹ A study on the need for, and feasibility of, designating the Strait of Malacca as a Special Area under MARPOL 73/78 was undertaken jointly by the Global Environment Facility (GEF), United Nations Development Programme (UNDP) and the IMO in 1997. This study made the following recommendations:

- (a) That the littoral States of the Strait of Malacca prepare proposals to designate the Strait as Special Areas under Annexes I and V;⁵⁰

⁴⁴ United States Agency International Development, 'Egypt: Red Sea Sustainable Tourism' (United States Agency International Development, 2011), 1-4.

⁴⁵ See Section 2.5.2 of Chapter 2 of this Thesis.

⁴⁶ Ruth Lapidot-Eschelbacher, 'The Red Sea and the Gulf of Aden' in Gerard J. Mangone (ed), *International Straits of the World* (Martinus Nijhoff, 1982) vol 5, 18-20.

⁴⁷ Ziauddin Sardar, 'Red Sea States Unite Against Pollution' in Michael Kenward (ed), *Newscientist* (Commonwealth House, 1981) vol 89, 472.

⁴⁸ Ibid.

⁴⁹ Abdul Haseeb Ansari and Nik Ahmad Kamal, 'Prevention, Abatement and Control of Pollution of Straits: An Appraisal With Special Reference to the Straits of Malacca' (2005) 3 *Malayan Law Journal*, viii-x.

⁵⁰ Global Environment Facility/United Nations Development Programme/International Maritime Organization, 'Malacca Straits: Special Area? The Need and Feasibility of Designating the Malacca Straits as a Special Area under

- (b) That a proposal not be prepared to designate the Strait as a Special Area under Annex II at present;⁵¹ The study conducted by the GEF/UNDP/IMO found that the worst pollution caused by operational discharges from ships sailing through the Strait of Malacca is restricted to oil, and not so much with regard to noxious liquid substances and garbage.⁵²
- (c) That further studies on oceanographic conditions of the Strait of Malacca should be undertaken as information on this is limited;⁵³
- (d) That a discussion should be held between the littoral States and the maritime States in relation to the proposal on the Strait of Malacca Special Areas;⁵⁴
- (e) Annex I of MARPOL 73/78 prohibits oil tankers discharging oil or oily waste in areas within 50 nautical miles from the nearest land. Nevertheless, they are allowed to do so in areas more than 50 nautical miles from the shore, but only in certain quantified amounts as explained in Table 8-1. Most southern parts of the Strait of Malacca, including the whole stretch of the Strait of Singapore, are no more than 50 nautical miles to the nearest land.⁵⁵ Therefore, it would be of no consequence if the southern portion of the Strait were to be designated as a Special Area under Annex I as oil tankers are already prohibited from discharging oil and oily waste in that area. Nevertheless, for reasons of clarity, it is recommended that the definition of the Strait of Malacca Annex I Special Area include those parts of the Strait that are within 50 nautical miles from the nearest land;⁵⁶
- (f) In addition to the defined Strait of Malacca Special Area, the special discharge standards with regard to oil should also apply in neighbouring areas such as the Andaman Sea, the South China Sea and the Indian Ocean off Sumatra. It was also recommended that a study

MARPOL 73/78' (MPP-EAS/Info/99/194, GEF/UNDP/IMO Regional Programme for the Prevention and Management of Marine Pollution in the East Asian Seas, 1997), xvii-xxi.

⁵¹ Ibid.

⁵² Ibid.

⁵³ Ibid.

⁵⁴ Ibid.

⁵⁵ See Section 2.2 of Chapter 2 of this Thesis; I M. Andi Arsana and Farid Yuniar Sumaryo, 'Geospatial Aspects of Maritime Boundary Delimitations in the Singapore Strait involving Indonesia, Malaysia and Singapore' (Paper presented at the FIG Congress 2010: Facing the Challenges - Building the Capacity, Sydney, 2010), 8.

⁵⁶ Global Environment Facility/United Nations Development Programme/International Maritime Organization, 'Malacca Straits: Special Area? The Need and Feasibility of Designating the Malacca Straits as a Special Area under MARPOL 73/78' (MPP-EAS/Info/99/194, GEF/UNDP/IMO Regional Programme for the Prevention and Management of Marine Pollution in the East Asian Seas, 1997), xvii-xxi.

be carried out to determine the feasibility of designating these areas as Special Areas so that they could act as an environmental buffer zone to the Strait of Malacca;⁵⁷

- (g) The littoral States of both the Straits of Malacca and Singapore should ratify MARPOL 73/78 and its annexes and implement these provisions in their legislation and provide enough port reception facilities to make the Strait of Malacca a successful Special Area. One of the reasons why the Red Sea Special Area Annex I has yet to come into force despite having been designated is because the coastal States have not made proper arrangements to ensure that there are enough reception facilities for ships that call at ports in the Red Sea;⁵⁸
- (h) The littoral States should also develop a strategy on how to effectively enforce the Strait of Malacca Special Area under Annex I, in particular by considering the use of aerial surveillance.⁵⁹

If a proposal to designate the Strait of Malacca as a Special Area under Annex I was to be submitted to the IMO, arguments for and against the proposal would be expected. Firstly, it may be argued that it is not necessary to designate the Straits as Special Areas under MARPOL. Given the fact that the entire length of the Strait's most critical areas, namely from One Fathom Bank to Horsburgh Lighthouse at the eastern end of the Strait of Singapore, have breadths of less than 50 nautical miles from the nearest land, the designation of Special Areas under Annex I is not necessary, as Annex I to MARPOL 73/78 already stipulates that oil tankers are forbidden to discharge oil or oily waste in these areas. This is however, is not entirely true. The northern parts of the Strait of Malacca, especially in areas north of One Fathom Bank to its western entrance to the Andaman Sea, are considerably wider in breadth. As shipping traffic will increase in future years, it is essential to designate the whole Strait of Malacca, including its southern portion and the Strait of Singapore, as Special Areas under Annex I.

Secondly, it may be argued that there are insufficient reception facilities in ports along the Straits of Malacca and Singapore for these Straits to be designated as a Special Area. This contention

⁵⁷ Ibid.

⁵⁸ Ibid.

⁵⁹ Ibid.

was supported by the study undertaken by GEF, UNDP and IMO in 1997.⁶⁰ However, this study was made in 1997 and port facilities have improved since then. Between the years 2001–2004, reception facilities in Malaysian ports increased from 22 to 27 respectively.⁶¹

As a party to MARPOL 73/78 and all of its Annexes, Singapore has adequate reception facilities and hosts ASEAN's largest port reception facilities for the collection, treatment and disposal of oil slop and sludge and other hazardous waste streams, in Pulau Sebarok.⁶² Singapore has legislated for port reception facilities as embodied in the Prevention of Pollution of the Sea (Reception Facilities and Garbage Facilities) Regulation.⁶³ The Prevention of Pollution of the Sea (Reception Facilities and Garbage Facilities) Regulation is a subsidiary legislation of Singapore's Prevention of Pollution of the Sea Act governing matters on port reception facilities for vessels calling at the Port of Singapore.⁶⁴

Indonesia has domestic legislation on port reception facilities as enforced in the Decree of the Minister for Communication 215 Year 1987 (Decree 215/1987).⁶⁵ Articles 2 and 3 of Decree 215/1987 ensure the availability of port waste reception facilities in Indonesian major ports; namely, Belawan in Sumatra, Tanjung Priuk in Jakarta, Tanjung Perak in Surabaya and

⁶⁰ Ibid, xvii-xviii.

⁶¹ Noor Apandi Osnin, *Report on Waste Reception Facilities under MARPOL 73/78 in Malaysia: 2004 Update* (Maritime Institute of Malaysia 2004), 15.

⁶² Singaport Cleanseas, *Reception Facilities* (2009) Singaport Cleanseas <<http://www.cleansseas.com.sg/reception.htm>>.

⁶³ Raymond Tay, *The Contingency Plan and Training of Personnel* (Petroleum Association of Japan <http://www.pcs.gr.jp/doc/esymposium/12170/96_raymond_tay_e.pdf>; 'Prevention of Pollution of the Sea (Reception Facilities and Garbage Facilities) Regulations' (Maritime and Port Authority, 1991), 1-4.

⁶⁴ Section 5 of the Reception Facilities and Garbage Facilities requires that the Maritime and Port Authority of Singapore (MPA) to provide adequate port reception facilities for vessels calling at its port. Section 8(1) (b) of the Reception Facilities and Garbage Facilities requires all vessels to dispose off their discharges at these facilities with reasonable charges of levy imposed by the MPA. See 'Prevention of Pollution of the Sea (Reception Facilities and Garbage Facilities) Regulations' (Maritime and Port Authority, 1991), 1-4.

⁶⁵ Sekretariat Negara Republik Indonesia, 'Keputusan Menteri Perhubungan No. 215 Tahun 1987 Tentang: Pengadaan Fasilitas Penampungan Limbah dari Kapal' (J04-1987-00215, Sekretariat Negara Republik Indonesia, 1987), 1-4.

Makassar.⁶⁶ For example, the Belawan Port has a waste water treatment facility covering an area of 80 square metres and a solid waste collection facility covering 200 square metres.⁶⁷

Indonesian ports that are situated in other sea areas leading towards the Straits of Malacca and Singapore like Tanjung Priok and Tanjung Perak in the Java Sea have also been equipped with waste reception facilities.⁶⁸ The Obligatory Notification UK 112/40/18/AD.TPK issued in December 2009 prohibits every ship that stops by or moors in Tanjung Priok Port in Jakarta from throwing any waste or garbage into the water and surrounding areas.⁶⁹ These materials can only be discharged using waste reception facilities provided by the port authorities.⁷⁰ These facts show that the main ports along the Straits of Malacca and Singapore and those in sea areas leading to the Straits have sufficient port reception facility infrastructure for the potential designation of a Special Area under MARPOL 73/78.

In any case, the lack of port reception facilities in ports in the Strait of Malacca is not as significant as in other sea areas, as most of the shipping traffic transiting the Straits is classified as 'long-haul through traffic', that is, most vessels do not call at any ports situated along the Straits,⁷¹ with the exception of the port of Singapore.⁷² Taking this into consideration, it is

⁶⁶ Ibid.

⁶⁷ Wahyu Indraningsih, 'Marine Litter in Indonesia' (Marine and Coastal Degradation Control, 2006), 12.

⁶⁸ Imam Hambali, *Kebijakan Pemerintah Di Bidang Revitalisasi Fasilitas Penampungan Limbah Cair Di Pelabuhan (Studi Kasus di Pelabuhan Tanjung Perak Surabaya Dalam Rangka Program Bandar Indah* (Magister Dalam Ilmu Lingkungan Thesis, Universiti Indonesia, 2004), 77-94.

⁶⁹ Indonesia Shipping Gazette: Media Perkapalan Indonesia, *Pelindo II invests Cleaning Maintenance Equipments for Tanjung Priok Port* (2010) Indonesia Shipping Gazette <<http://www.indoshippinggazette.com/2002/news/homenews.asp?idnews=6208>>; Port of Tanjung Priok, *Priok 4 Units Investment Rubbish Clean Ship* (2011) Cabang Pelabuhan Tanjung Priok <<http://www.priokport.co.id/index.php?mod=News&lang=eng&aid=70>>.

⁷⁰ Indonesia Shipping Gazette: Media Perkapalan Indonesia, *Pelindo II invests Cleaning Maintenance Equipments for Tanjung Priok Port* (2010) Indonesia Shipping Gazette <<http://www.indoshippinggazette.com/2002/news/homenews.asp?idnews=6208>>.

⁷¹ Vijay Sakhuj, *Malacca: Who's to Pay for Smooth Sailing?* (2007) Asia Times Online <http://www.atimes.com/atimes/Southeast_Asia/IE16Ae01.html>; B.A. Hamzah, 'Funding of Services in the Straits of Malacca: Voluntary Contribution or Cost Recovery' (1999) 3 *Singapore Journal of International & Comparative Laws*, 502-511; Nazery Khalid, 'Maritime Trade and Development' in H.M. Ibrahim and Hairil Anuar Husin (eds), *Profile of the Straits of Malacca: Malaysia's Perspective* (Maritime Institute of Malaysia, 2008), 97-118.

arguable that the available port reception facilities would satisfy the requirements of MARPOL 73/78 and would be sufficient if the Strait of Malacca were to be designated as a Special Area.⁷³

The three littoral States that border the Straits of Malacca and Singapore are parties to MARPOL 73/78 but collectively they have only ratified two Annexes, i.e. Annex I and Annex II. Therefore it is not viable to designate the Strait of Malacca as a Special Area under Annex V, as Indonesia is not a party to this annex.⁷⁴ It may also be argued that it would not be possible to designate the whole of the Strait of Malacca as a Special Area because Thailand, a country that borders the Strait at its northern part, is not a party to MARPOL 73/78 or any of its Annexes. However this argument would not prevent the designation of a Strait of Malacca Special Area as Thailand borders only a very small portion of the northern part of the Strait. As Malaysia, Indonesia and Singapore have all ratified Annex I and most of the vessels that ply the Strait are oil tankers, designation of the Strait as a Special Area under Annex I would appear to be most appropriate. Statistics have shown that in 2010, oil tankers made up 22 per cent of transits in the Straits of Malacca and Singapore,⁷⁵ second only to container ships.

These arguments reinforce the case for designating the Straits of Malacca and Singapore, or the Strait of Malacca itself, as a Special Area under MARPOL 73/78 particularly under Annex I. Oil pollution is a significant challenge in the Strait as it is an important waterway for Japanese, Chinese and South Korean vessels with cargoes of oil. To support such a case, however, an in-depth study on the oceanographic characteristics of the Strait needs to be undertaken as this information is lacking.⁷⁶ There is no doubt that such a designation would enhance the protection

⁷² Global Environment Facility/United Nations Development Programme/International Maritime Organization, 'Malacca Straits: Special Area? The Need and Feasibility of Designating the Malacca Straits as a Special Area under MARPOL 73/78' (MPP-EAS/Info/99/194, GEF/UNDP/IMO Regional Programme for the Prevention and Management of Marine Pollution in the East Asian Seas, 1997), xvii.

⁷³ Ibid.

⁷⁴ Mok Lay Yong, 'Legal Perspective on Vessel-Source Pollution in the Straits of Malacca and Singapore' (CF 4/4/9_Legal Perspectives, Maritime Institute of Malaysia, 2011), 1-6.

⁷⁵ See Table 2-5 of Chapter 2 of this Thesis.

⁷⁶ Global Environment Facility/United Nations Development Programme/International Maritime Organization, 'Malacca Straits: Special Area? The Need and Feasibility of Designating the Malacca Straits as a Special Area under MARPOL 73/78' (MPP-EAS/Info/99/194, GEF/UNDP/IMO Regional Programme for the Prevention and Management of Marine Pollution in the East Asian Seas, 1997), xix-xxi.

and preservation of the marine environment of the Straits of Malacca and Singapore as vessel-source pollution could be better controlled and monitored.⁷⁷

8.3 PARTICULARLY SENSITIVE SEA AREAS

Another potential IMO tool available is through the proposed designation of the Straits of Malacca and Singapore as a Particularly Sensitive Sea Area (PSSA). The concept of PSSA has its origins in Resolution 9 adopted at the International Conference on Tanker Safety and Pollution Prevention, held in London in February 1978 following tanker accidents in 1976 and 1977.⁷⁸ Currently, there are 12 PSSAs world-wide that have been designated as a PSSA by the IMO.⁷⁹ The Guidelines for both Special Areas and PSSA were formerly the same document, Resolution A. 927 (22), before it was replaced by Resolution A.982 (24), Revised Guidelines for the Identification and Designation of PSSAs (PSSA Revised Guidelines),⁸⁰ adopted by the IMO in December 2005.⁸¹

Articles 5.1 and 5.2 of the PSSA Revised Guidelines clarify that in addition to meeting at least one criterion in relation to ecological, social, cultural and economic aspects, the proposed area for PSSA designation should also be an area which is at risk from international shipping activities.⁸² This involves considerations related to two factors: vessel traffic characteristics and

⁷⁷ Abdul Haseeb Ansari and Nik Ahmad Kamal, 'Prevention, Abatement and Control of Pollution of Straits: An Appraisal With Special Reference to the Straits of Malacca' (2005) 3 *Malayan Law Journal*, viii-x.

⁷⁸ Agustin Blanco-Bazan, 'The IMO guidelines on Particular Sensitive Sea Areas (PSSAs): Their possible Application to the Protection of Underwater Cultural Heritage' (1996) 20(4) *Marine Policy*, 343-334; Paul Nelson, 'Protecting Areas That Are Vulnerable to Damage by Maritime Activities: The Reality of Particularly Sensitive Sea Areas' (2003) *Maritime Studies*, 20-22; Mohd Nizam Basiron and Cheryl Rita Kaur, 'Designating a Particularly Sensitive Sea Area in the Straits of Malacca: Specifics and Processes' (Paper presented at the Sixth MIMA International Conference on the Straits of Malacca: Charting the Future, Kuala Lumpur, 2009), 111-123.

⁷⁹ International Maritime Organization, *Particularly Sensitive Sea Areas* (2002) IMO <http://www.imo.org/environment/mainframe.asp?topic_id=1357>.

⁸⁰ The PSSA Revised Guidelines defined PSSA as 'an area that needs special protection through action by IMO because of its significance for recognised ecological or socio-economic or scientific reasons and which may be vulnerable to damage by international maritime activities. See International Maritime Organization (IMO), 'Revised Guidelines For the Identification and Designation of Particularly Sensitive Sea Areas' (A 24/Res.982, IMO, 2006), 1-13.

⁸¹ International Maritime Organization (IMO), *PSSA: Particularly Sensitive Sea Area* (IMO, 2007), 19-20.

⁸² Article 5.2 stipulates *inter alia* that 'In proposing an area as a PSSA and in considering the associated protective measures to prevent, reduce, or eliminate the identified vulnerability, other information that might be helpful

natural factors. Consideration would also be given to areas having hydrographical, meteorological and oceanographic characteristics that may pose dangers to mariners.

8.3.1 The Proposed Straits of Malacca and Singapore PSSA

The Straits of Malacca and Singapore are collectively considered as an ancient trading route.⁸³ The trading activities that went through the Straits have attracted traders from all around the world to this region. The rich cultures brought to the two dominant ports along the Strait of Malacca, Penang and Malacca, by innumerable travellers and traders over the centuries have intermingled and created a beautiful harmonious society of different races, each with its own distinct and unique features.⁸⁴ As a result, both Malacca and Georgetown, Penang, were declared World Heritage Sites by the UNESCO in 2008.⁸⁵

The Strait of Malacca is also located within a zone of megadiversity encompassing a variety of habitats and productive marine and coastal ecosystems that include mangrove forests, extensive seagrass beds, mudflats and coral reefs that support a numerous species of flora and fauna.⁸⁶ The

includes the following: (1) any evidence that international shipping activities are causing or may cause damage to the attributes of the proposed area...(2) any history of groundings, collisions, or spills in the area and any consequences of such incidents...(4) stresses from other environmental effect.’ See International Maritime Organization (IMO), ‘Revised Guidelines For the Identification and Designation of Particularly Sensitive Sea Areas’ (A 24/Res.982, IMO, 2006), 7-8; Markus J. Kachel, *Particularly Sensitive Sea Areas: The IMO’s Role in Protecting Vulnerable Marine Areas* (Springer-Verlag, 2008), 163-167.

⁸³ Langkasuka was the earliest port established in the Strait of Malacca region. Subsequently, the kingdom of Srivijaya rose into power and participated actively in a growing world economy and prospered well in engaging extensive commerce in camphor, cloves sandalwood, and nutmegs. The centre of commerce and trade in Southeast Asia was shifted to Majapahit after the fall of Srivijaya in the 13th century. Majapahit traders accumulated raw materials from its territories such as pepper, salt, coconut oil from Java, spices from Moluccas, ivory from Sumatra and tin from the Malay Peninsula to be exchanged with textiles from India and porcelain products from China. Malacca replaced Majapahit as a leading economic power in the Strait of Malacca region before the region gradually fell under the control of the European colonial powers. See Sections 2.2.1 and 2.2.2 of Chapter 2 of this Thesis.

⁸⁴ Nordin Hussin, ‘Historical Development of Coastal Ports and Towns in the Straits of Malacca’ in H.M. Ibrahim and Hairil Anuar Husin (eds), *Profile of the Straits of Malacca: Malaysia’s Perspective* (Maritime Institute of Malaysia, 2008), 7-22.

⁸⁵ United Nations Educational, Scientific and Cultural Organization (UNESCO), *Melaka and George Town, Historic Cities of the Straits of Malacca* (2011) UNESCO <<http://whc.unesco.org/en/list/1223>>.

⁸⁶ Coral reef population in the Strait of Malacca is concentrated in areas like Cape Rachado (Tanjung Tuan) and Pulau Payar Marine Park which are natural homes for marine life like sea sponges, crustaceans and coral reef fishes. See Siti Nazatul Izura bt Mohd Ishak and Tan Kim Hooi, ‘Fisheries in the Straits of Malacca’ in H.M. Ibrahim and Hairil Anuar Husin (eds), *Profile of the Straits of Malacca: Malaysia’s Perspective* (Maritime Institute of Malaysia, 2008), 87-98. The prominent mudflat sites include Kuala Gula, Kuala Merbok, Kuala Selangor, Pontian and

Straits of Malacca and Singapore are important fishing grounds for their coastal population.⁸⁷ Furthermore, the coastal areas on both Straits of Malacca and Singapore are also renowned for their many white sandy beaches, coral reef concentrations, getaway islands and many other natural attractions, either on the Sumatra side, or the western coast of Peninsular Malaysia and the Riau Islands to the south.⁸⁸

In addition, the Straits of Malacca and Singapore are also important for the oil and gas industry. There are a few oil and gas mining sites in central and northern regions of Sumatra and there are also a number of oil refineries located in major urban centres along the coast, particularly in Malacca, Port Dickson and Singapore.⁸⁹ As a result of their socio-economic importance, the coastal areas facing the Straits of Malacca and Singapore support a relatively high population density, with many cities or urban metropolitan areas concentrated towards the coast such as the cities of Georgetown, Malacca Johor Bahru, and the Klang Valley conurbation in Malaysia, Medan, Dumai and Pekanbaru in Indonesia, as well as the city-State of Singapore.⁹⁰

Tanjung Piai. Mudflats form natural habitats for shellfishes, residential and migratory waterbirds and also act as important cockle breeding grounds. See Siti Nazatul Izura Mohamed Ishak and Tan Kim Hooi, 'Shaping the Future of the Cockle Industry in Malaysia' (2008) 15(3) *MIMA Bulletin*, 18-20. The designation of Tanjung Piai, Pulau Kukup and Sungai Pulai as RAMSAR sites shows that the coastal environment along the Strait of Malacca is important in wetlands conservation. See The Ramsar Convention on Wetlands, *The Annotated Ramsar List: Malaysia* (2008) Ramsar <http://www.ramsar.org/cda/en/ramsar-pubs-annolist-annotated-ramsar-16529/main/ramsar/1-30-168%5E16529_4000_0__>. Pulau Langkawi, Malaysia's premier resort island is well-known for its natural beauty and unique flora and fauna ecosystems. Due to its ecological importance, Pulau Langkawi was awarded a World GEOPARK status by UNESCO in June 2007. See United Nations Educational, Scientific and Cultural Organization (UNESCO), 'Global Geopark Networks' (UNESCO, 2006), 2. It is based on these facts that many regard the Straits of Malacca and Singapore and their surrounding areas as a region which are not only rich in biodiversity, but are also considered a haven that harbours some of the greatest species diversity of marine life in the world. See A G Mazlan et al, 'On the Current Status of Coastal Marine Biodiversity in Malaysia' (2005) 34(1) *Indian Journal of Marine Sciences*, 76-87; See Section 2.5.2 of Chapter 2 of this Thesis.

⁸⁷ In 2007, the total number of fish landings in Peninsular Malaysia's West Coast states was around 692,985 tonnes valued at RM2.263 billion and in 2009, the number of fish landings has increased up to 729, 558 tonnes, an increase of about 5 per cent of that of 2007. See Sutarji Kasmin, 'Enforcing Ship-Based Marine Pollution for Cleaner Sea in the Strait of Malacca' (2010) 3 (Special Issue) *EnvironmentAsia*, 61-65; Mohd Nizam Basiron and Cheryl Rita Kaur, 'Designating a Particularly Sensitive Sea Area in the Straits of Malacca: Specifics and Processes' (Paper presented at the Sixth MIMA International Conference on the Straits of Malacca: Charting the Future, Kuala Lumpur, 2009); See Section 2.5.1 of Chapter 2 of this Thesis.

⁸⁸ The littoral States of Malaysia, Indonesia and Singapore are dependent on the Straits of Malacca and Singapore to promote the development of their tourism industry. See Section 2.5.2 of Chapter 2 of this Thesis.

⁸⁹ See Section 2.5.3 of Chapter 2 of this Thesis.

⁹⁰ See Section 2.4 of Chapter 2 of this Thesis.

The Straits of Malacca and Singapore are indubitably crucial for international shipping activities. These heavy shipping movements have increased the risks of maritime accidents, which take place in the Straits every year and result in oil and HNS spills, coastal soil erosion and low coral reef population development.⁹¹ As such, the Straits may fulfil the criteria needed for designation as a PSSA, namely:

- (a) Ecological criteria [Articles 4.4.1–4.11 of Resolution A.982 (24)]⁹²
- (b) Social, cultural and economic criteria [Articles 4.4.12–4.4.14 of Resolution A.982 (24)];⁹³
- (c) Vulnerability to impacts from international shipping activities [Article 5 of Resolution A.982 (24)].⁹⁴

As these waterways may potentially fulfil the criteria given in Resolution A.982 (24), some commentators have expressed views that the Strait of Malacca may be a logical candidate to be designated as a PSSA.⁹⁵ Based on the criteria which must be fulfilled for designation as a PSSA, it would not be impossible for both the Straits of Malacca and Singapore to qualify as a PSSA.⁹⁶

⁹¹ See Section 5.2.2.2 of Chapter 5 of this Thesis.

⁹² The coastal and marine environment of the Straits of Malacca and Singapore are habitats of many species of flora and fauna and these natural habitats possess high rate of natural biological production. The designations of Tanjung Piai as a RAMSAR site and Pulau Langkawi as one of UNESCO's World GEOPARK further strengthen the argument that the Straits of Malacca and Singapore have rich ecological value and characteristics.

⁹³ The Straits are crucial economic lifelines for their coastal population in Malaysia, Indonesia and Singapore particularly in the fisheries, tourism industries and oil mining industries. Furthermore, the fact that two historic cities of Malacca and Penang are now UNESCO World Heritage Sites signifies that the Strait of Malacca and its coastal areas possess significant historical value.

⁹⁴ Being the nearest route connecting the East and West, the Straits of Malacca and Singapore are accommodating heavy shipping activities. These highly congested Straits are prone to maritime accidents and to date, the biggest oil spill in the Strait of Malacca involved a spillage of 293, 000 barrels of crude oil off the coast of Dumai, Indonesia. It is an undeniable fact that the Straits are vulnerable to impacts from international shipping activities. Any oil or HNS spills incidents would definitely affect the livelihood of the large coastal population of the littoral States of Malaysia, Indonesia and Singapore. See Table 2-5 of Chapter 2 and Table 5-8 of Chapter 5 of this Thesis.

⁹⁵ 'It is very likely that the Malacca Strait as a whole would not qualify for designation as a PSSA, but only a particular clearly defined area of the strait which is in special need of protection.' See Robert Beckman, 'Transit Passage Regime in the Straits of Malacca: Issues for Consideration' (Paper presented at the Building A Comprehensive Security Environment in the Straits of Malacca, Kuala Lumpur, 2004), 258-262; 'According to social, cultural and economic criteria, the Straits could be accepted as an area that is of particular importance to human and economic dependency. The economic importance of the Straits to Malaysia extends beyond its function as a transport channel. The other economic activities, such as offshore fishing, tourism and mangrove harvesting, make an important contribution to the Malaysian and Indonesian economies.' See Nihan Unlu, 'Current Legal Developments: Straits of Malacca' (2006) 21(4) *The International Journal of Marine and Coastal Law*, 546-547.

In comparison with the Torres Strait, there are parallels with the Straits of Malacca and Singapore as both are waterways with many navigational hazards,⁹⁷ both are rich in the concentration of biodiversity⁹⁸ and are important fishing grounds,⁹⁹ and both possess historical and cultural significance¹⁰⁰. Most importantly, both waterways are straits used for international navigation as defined in Part III of the LOSC.¹⁰¹ Nevertheless, in terms of traffic characteristics, the navigational traffic in the Straits of Malacca and Singapore is approximately 25 times higher than the Torres Strait. In addition, unlike the Torres Strait, which has had only one accidental oil spill incident so far, accidental oil and HNS spills have occurred repeatedly in different areas of

‘The Malacca Strait might be a logical candidate to be designated by the IMO as a particularly sensitive sea area because of the human and economic dependency on this Strait.’ See Jon M. Van Dyke, ‘Transit Passage Through International Straits’ in Aldo Chircop, Ted L. McDorman and Susan J. Rolston (eds), *The Future of Ocean Regime-Building: Essays in Tribute to Douglas M. Johnston* (Martinus Nijhoff, 2009), 193.

⁹⁶ Mohd Hazmi bin Mohd Rusli, ‘The Impacts of Shipping on the Marine Environment of Critical Maritime Chokepoints: A Study of the Straits of Malacca and Singapore’ (Paper presented at the 2nd World Biodiversity Congress, Kuching, Sarawak, Malaysia, 2011).

⁹⁷ The Torres Strait can be described as the area of water between Cape York Peninsula in the far north of the Australian continent and Papua New Guinea. The Strait is about 80.993 nautical miles wide and 107.991 nautical miles long, and is surrounded by the Arafura Sea to the West and, the Great Barrier Reef and the Coral Sea to the East. It is an important gateway linking Asia with ports of Eastern coast of Australia and of the South Pacific. Although it is about 150 kilometres at its widest point, it is often said that navigation through the Torres Strait is difficult as it is dotted by 150 islands and has many fringing reefs within it, hence making the strait relatively shallow. As a meeting place for the Pacific and the Indian Oceans, the area has a highly variable tidal regime, which further complicates navigation. See Sam Bateman, ‘The Compulsory Pilotage Regime in the Torres Strait- A “Melting Pot” of Operational, Legal and Political Considerations’ in Aldo Chircop, Ted L. McDorman and Susan J. Rolston (eds), *The Future of Ocean Regime-Building: Essays in Tribute to Douglas M. Johnston* (Martinus Nijhoff, 2009), 263-265; Stuart B. Kaye, ‘The Torres Strait’ in Gerard J Mangone (ed), *International Straits of the World* (Martinus Nijhoff, 1997) vol 12, 1-5; Julian Roberts, ‘Compulsory Pilotage in International Straits: The Torres Strait PSSA Proposal’ (2006) 37(1) *Ocean Development & International Law*, 100-101.

⁹⁸ The Torres Strait and its surrounding areas including the Cape York Peninsula and the Gulf of Carpentaria possess pristine and sensitive marine environment and harbours an extraordinary diversity. Nevertheless, the Torres Strait was not listed as part of the Great Barrier Reef World Heritage Site by the UNESCO. See United Nations Educational, Scientific and Cultural Organization (UNESCO), *Great Barrier Reef- UNESCO World Heritage Centre* (2011) UNESCO <<http://whc.unesco.org/en/list/154>>; Simon Woodley et al, *World Heritage Research: Making a Difference* (CRC Reef Research Centre, 2006), 8.

⁹⁹ The Torres Strait is important for commercial fisheries activities as well as traditional fisheries activities which are particularly practiced among the indigenous population. See Stuart B. Kaye, ‘The Torres Strait’ in Gerard J Mangone (ed), *International Straits of the World* (Martinus Nijhoff, 1997) vol 12, 10.

¹⁰⁰ The islands of the Torres Strait are also home of several groups of Australian indigenous people that are collectively described as the Torres Strait Islanders. See Adam McCarthy, ‘Protecting the Environment and Promoting Safe Navigation: Australia’s System of Pilotage in the Torres Strait’ (Department of Foreign Affairs and Trade, Australia, 2006), 2-3.

¹⁰¹ Melda Malek, ‘The PSSA as a Tool for Marine Protection: Options for Malaysia’ (2011) 18(2) *MIMA Bulletin*, 28-33.

the Straits of Malacca and Singapore.¹⁰² Congestion in the Straits of Malacca and Singapore has been identified as one of the causes of these maritime accidents. Therefore, if the Torres Strait could be designated as a PSSA, the Straits of Malacca and Singapore may also be proposed to be similarly designated.¹⁰³

8.3.2 Associated Protective Measures

As PSSA designation is not a ‘stand alone’ regime.¹⁰⁴ States that wish to have marine areas under their jurisdiction designated as PSSAs must submit their proposals to the IMO with the proposed Associated Protective Measures (APMs) to be considered by the IMO’s MEPC.¹⁰⁵ The MEPC should not designate a PSSA until after the APMs are considered and approved by the relevant Sub-Committee, Committee or Assembly within the IMO mechanism.¹⁰⁶ If the APMs are not approved, the MEPC may reject the PSSA application entirely or request that the

¹⁰² Australian Maritime Safety Authority (AMSA), *Major Oil Spills in Australia: Oceanic Grandeur, Torres Strait, 3 March 1970* (2010) AMSA <http://www.amsa.gov.au/marine_environment_protection/major_oil_spills_in_australia/Oceanic_Grandeur/index.asp>; See Table 5-4 of Chapter 5 of this Thesis.

¹⁰³ Mohd Hazmi bin Mohd Rusli, ‘Protecting Vital Sea Lines of Communication: A Study of the Proposed Designation of the Straits of Malacca and Singapore as a Particularly Sensitive Sea Area’ (2012) 57 *Ocean & Coastal Management*, 89-92.

¹⁰⁴ Julian Roberts and Martin Tsamenyi, ‘The Regulation of Navigation Under International Law: A Tool for Protecting Sensitive Marine Environments’ in Tafsir Malick Ndiaye and Rudiger Wolfrum (eds), *Law of the Sea, Environmental Law and Settlement of Disputes* (Martinus Nijhoff, 2007), 787.

¹⁰⁵ Revised Guidelines For the Identification and Designation of Particularly Sensitive Sea Areas’ (A 24/Res.982, IMO, 2006), 8-13; Paul Nelson, ‘Protecting Areas That Are Vulnerable to Damage by Maritime Activities: The Reality of Particularly Sensitive Sea Areas’ (2003) *Maritime Studies*, 20-22.

¹⁰⁶ The IMO consists of an Assembly, a council and five main committees namely the Maritime Safety Committee (MSC), the Marine Environment Protection Committee (MEPC), the Legal Committee, the Technical Co-operation Committee and the Facilitation Committee. The members of these integral committees of the IMO are made up of all State parties to the IMO. When Australia and PNG submitted their proposal, the proposal was considered by *inter alia*, the MSC, MEPC and the Legal Committee. The main function of the MSC is to consider any matters within the scope of the IMO relating to safety of navigation such as aids to navigation, construction and equipment of vessels, maritime safety procedures and requirements, and rules for the prevention of collisions. The MEPC is empowered to consider any matters within the capacity of the IMO concerning the prevention and control of pollution from ships. The Legal Committee, as its name indicates, deals with any legal matters that may arise within the scope of the IMO. See International Maritime Organization (IMO), *Structure* (2002) IMO <http://www.imo.org/about/mainframe.asp?topic_id=312#6>.

proposing member States submit new proposals for APMs.¹⁰⁷ With regard to the APMs to be introduced in the designated PSSAs, Article 6.1 of the PSSA Revised Guidelines states that:

...associated protective measures for PSSAs are limited to actions that **are to be**, or **have been**, approved or adopted by IMO...¹⁰⁸
(Emphasis added)

The APMs may also be new measures that have never been introduced by the IMO.¹⁰⁹ If the Straits of Malacca and Singapore are to be designated as PSSAs, it is therefore crucial to examine the potential APMs that could be implemented, as well as the anticipated political and legal implications arising from such a designation.

8.3.2.1 The Proposed Traffic Limitations on the Straits of Malacca and Singapore

A potential APM which might be imposed in any proposed Straits of Malacca and Singapore PSSA is a limitation on shipping traffic through the Straits. A plan to cap shipping movement in the Straits was suggested by the Malaysian government in 2008.¹¹⁰ Nevertheless, under customary and conventional international law, straits have always been deemed to be open to maritime traffic. Even before the LOSC came into force, conventions and other agreements regarding straits contained provisions that ensured the freedom of navigation for vessels transiting straits.¹¹¹

¹⁰⁷ Revised Guidelines For the Identification and Designation of Particularly Sensitive Sea Areas' (A 24/Res.982, IMO, 2006), 8-13

¹⁰⁸ Ibid.

¹⁰⁹ Article 6.1.3 of the Revised PSSA Guidelines provides that the IMO permits 'the development and adoption of other measures aimed at protecting specific area against environmental damage from ships, provided that they have an identified legal basis. See Revised Guidelines For the Identification and Designation of Particularly Sensitive Sea Areas' (A 24/Res.982, IMO, 2006), 8-13

¹¹⁰ Teh Eng Hock, 'Malaysia Seeks to Limit Maritime Traffic in Straits of Malacca' (2008) *The Star Online* <<http://thestar.com.my/news/story.asp?sec=nation&file=/2008/10/22/nation/2335917>>.

¹¹¹ Article 2 of Section 1 of the Montreux Convention 1936 that governs navigation in the Turkish Straits States that in time of peace, merchant vessels shall enjoy complete freedom of transit and navigation in the Straits regardless of their flags and the cargoes they are carrying. See Natalino Ronzitti, '1936 Montreux Convention Regarding the Regime of the Straits' in Natalino Ronzitti (ed), *The Law of Naval Warfare: A Collection of Agreements and Documents with Commentaries* (Martinus Nijhoff, 1988), 435-468. Article 7 of the Torres Strait Treaty ensures freedom of navigation and overflight over the Torres Strait. See Australia Department of Foreign Affairs, *Treaty Between Australia and the Independent State of Papua New Guinea Concerning Sovereignty and Maritime Boundaries in the Area Between the Two Countries, Including the Area Known*

The Montreux Convention 1936 (Montreux Convention) which governs navigation in the Turkish Straits, comprising the Dardanelles, the Sea of Marmora and the Bosphorus, has different provisions from other treaties and conventions regarding straits. The Convention guarantees freedom of navigation to all ships to ply the Turkish Straits, however, it imposes some limitations and conditions on both merchant and naval vessels transiting the straits, depending on the prevailing political situation. Article 6 of the Montreux Convention provides:

Should Turkey consider herself to be threatened with imminent danger of war, the provisions of Article 2 shall nevertheless continue to be applied except that vessels must enter the Straits **by day** and their transit must be effected by the route which shall, in each case be indicated by the Turkish authorities. (Emphasis added)

The Montreux Convention also imposes limitations on the aggregate tonnage of naval vessels that are transiting or are present in the Turkish Straits.¹¹² Article 18(1) (a), (b) and (c) of the Montreux Convention further explains the limitations on the aggregate tonnage of shipping which non-Black Sea Powers may have while present in the Turkish Straits.¹¹³ Although customary international law and the LOSC dictate that straits shall always be open for navigation, the State practice disclosed in the Montreux Convention is a historical exception to

as Torres Strait, and Related Matters (1985) Department of Foreign Affairs, Australia <<http://www.austlii.edu.au/au/other/dfat/treaties/1985/4.html>>. Article V of the 1881 Boundary Treaty between Argentina and Chile confers freedom of navigation for vessels of all flags to sail through the Strait of Magellan. See ‘The Boundary Treaty between Argentina and Chile’ as quoted in Michael A. Morris, ‘The Strait of Magellan’ in Gerard J. Mangone (ed), *International Straits of the World* (Martinus Nijhoff, 1989), 205-206.

¹¹² Article 14 of the Montreux Convention provides ‘The maximum aggregate tonnage of all foreign naval forces which may be in course of transit through the Straits shall not exceed 15,000 tonnes...’. See Natalino Ronzitti, ‘1936 Montreux Convention Regarding the Regime of the Straits’ in Natalino Ronzitti (ed), *The Law of Naval Warfare: A Collection of Agreements and Documents with Commentaries* (Martinus Nijhoff, 1988), 435-468.

¹¹³ Article 18(1) of the Montreux Convention reads ‘The aggregate tonnage which non-Black Sea Powers may have in that sea in time of peace shall be limited as follows: (a) Except as provided in paragraph (b), the aggregate tonnage of the said Powers shall not exceed 30, 000 tonnes; (b) If at any time the tonnage of the strongest fleet in the Black Sea shall exceed at least 10 000 tonnes the tonnage of the strongest fleet in that sea at the date of the signature of the present Convention, the aggregate tonnage of 30, 000 tonnes mentioned in paragraph (a) shall be increased by the same amount, up to a maximum of 45, 000 tonnes...; (c) The tonnage which any one non-Black Sea Power may have in the Black Sea shall be limited to two-thirds of the aggregate tonnage provided for in paragraphs (a) and (b)’. See *Ibid.*

this general rule.¹¹⁴ The limitations prescribed by the Montreux Convention upon merchant vessels in Turkish Straits are only applicable in war and the limitations on average aggregate tonnage only apply to naval ships. This instance of divergent State practice shows that putting limitations or conditions on vessels transiting straits, although rare, is not entirely unprecedented.¹¹⁵

Even though the Straits of Malacca and Singapore are not governed by a long-standing international convention like the Turkish Straits, this may not preclude the littoral States from placing certain limitations for environmental protection purposes on ships transiting the straits.¹¹⁶ A potential justification for such limitations, which could be argued in a submission to the IMO, is that the Straits of Malacca and Singapore have only a certain carrying capacity for shipping traffic.¹¹⁷ If shipping traffic exceeds certain limits, it may adversely impact the well-being of the marine environment to the extent of causing irreparable damage.¹¹⁸

The reasons why the Montreux Convention imposed limitations on shipping traffic in the Turkish Straits (depending on the prevailing political situation) was associated with Turkey's security. Therefore, in the case of the Straits of Malacca and Singapore the reasons for imposing such limitations would be to enable the littoral States to protect and preserve the integrity of the marine environment of the Straits from being degraded by heavy shipping activities. The PSSA Revised Guidelines provide that the APMs for PSSAs must be those that 'are to be' or 'have been' approved by the IMO such as routeing systems. A traffic limitation scheme could be

¹¹⁴ Mohd Hazmi bin Mohd Rusli, 'Balancing the Tensions between Shipping and Marine Environmental Protection in the Straits of Malacca and Singapore: Have the Straits Reached an Environmental Tipping Point' (2011) 7(2) *The International Journal of Environmental, Cultural, Economic and Social Sustainability*, 39-48.

¹¹⁵ Mohd Hazmi bin Mohd Rusli, 'The Legal Feasibility of the Imposition of a Traffic Limitation Scheme in Straits Used for International Navigation: A Study of the Straits of Malacca and Singapore' (2011) 1(6) *International Journal of Humanities and Social Science*, 122-130.

¹¹⁶ Mohd Hazmi bin Mohd Rusli, 'Protecting Vital Sea Lines of Communication: A Study of the Proposed Designation of the Straits of Malacca and Singapore as a Particularly Sensitive Sea Area' (2012) 57 *Ocean & Coastal Management*, 85-87.

¹¹⁷ Mohd Hazmi bin Mohd Rusli, 'Shipping Controls in Critical Straits: A Study of the Legal Feasibility of the Designation of the Straits of Malacca and Singapore as a Particularly Sensitive Sea Area' (Paper presented at the International Conference on Environment 2010, Penang, Malaysia, 2010).

¹¹⁸ 'There may well be a tipping point, beyond which any further increase would be too costly and hazardous...there is a limit to the carrying capacity of the straits.' See H.M. Ibrahim, 'Straits Safety Not Just Littoral States' Burden', *New Straits Times* (Kuala Lumpur), 25 November 2008.

characterised as a routing system in that it helps to regulate traffic, especially in narrow, busy and constricted waters such as those of the Straits of Malacca and Singapore.

Undoubtedly, if traffic limitations were proposed as an APM in a submission made to the IMO on the designation of the Straits of Malacca and Singapore as a PSSA, member States would question the import and content of this measure as well as its legality.¹¹⁹ Would it involve only certain types of vessels such as giant megatankers? What would be the maximum limit on shipping movements through the straits daily, monthly or even yearly? Who would have the authority to decide the maximum volume of shipping traffic to traverse the Straits? Will the limitation relate to the maximum gross tonnage of vessels? If so, what will be the maximum gross tonnage per ship per day allowed to traverse the Straits? Would a vessel be penalised if it violated the limitation regulations? Maritime States are likely to argue that any such measure would be inconsistent with the LOSC, particularly Articles 38(1) and 44.

Some maritime States may also contend that this proposed APM would create an undesirable precedent that could be followed by other States bordering straits elsewhere in the world. In addition, it could be argued that this proposed APM would cause undue delays in maritime shipments and unwarrantedly disrupt the free flow of international trade. A study has estimated that the cost of rerouting tankers to Japan away from the Straits of Malacca and Singapore route would increase the cost of doing business by US \$88 million.¹²⁰ Certainly, it should be anticipated that this form of APM would not be favoured by major maritime States that depend on the Straits for the survival of their economies.

Putting this potential opposition aside, in relation to implementation of such a measure, discussions could be convened between the littoral States, the user States, private stakeholders and the IMO in order to determine the best method of limiting shipping traffic so as to protect the marine environment of the Straits without substantial disruption to global trade. Further research

¹¹⁹ Mohd Hazmi bin Mohd Rusli, 'The Legal Feasibility of the Imposition of a Traffic Limitation Scheme in Straits Used for International Navigation: A Study of the Straits of Malacca and Singapore' (2011) 1(6) *International Journal of Humanities and Social Science*, 125.

¹²⁰ Joshua H. Ho, 'Enhancing Safety, Security and Environmental Protection of the Straits of Malacca and Singapore: The Co-operative Mechanism' (2009) 40(2) *Ocean Development and International Law*, 233-234.

would also be needed to determine the sustainable traffic carrying capacity of the Straits, taking into consideration their biodiversity and their socio-economic and scientific importance.

A preliminary study conducted by the Maritime and Port Authority of Singapore (MPA) and released in November 2009 revealed that the Strait of Malacca can sustain traffic up to five times the current level.¹²¹ It also noted that the Strait of Singapore could safely accommodate a doubling or more of vessel traffic in the future, up to an increase of 75 per cent without needing any changes to its infrastructure or operations.¹²² The study pointed out that in 2007, there were 257,000 vessel movements in the Strait of Singapore based on actual vessel reports to the Vessel Traffic Services (VTS) in Singapore.¹²³ Furthermore, the study indicated that the number of accidents and collisions in the Strait of Singapore has remained constant over the three-year period from 2006 despite the steady increase in shipping traffic, demonstrating that an increase in traffic volume may not directly affect the safety of navigation in the Strait of Singapore.¹²⁴

¹²¹ Maritime and Port Authority of Singapore, *Working Paper For "Carriage Capacity of the Straits of Malacca and Singapore"* (2009) SG Press Centre <http://www.news.gov.sg/public/sgpc/en/media_releases/agencies/mpa/press_release/P-20091028-2.html>; Yee Cheok Hong, 'Carriage Capacity of the Straits of Malacca and Singapore, Maritime Challenges and Priorities in Asia: Report of a Conference Organised by S.Rajaratnam School of International Studies (RSIS), Nanyang Technological University, Singapore' (S. Rajaratnam School of International Studies, Nanyang Technological University, 2010), 5-6.

¹²² Joshua Ho, 'The Strait of Malacca and Singapore: Ensuring Safe and Efficient Shipping' (2009) *RSIS Commentaries* <<http://www.rsis.edu.sg/publications/Perspective/RSIS1192009.pdf>>; Straits Times, 'Singapore Strait Can Handle 75 per cent Growth in Traffic', *Straits Times* (Singapore), 2009; Vincent Wee, 'Malacca, Singapore Straits Can Handle Rise in Vessel Traffic', *The Business Times* (Singapore), 2009.

¹²³ Joshua Ho, 'The Strait of Malacca and Singapore: Ensuring Safe and Efficient Shipping' (2009) *RSIS Commentaries* <<http://www.rsis.edu.sg/publications/Perspective/RSIS1192009.pdf>>; Mohd Hazmi bin Mohd Rusli, 'The Legal Feasibility of the Imposition of a Traffic Limitation Scheme in Straits Used for International Navigation: A Study of the Straits of Malacca and Singapore' (2011) 1(6) *International Journal of Humanities and Social Science*, 122-127; Mohd Hazmi bin Mohd Rusli, 'Balancing the Tensions between Shipping and Marine Environmental Protection in the Straits of Malacca and Singapore: Have the Straits Reached an Environmental Tipping Point' (2011) 7(2) *The International Journal of Environmental, Cultural, Economic and Social Sustainability*, 39-48; Maritime and Port Authority of Singapore (MPA), 'SoMS Study: Preliminary findings show capacity to handle traffic growth in the Singapore Strait' (MPA, 2009).

¹²⁴ Maritime and Port Authority of Singapore, *Working Paper For "Carriage Capacity of the Straits of Malacca and Singapore"* (2009) SG Press Centre <http://www.news.gov.sg/public/sgpc/en/media_releases/agencies/mpa/press_release/P-20091028-2.html>; Mohd Hazmi bin Mohd Rusli, 'The Legal Feasibility of the Imposition of a Traffic Limitation Scheme in Straits Used for International Navigation: A Study of the Straits of Malacca and Singapore' (2011) 1(6) *International Journal of Humanities and Social Science*, 122-127; Mohd Hazmi bin Mohd Rusli, 'Balancing the Tensions between Shipping and Marine Environmental Protection in the Straits of Malacca and Singapore: Have the Straits Reached an Environmental Tipping Point' (2011) 7(2) *The International Journal of Environmental, Cultural, Economic and Social Sustainability*, 39-48.

The second phase of this study by the MPA will venture into possible traffic management measures to ensure that smooth and safe navigation in the Strait of Singapore is guaranteed.¹²⁵ The results of the second part of the study have yet to be revealed as this research is ongoing.¹²⁶

In contrast, a similar study conducted by Maritime Institute of Malaysia (MIMA) claimed that the maximum carrying capacity of the Strait of Malacca is 122,640 vessels, which was predicted to happen in 2024.¹²⁷ This study applied queuing theory as a methodology and projected carrying capacity based on traffic data generated by the STRAITREP system.¹²⁸ MIMA has also conducted another study into carrying capacity from the perspective of domains or the areas generated around a vessel. As the domains of ships decrease, the carrying capacity of a waterway or strait would increase and vice versa.¹²⁹ As shown in Figure 8-1, larger domains would reduce the risk of the occurrence of maritime accidents.

¹²⁵ Maritime and Port Authority of Singapore, *Working Paper For "Carriage Capacity of the Straits of Malacca and Singapore"* (2009) SG Press Centre <http://www.news.gov.sg/public/sgpc/en/media_releases/agencies/mpa/press_release/P-20091028-2.html>.

¹²⁶ Ibid.

¹²⁷ H.M. Ibrahim and Mansoureh Sh, 'Analysis of Carrying Capacity and Critical Governance Strategies for the Straits of Malacca' (Paper presented at the 6th MIMA International Conference on the Straits of Malacca "Chartering the Future", Kuala Lumpur, Malaysia, 2009).

¹²⁸ Ibid.

¹²⁹ Ibid.

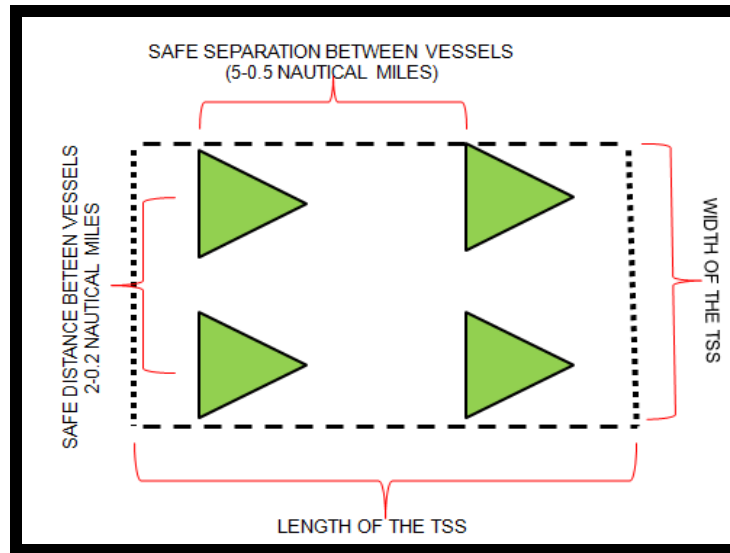


Figure 8-1: The concept of safe distance and separation (Source: Redrawn after Shahryari and Mohamad, 2011)¹³⁰

A safe distance, ranging from 2–0.2 nautical miles, and safe separation, ranging from 5–0.5 nautical miles, are recommended by shippers and mariners in establishing the safe domain of a ship.¹³¹ Using the domain of a safe separation of 5 nautical miles and a safe distance of 2 nautical miles as the benchmark, it is said that the Strait of Malacca could accommodate up to 119,159 vessel movements by the year 2020.¹³²

Similarly, a study conducted by the Japanese Ministry of Land, Infrastructure and Transport in conjunction with the Nippon Foundation in 2007 predicted that the Straits of Malacca and Singapore will accommodate more shipping traffic in the future, with a projected volume of 141,000 vessel transits annually by 2020.¹³³ Although these separate studies differ in their methodologies and conclusions as to the precise carrying capacity of the Straits, the general agreement is that problems of traffic congestion in the Straits are inevitable.¹³⁴ Indeed, if

¹³⁰ Mansoureh Shahryari and Mohd Arshad Atta Mohamed, 'Tipping Points in the Strait of Malacca' (2011) 18(1) *MIMA Bulletin*, 4-11.

¹³¹ *Ibid.*

¹³² Straits Times, 'Singapore Strait can handle 75 per cent growth in traffic', *Straits Times* (Singapore), 2009.

¹³³ Joshua Ho, 'The Strait of Malacca and Singapore: Ensuring Safe and Efficient Shipping' (2009) *RSIS Commentaries* <<http://www.rsis.edu.sg/publications/Perspective/RSIS1192009.pdf>>.

¹³⁴ *Ibid.*

shipping traffic is not kept to its sustainable limit, a normal voyage through the Straits of Malacca and Singapore will obviously be longer than usual and congestion may complicate safe navigation.¹³⁵

In advancing their submission in the IMO, the littoral States could contend that the proposed traffic limitation is critical to enhancing navigational safety by ensuring that the traffic in the straits does not escalate to such a degree that it causes danger to mariners.¹³⁶ They could also contend that this protective measure does not contravene the LOSC as the Convention provides that States have an overarching obligation to protect and preserve the marine environment.¹³⁷ Further research must be undertaken to ascertain the sustainable limit of shipping in the Straits. If shipping traffic is not capped and it goes beyond the carrying capacity of the Strait, the marine environment of these waterways will ultimately suffer undesirable consequences.¹³⁸

8.3.2.2 The Proposed Cost-Recovery Mechanism in the Straits of Malacca and Singapore

The proposed cost-recovery mechanism may also be a suitable APM for the proposed Straits of Malacca and Singapore PSSA. This could be in the form of a toll or levy imposition.¹³⁹ The idea of toll imposition in the Straits of Malacca and Singapore goes back to 1972 but has never been implemented.¹⁴⁰ After the dramatic increase in marine casualties in 1992, this idea was again

¹³⁵ The research conducted by the MPA on carriage capacity of the Straits of Malacca and Singapore revealed that when traffic reaches 140,000 transits per year (twice the amount the Straits are accommodating at present), the travel time through the Strait of Singapore will increase by 13 per cent, from a seven-hour transit to nearly eight hours. See Yee Cheok Hong, 'Carriage Capacity of the Straits of Malacca and Singapore, Maritime Challenges and Priorities in Asia: Report of a Conference Organised by S.Rajaratnam School of International Studies (RSIS), Nanyang Technological University, Singapore' (S. Rajaratnam School of International Studies, Nanyang Technological University, 2010), 5-6.

¹³⁶ Mohd Hazmi bin Mohd Rusli, 'Laws, Regulations and Measures on Protection of the Marine Environment of Straits used for International Navigation: A Study of the Straits of Malacca and Singapore' (Paper presented at the 2011 International Law Association Asia-Pacific Regional Conference, Taipei, Taiwan, Republic of China, 2011).

¹³⁷ Article 192 of the LOSC reads 'States have the obligation to protect and preserve the marine environment'.

¹³⁸ H.M. Ibrahim and Mansoureh Shahryari, 'The Ship Carrying Capacity of the Malacca Straits' (2008) 15(4) *MIMA Bulletin*, 15-16.

¹³⁹ Mohd Hazmi bin Mohd Rusli, 'The Impacts of Shipping on the Marine Environment of Critical Maritime Chokepoints: A Study of the Straits of Malacca and Singapore' (Paper presented at the 2nd World Biodiversity Congress, Kuching, Sarawak, Malaysia, 2011).

¹⁴⁰ The user States, in this context were viewed as 'free riders', and thus, Malaysia suggested that a Malaysia-Indonesia corporation be set up to levy tolls on ships plying the Straits. Singapore and the user States, on the other

mooted to reduce the risks of collisions in the Straits of Malacca and Singapore.¹⁴¹ Levying a toll on vessels transiting the Straits raises questions of inconsistency with LOSC provisions. As discussed in Chapter 4, Article 26(1) of the LOSC prescribes that coastal States should not levy foreign ships that are merely passing through their territorial seas.¹⁴² States bordering straits are primarily responsible for maintaining the safety of navigation facilities in their straits no matter how busy the traffic is.¹⁴³ As one of the States bordering the Dover Strait, which has the reputation as the busiest global choke point, the UK submitted an information paper to the IMO entitled ‘Developing Principles for Charging Users the Cost of Maritime Infrastructure’.¹⁴⁴ This was based on the fact that the increasing cost of navigational aids and facilities would eventually be a burden on the coastal state. In order to foster a more equitable situation, the UK suggested that the IMO should develop fair principles to govern the establishment of a non-discriminatory charging system.¹⁴⁵ This would be a non-profit regime where ships are charged to gain funds for

hand, were not in favour of the idea. See J.N. Mak, ‘Unilateralism and Regionalism: Working Together and Alone in the Malacca Straits’ in Graham Gerard Ong-Webb (ed), *Piracy, Maritime Terrorism and Securing the Malacca Straits* (Institute of Southeast Asian Studies, 2006), 146-151; Koh KL, *Straits in International Navigation: Contemporary Issues* (Oceana, 1982), 61.

¹⁴¹ Tommy H Purwaka, ‘Control of Marine Pollution in the Straits of Malacca and Singapore: Modalities For International Co-operation’ (1998) 2(2) *Singapore Journal of International & Comparative Laws*, 457-458.

¹⁴² The coastal State can only levy them for ‘specific services’. It has been generally accepted that ‘specific services’ refers to pilotage, towing and escorting services, because these services relate to ensuring the success of transiting vessels’ voyages. See Jon M. Van Dyke, ‘Transit Passage Through International Straits’ in Aldo Chircop, Ted L. McDorman and Susan J. Rolston (eds), *The Future of Ocean Regime-Building: Essays in Tribute to Douglas M. Johnston* (Martinus Nijhoff, 2009), 192; See Section 4.2.1 of Chapter 4 of this Thesis.

¹⁴³ See Sections 4.2.1 and 4.2.2 of Chapter 4 of this Thesis.

¹⁴⁴ Documents LEG 76/INF 2 of 12 September 1997 and LEG 77/10 of 20 March 1998 as quoted in David H. Anderson, ‘Funding and Managing International Partnerships for the Malacca and Singapore Straits, Consonant with Article 43 of the UN Convention on the Law of the Sea’ (1999) 3 *Singapore Journal of International & Comparative Laws*, 454-455; Satya N. Nandan, ‘The Management of Straits Used for International Navigation: International Cooperation in Malacca and Singapore Straits’ in Myron H. Nordquist and John Norton Moore (eds), *Current Maritime Issues and the International Maritime Organization* (Kluwer, 1999), 27-28.

¹⁴⁵ In 1997 and 1998, the British Delegation to the IMO’s Legal Committee submitted notes in support of a proposal that the IMO should develop principles for charging users the cost of maritime infrastructure. As a State that borders the Strait of Dover, which is now the world’s busiest straits, the UK noted that the maintenance costs to keep critical straits open for navigation could overstretch the ability of particular States bordering straits to provide such services. The UK then proposed that the IMO should develop a cost-recovery regime which would encourage the establishment of future charging system. This system should be based on four principles. Firstly, the system must be consistent with the LOSC and must preserve the right of innocent passage. Secondly, the system must not discriminate among vessels of different member States participating in the scheme and thirdly that the charges should be clearly related to the cost of providing the services per se. It should not amount to overcharging or indirect taxation of transiting shipping. Fourthly, the system should ensure that the services charged for are at a level consistent with the standards laid down by the IMO or international agreement. See David H. Anderson, ‘Funding and Managing International Partnerships for the Malacca and Singapore Straits, Consonant with Article 43 of the

recovery of costs, capital investment and improvements. This regime was designed to reduce the burden of maintaining the aids to navigation facilities on coastal States, especially those that border busy waterways like the Dover Strait and the Straits of Malacca and Singapore. Due to the complex legal issues associated with this proposition, particularly on the concept of unimpeded transit passage rights through straits, no further action has been taken on the UK's proposal.¹⁴⁶

There have also been periodic calls to attract more parties to participate in co-managing the Straits of Malacca and Singapore; however, the support given, especially by private sector companies and other stakeholders, has been very disappointing.¹⁴⁷ Differences have arisen between prospective donor States and the littoral States over project funding, and ship owners have shown hesitation in contributing to the Aids to Navigation Fund.¹⁴⁸ Although ships calling at ports along the Straits of Malacca and Singapore pay port dues and part of these dues have been used to maintain aids to navigation in the Straits, more than half of the transiting ships do not call at these local ports and hence are considered free riders, taking advantage of the existing aid to navigation facilities that are primarily provided and funded by the littoral States.¹⁴⁹ Therefore, to ensure more effective co-operation and participation from user States and stakeholders in the Straits of Malacca and Singapore, a cost-recovery mechanism could be a potential APM proposed by the littoral States. If the littoral States of the Straits of Malacca and Singapore were able to impose this on ships transiting the Straits, the revenue collected could be used to improve and to establish more aid to navigation facilities and infrastructure along the length of the Straits.

UN Convention on the Law of the Sea' (1999) 3 *Singapore Journal of International & Comparative Laws*, 454-455; S. Tiwari, 'Legal Mechanisms for Establishing a Fund' (1999) 3 *Singapore Journal of International & Comparative Laws*, 472-474.

¹⁴⁶ Satya N. Nandan, 'The Management of Straits Used for International Navigation: International Cooperation in Malacca and Singapore Straits' in Myron H. Nordquist and John Norton Moore (eds), *Current Maritime Issues and the International Maritime Organization* (Kluwer, 1999), 27-28.

¹⁴⁷ Sam Bateman, 'Regime building in the Malacca and Singapore Straits: Two Steps Forward, One Step back' (2009) 4(2) *The Economics of Peace and Security Journal*, 47-48.

¹⁴⁸ Ibid.

¹⁴⁹ Joshua Ho, 'The Strait of Malacca and Singapore: Ensuring Safe and Efficient Shipping' (2009) *RSIS Commentaries* <<http://www.rsis.edu.sg/publications/Perspective/RSIS1192009.pdf>>, 240-243.

Denmark previously imposed charges on ships plying the Danish Straits, which comprise three channels connecting the North and Baltic Seas through the Kattegat and Skagerrak.¹⁵⁰ No foreign trading ships could pass through the Danish Straits without paying the transit dues.¹⁵¹ Nevertheless, beginning in 1857, the payment of Sound Dues was discontinued.¹⁵² In exchange for transit rights for vessels of these States, Denmark received an indemnity corresponding to an annual income capitalised to the current value from the signatory States.¹⁵³

This previous practice by Denmark shows that a toll regime imposed upon navigating vessels is not something that is entirely unprecedented, although it is now over 150 years since this regime was discontinued and it has not subsequently been replicated in any other part of the world. The

¹⁵⁰ Alex G. Oude Elferink, 'The Regime of Passage of Ships through the Danish Straits' (Paper presented at the International Conference on the Passage of Ships through Straits, 23 October, Athens, 1999), 2.

¹⁵¹ Due to the busy nature of the waterways, Denmark gained substantial revenue from the toll collection so much so that at one time, it contributed a third of Denmark's wealth. Transit dues were collected directly at Helsingør, the narrowest point of the Straits and the amount of toll incurred was based on the cargoes that the vessels were carrying. The increased trade through the Danish Straits brought uneasiness among European maritime States that felt burdened with the toll imposed upon them. These States opposed the toll and thought it should be abolished altogether. See Yasuhiko Kagami, 'International Support for Navigational Aids: Lesson Learned from International Practices' (Paper presented at the International Symposium on Safety and Protection of the Marine Environment in the Straits of Malacca and Singapore, Kuala Lumpur, 2008), 47.

¹⁵² The toll collection in the Danish Straits was abolished through the adoption of three treaties. The first treaty was concluded by Denmark and a number of countries of Western Europe. See The Consolidated Treaty Series, 'Treaty for the Redemption of Sound Dues between Austria, Belgium, France, Great Britain, Hanover, the Hanse Towns, Mecklenburg-Schwerin, the Netherlands, Oldenburg, Prussia, Russia, Sweden-Norway and Denmark' in Clive Parry (ed), *The Consolidated Treaty Series (1648-1918)* (Oceana, 1969) vol 116, 357. Denmark also entered another treaty with Great Britain on the same matter. Article 2 of the Convention between Denmark and Great Britain to Complete the Arrangements for the Redemption of the Sound Dues (Copenhagen Convention) states that Great Britain was to pay the sum of £1,125,206 to the King of Denmark, and in return for that, Article 3 of the Copenhagen Convention conferred freedom of navigation for British ships to pass the Danish Straits. See The Consolidated Treaty Series, 'Convention between Denmark and Great Britain to Complete the Arrangements for the Redemption of the Sound Dues Signed at Copenhagen, 14 March 1857' in Clive Parry (ed), *The Consolidated Treaty Series (1648-1918)* (Oceana, 1969) vol 116, 347-348. In the same year, Denmark made an agreement with the American government allowing American ships to pass freely in perpetuity through the Danish Straits. Article 1 of the Convention for the Discontinuance of the Sound Dues between Denmark and the American government signed at Washington, 11 April 1857 (Washington Convention) confers freedom upon American ships to sail through Danish Straits. As agreed in Article 2 of the Washington Convention, Denmark would maintain aids to navigation in the Straits without having to charge tolls upon American ships. In return for this, the American government agreed to pay Denmark a hefty amount of money; (as enumerated in Article 3 of the Washington Convention) a lump sum payment of compensation amounting to US\$393 million. See The Consolidated Treaty Series, 'Convention for the Discontinuance of the Sound Dues between Denmark and the United States signed at Washington, 11 April 1857' in Clive Parry (ed), *The Consolidated Treaty Series (1648-1918)* (Oceana, 1969) vol 116, 465-466.

¹⁵³ Gunnar Alexandersson, 'The Baltic Straits' in Gerard J Mangone (ed), *International Straits of the World* (Martinus Nijhoff, 1982), 73-75.

willingness of the maritime powers at that time to pay hefty compensation to Denmark in return for free navigation represented an acknowledgement of the rights of a coastal State to impose a toll, however wide acceptance by States of relevant provisions of the LOSC such as Articles 26(1), 38(1) and 44 would generally be considered as overriding this earlier acknowledgement.

There are a number of obstacles to introducing a cost-recovery mechanism in the Straits of Malacca and Singapore. Firstly, toll-levying is inconsistent with the exercise of unimpeded transit passage as provided for in Articles 38(1) and 44 of the LOSC. Maritime nations such as the US would undoubtedly oppose this proposal as the US has always been vigorous in airing its opposition to toll-type charges in the Straits of Malacca and Singapore.¹⁵⁴ During the 2006 Kuala Lumpur Meeting on the Straits of Malacca and Singapore: Enhancing Safety, Security and Environmental Protection (Kuala Lumpur Meeting), the US, together with representatives of the shipping industry at the meeting invoked the application of Article 38 of the LOSC to ensure that the shipping of goods, raw material and energy remained unimpeded and maintained that they were ready to oppose any attempt for the imposition of compulsory toll charges in the Straits of Malacca and Singapore.¹⁵⁵ A year later, during the 2007 Singapore Meeting on the Straits of Malacca and Singapore: Enhancing Safety, Security and Environmental Protection (Singapore Meeting), the US expressed concerns about the possible imposition of compulsory tolls via the Co-operative Mechanism and was happy that the idea of toll implementation was not discussed in the Co-operative Mechanism's agenda.¹⁵⁶

Secondly, a further practical concern is that unless some pre-paid electronic form of payment is devised, this mechanism may create long queues for ships passing through the Straits of Malacca and Singapore, causing undue delays in the voyage of vessels which would ultimately result in economic losses for many companies that rely on shipping for their trading activities.¹⁵⁷ As a

¹⁵⁴ Nazery Khalid, *Burden Sharing, Security and Equity in the Straits of Malacca* (2006) Japan Focus <<http://www.japanfocus.org/-Nazery-Khalid/2277>>.

¹⁵⁵ Joshua H. Ho, 'Enhancing Safety, Security and Environmental Protection of the Straits of Malacca and Singapore: The Cooperative Mechanism' (2009) *Ocean Development and International Law*, 238-242.

¹⁵⁶ Mohd Hazmi bin Mohd Rusli, 'Protecting Vital Sea Lines of Communication: A Study of the Proposed Designation of the Straits of Malacca and Singapore as a Particularly Sensitive Sea Area' (2011) *Ocean and Coastal Management*, 9-11.

¹⁵⁷ Mary George, *Legal Regime of the Straits of Malacca and Singapore* (LexisNexis, 2008), 57-60.

result, the littoral States may be liable to pay compensation for the economic losses suffered by such ships and their crew, the cargo importers and perhaps even consumers.¹⁵⁸ Thirdly, in terms of political implications, this cost-recovery mechanism is likely to be challenged by many maritime States and those dependent on global imports and exports as it would create an undesirable precedent for similar impositions elsewhere on global shipping routes.¹⁵⁹ Fourthly, it would be difficult to devise the criteria for determining the payment under this proposed cost-recovery mechanism, in particular, whether it should be based on the size of the ship, the cargo it is carrying or the potential of the vessel to pollute the seas.¹⁶⁰

The littoral States could counter-argue that the cost-recovery mechanism is not contrary to the right of transit passage through Straits. This mechanism would actually facilitate shipping as navigation through the Straits would be safer for international maritime traffic with installation of state-of-the-art aids to navigation. Such an imposition would not generate extra or excessive income for the littoral States, as the money raised would be used to fund the maintenance of the Straits. In addition a cost-recovery mechanism would not necessarily create an undesirable precedent for other littoral States to follow because each strait has different characteristics. Such a mechanism would only be imposed in a strait that is heavily burdened with navigational traffic that has reached a level sufficiently detrimental to the integrity of its marine environment that drastic measures must be taken.

The method of payment under such a cost-recovery mechanism could be discussed between the littoral States, the users, the IMO and other stakeholders in order to determine the most viable procedures so that these would neither impair nor hamper smooth navigation and would not unreasonably affect shipping costs. A possible way forward is to integrate such payments into the IMO Straits Trust Fund or the Aids to Navigation Fund introduced at the Kuala Lumpur Meeting in 2006 and to establish a special Committee comprising the littoral States, the IMO and the users to manage such a fund. This would not involve the Revolving Fund established by the

¹⁵⁸ Ibid.

¹⁵⁹ Mohd Hazmi bin Mohd Rusli, 'The Legal Feasibility of the Imposition of a Toll-Levying Scheme in Straits used for International Navigation: A Study of the Straits of Malacca and Singapore' (Paper presented at the The 6th UUM International Legal Conference, Penang, Malaysia, 2011).

¹⁶⁰ Ibid.

Malacca Strait Council (MSC) as this is a separate co-operation between the littoral States and Japan. It is more feasible and acceptable that such a fund to be internationally managed to ensure accountability, transparency and to avoid corruption. As Malaysia, Indonesia and Singapore are littoral States that possess sovereignty over the Straits, it would also be appropriate that the Committee be chaired by these States.

It is estimated that more than 4.0 billion DWT of ships transit the Straits annually.¹⁶¹ If every transiting ship contributed only one cent per DWT to the Aids to Navigation Fund, it would generate approximately US \$40 million to the Fund.¹⁶² The monetary amount per DWT to be contributed is negligible, so much so that it would not impact freight rates.¹⁶³ Therefore, it could be proposed that under this scheme, payment should be made directly to the Aids to Navigation Fund with users required to pay one cent per DWT. This would be a non-discriminatory regime; the greater the usage, the greater the payment to be imposed. In fact, to a certain extent this kind of co-operation is supported by the LOSC itself.¹⁶⁴ Having said this, this proposed cost-recovery mechanism would have the potential to realise the creation of the more effective co-operative

¹⁶¹ Wally Mandryk, 'Lloyd's Marine Intelligence Unit: Strategic Importance of Trade & Shipping in the Straits of Malacca and Singapore' (Paper presented at the Symposium on Safety and Protection of the Marine Environment in the Straits of Malacca and Singapore, Kuala Lumpur, Malaysia, 2008).

¹⁶² Mohd Nizam Basiron, 'Special Focus: Symposium on the Enhancement of Safety of Navigation and the Environmental Protection of the Straits of Malacca and Singapore' (2007) 14(1) MIMA Bulletin, 33-35.

¹⁶³ B.A. Hamzah, 'Straits of Malacca: Burden Sharing, Transit Passage & Sovereignty of Coastal State' (Paper presented at the International Symposium on Safety and Protection of the Marine Environment in the Straits of Malacca and Singapore, Kuala Lumpur, 2008), 77-78.

¹⁶⁴ There are a number of provisions in the LOSC that promotes co-operation between States to protect and preserve the marine environment. Article 43 is a provision that is directly related to straits used for international navigation where it promotes and encourages States bordering straits to co-operate with user States in protecting and preserving the marine environment of straits that form global international maritime chokepoints. Article 194 of the LOSC reads 'States shall take, individually or jointly as appropriate, all measures consistent with this Convention that are necessary to prevent, reduce and control pollution of the marine environment from any source, using for this purpose the best practicable means at their disposal and in accordance with their capabilities, and they shall endeavour to harmonise their policies in this connection'. In addition, Article 197 of the LOSC stipulates that 'States shall cooperate on a global basis and, as appropriate, on a regional basis, directly or through competent international organizations, in formulating and elaborating international rules, standards and recommended practices and procedures consistent with this Convention, for the protection and preservation of the marine environment, taking into account characteristic regional features'. Both Articles 194 and 197 of the LOSC employ the word 'shall' in their provisions. Nevertheless, the word 'shall' in treaty language is indicative of a duty to cooperate under international law but the duty to cooperate has often been interpreted under international law as requiring negotiations in good faith between States. See Bernard H Oxman, 'Observations on the Interpretation and Application of Article 43 of UNCLOS with Particular Reference to the Straits of Malacca and Singapore' (1998) 2 *Singapore Journal of International & Comparative Laws*, 408-426; Myron H. Nordquist, *United Nations Convention on the Law of the Sea 1982: A Commentary (Volume IV)* (Martinus Nijhoff, 1991), 36-40.

burden sharing mechanism that the littoral States, the user States and the IMO have been working towards for some time.¹⁶⁵

8.3.2.3 Proposed Compulsory Pilotage in the Straits of Malacca and Singapore

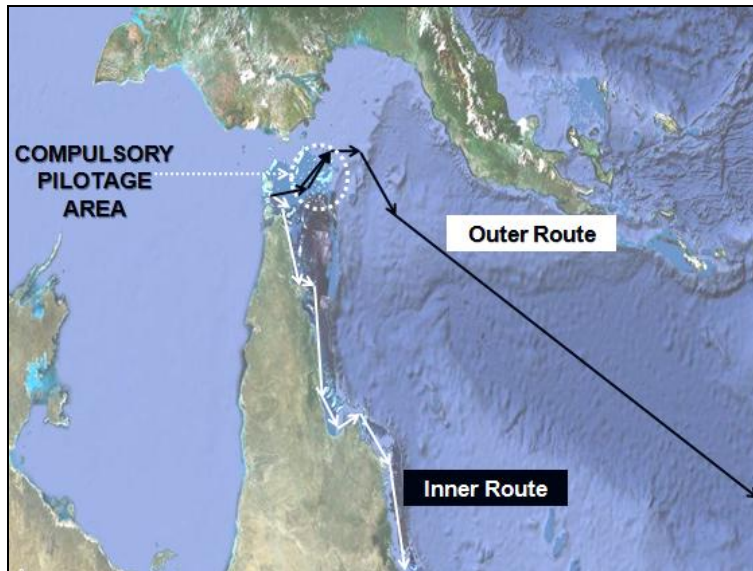
Compulsory pilotage could be another potential APM in the proposed Straits of Malacca and Singapore PSSA. Before examining the potential legal, political and practical implications that may arise out from the imposition of compulsory pilotage as a proposed APM in the Straits of Malacca and Singapore, it is relevant to examine its application in the Torres Strait.

8.3.2.3.1 The Application of Compulsory Pilotage in the Torres Strait

The Torres Strait is a navigationally difficult shipping way. As such, Australia has a long history of providing pilotage in the Torres Strait, going back to the 19th century.¹⁶⁶ There are two routes in the Torres Strait; vessels that wish to call at any East Australian ports must navigate through the Inner Route of the Great Barrier Reef, while those that intend to travel to any other South Pacific ports must sail via the Great North East Channel and enter the Outer Route of the Great Barrier Reef at the Coral Sea from Bramble Cay, as shown in Map 8-1:

¹⁶⁵ Mohd Hazmi bin Mohd Rusli, 'Protecting Vital Sea Lines of Communication: A Study of the Proposed Designation of the Straits of Malacca and Singapore as a Particularly Sensitive Sea Area' (2012) 57 *Ocean & Coastal Management*, 87-89.

¹⁶⁶ Sam Bateman and Michael White, 'Compulsory Pilotage in the Torres Strait: Overcoming Unacceptable Risks to a Sensitive Marine Environment' (2009) 40(2) *Ocean Development and International Law*, 197.



Map 8-1: Compulsory Pilotage Area of the Torres Strait¹⁶⁷
(Modified from Google Maps)

As far as international navigation is concerned, transit passage only applies to the route from the Arafura Sea through the Torres Strait via the Great North East Channel to the Coral Sea, as this part of the Strait connects one part of an EEZ or high sea to another part of an EEZ or high sea.¹⁶⁸

Prior to the imposition of compulsory pilotage in the Torres Strait, there had been a decrease in the number of vessels that engaged pilots when navigating through this waterway.¹⁶⁹ Australia was concerned that if a maritime casualty occurred in the Torres Strait, the environmental implications would be disastrous.¹⁷⁰ Successive governments have been concerned to ensure that the tragic grounding of the *Oceanic Grandeur* in the Torres Strait in March 1970¹⁷¹ and the

¹⁶⁷ Mohd Hazmi bin Mohd Rusli, 'The Application of Compulsory Pilotage in Straits Used for International Navigation: A Study of the Straits of Malacca and Singapore' (2011) 3(4) *Asian Politics & Policy*, 501-526.

¹⁶⁸ Sam Bateman, 'The Compulsory Pilotage Regime in the Torres Strait- A "Melting Pot" of Operational, Legal and Political Considerations' in Aldo Chircop, Ted L. McDorman and Susan J. Rolston (eds), *The Future of Ocean Regime-Building: Essays in Tribute to Douglas M. Johnston* (Martinus Nijhoff, 2009), 263-267.

¹⁶⁹ *Ibid.*

¹⁷⁰ Julian Roberts, 'Compulsory Pilotage in International Straits: The Torres Strait PSSA Proposal' (2006) 37(1) *Ocean Development & International Law*, 93-112.

¹⁷¹ Australian Maritime Safety Authority (AMSA), *Major Oil Spills in Australia: Oceanic Grandeur, Torres Strait, 3 March 1970* (2010) AMSA

Bunga Teratai Satu on Sudbury Reef in the Great Barrier Reef region in 2001¹⁷² should not happen again. Fortunately, the grounding of the latter vessel did not result in any discharges of oil or pollutants from the vessel into Queensland's waters.¹⁷³ Two more recent damaging pollution incidents in the Great Barrier Reef region are the 2009 Pacific Adventurer spill¹⁷⁴ and the 2010 Shen Neng 1 grounding.¹⁷⁵

Before compulsory pilotage was introduced in the Torres Strait, a study conducted by Det Norske Veritas (DNV) showed that the imposition of such a regime would decrease the risk of a collision by 30 per cent and of a powered grounding by about 32 per cent.¹⁷⁶ In 2004, Australia commenced a study to analyse the level of risk to the environment and the risk of collision in the Torres Strait. It discovered that the imposition of compulsory pilotage could reduce the risk of grounding in the Torres Strait by 45 per cent and that of a collision by 57 per cent, and would reduce the possibility of groundings by 54 per cent and collisions by 67 per cent in the Prince of

<http://www.amsa.gov.au/marine_environment_protection/major_oil_spills_in_australia/Oceanic_Grandeur/index.asp>.

¹⁷² Peter Glover, 'Marine Casualties in the Great Barrier Reef: 'Peacock', 'Bunga Teratai Satu' and 'Doric Chariot'' (2004) 18 *Maritime Law Association of Australia and New Zealand*, 63-69; Sam Bateman, 'The Compulsory Pilotage Regime in the Torres Strait- A "Melting Pot" of Operational, Legal and Political Considerations' in Aldo Chircop, Ted L. McDorman and Susan J. Rolston (eds), *The Future of Ocean Regime-Building: Essays in Tribute to Douglas M. Johnston* (Martinus Nijhoff, 2009), 268.

¹⁷³ Peter Glover, 'Marine Casualties in the Great Barrier Reef: 'Peacock', 'Bunga Teratai Satu' and 'Doric Chariot'' (2004) 18 *Maritime Law Association of Australia and New Zealand*, 63-69.

¹⁷⁴ The Hong Kong flagged Pacific Adventurer sailed through cyclone stricken waters before it was damaged by the gushing winds of Cyclone Hamish which resulted in the spill of 200,000 litres of oil that was washed to the shores of Moreton and Bribie Islands on Queensland's Sunshine Coast. See Michael McKenna, *Weeks to Clean Up Queensland Oil Spill* (2009) The Australian <<http://www.theaustralian.com.au/news/weeks-to-clean-up-queensland-oil-spill/story-e6frg6n6-1111119132068>>.

¹⁷⁵ Shen Neng 1 was a Chinese-registered ship, sailing through the Great Barrier Reef region carrying about 65,000 tonnes of coal and 950 tonnes of oil when it ran aground on a shoal, 70 kilometers from the Great Keppel Island. Shen Neng 1 was bound for China after loading at the Port of Gladstone on Queensland's central coast. Shen Neng 1 was not piloted when it sailed through the area as it was not a mandatory requirement then, for mariners in that part of the Great Barrier Reef. See News.xinhuanet.com, *Chinese Vessel Aground off Australian Coast* (2010) News.xinhuanet.com <http://news.xinhuanet.com/english2010/world/2010-04/04/c_13236939.htm>.

¹⁷⁶ Australian Maritime Safety Authority (AMSA), 'Review of Ship Safety and Pollution Prevention Measures in the Great Barrier Reef' (2001) <http://www.amsa.gov.au/Shipping_Safety/Great_Barrier_Reef_and_Torres_Strait/GBR_Review_Report/Documents/gbr.pdf>.

Wales Channel.¹⁷⁷ In 2003, Australia and PNG submitted a proposal to the IMO to extend the Great Barrier Reef Particularly Sensitive Sea Area (PSSA) to the Torres Strait.¹⁷⁸

The IMO approved the extension of the Great Barrier Reef PSSA to the Torres Strait in MEPC Resolution 133(53) on 22 July 2005.¹⁷⁹ Following approval by the IMO Assembly in Resolution MEPC 133(53), which revoked Resolution MEPC 45(30)¹⁸⁰, Australia issued its Marine Notice 8/2006 advising all vessels of 70 metres or greater in length, and all loaded tankers and liquefied gas carriers, to engage a pilot while navigating through the pilotage area of the Torres Strait.¹⁸¹

As a vessel approaches the Torres Strait, it will be interrogated by the Australian Automatic Identification System (AIS) shore stations.¹⁸² These AIS stations identify passing vessels and if the vessel ignores the requirement to take on a pilot, it will be identified and subject to legal proceedings when it enters any Australian port in the future.¹⁸³

¹⁷⁷ Adam McCarthy, 'Protecting the Environment and Promoting Safe Navigation: Australia's System of Pilotage in the Torres Strait' (Department of Foreign Affairs and Trade, Australia, 2006), 1-6.

¹⁷⁸ The Great Barrier Reef was identified as a PSSA through MEPC Resolution 44(30) and compulsory pilotage was introduced in the Great Barrier Reef through MEPC Resolution 45(30). See International Maritime Organization (IMO), *List of MEPC Resolutions* (2009) IMO <http://www.imo.org/InfoResource/mainframe.asp?topic_id=435&doc_id=3709>.

¹⁷⁹ The MEPC Resolution 133 (53) reads 'BEING AWARE of the ecological, social, economic, cultural, scientific and educational value of the Torres Strait, as well as its vulnerability to damage by shipping traffic and activities in the area...HAVING AGREED that the criteria for identification of a Particularly Sensitive Sea Area provided in resolution A.927(22) are fulfilled for the Torres Strait, (1) DESIGNATES the Torres Strait, as defined in Annex 1 to this resolution, as an extension of the Great Barrier Reef Particularly Sensitive Sea Area;... (3) RECOMMENDS that Governments recognize the need for effective protection of the Great Barrier Reef and Torres Strait region and inform ships flying their flag that they **should act in accordance with Australia's system of pilotage** for merchant ships 70 m in length and over or oil tankers, chemical tankers, and gas carriers irrespective of size when navigating...' (emphasis added). See International Maritime Organization (IMO), 'Resolution MEPC. 133(53): Designation of the Torres Strait as an Extension of the Great Barrier Reef Particularly Sensitive Sea Area' (MEPC 53/24/Add.2, IMO, 2005), 1-6; Robert C. Beckman, 'PSSAs and Transit Passage - Australia's Pilotage System in the Torres Strait Challenges the IMO and UNCLOS' (2007) 38(4) *Ocean Development & International Law*, 325.

¹⁸⁰ Resolution MEPC 45(30) was an MEPC Resolution that has identified and designated the Great Barrier Reef as a PSSA. See International Maritime Organization (IMO), 'Resolution MEPC. 45(30): Protection of the Great Barrier Reef Region' (MEPC 30/24, IMO, 1990). With the extension of the PSSA to Torres Strait, Resolution MEPC 45(30) was revoked and replaced with MEPC Resolution MEPC 133(53). See International Maritime Organization (IMO), 'Resolution MEPC. 133(53): Designation of the Torres Strait as an Extension of the Great Barrier Reef Particularly Sensitive Sea Area' (MEPC 53/24/Add.2, IMO, 2005), 1-6.

¹⁸¹ Australian Maritime Safety Authority (AMSA), 'Revised Pilotage Requirements for Torres Strait' (Marine Notice 8/2006, AMSA, 2006), 1-4.

¹⁸² *Ibid.*

¹⁸³ Sam Bateman, 'The Compulsory Pilotage Regime in the Torres Strait- A "Melting Pot" of Operational, Legal and Political Considerations.' in Aldo Chircop, Ted L. McDorman and Susan J. Rolston (eds), *The Future of Ocean Regime-Building: Essays in Tribute to Douglas M. Johnston* (Martinus Nijhoff, 2009), 270.

Since the imposition of the compulsory pilotage regime in the Torres Strait, the number of casualties has been kept to a minimum. This regime is achieving its objective of improved protection for the sensitive and pristine marine habitats of the Torres Strait region.¹⁸⁴ Australia has been criticised by some States for imposing compulsory pilotage in the Torres Strait.¹⁸⁵ However, Australia has rebutted these criticisms by contending that compulsory pilotage is needed to improve the safety of navigation in the Strait,¹⁸⁶ and despite the criticisms Australia has retained compulsory pilotage in the Torres Strait.

8.3.2.3.2 Possible Legal and Political Implications

Currently, pilotage services are available and offered by major ports along the Straits of Malacca and Singapore. They are compulsory when ships are leaving and entering port limits,¹⁸⁷ however, pilotage has never been compulsory for ships navigating the Straits. Nevertheless, since 1977, vessels are recommended to take on a pilot when navigating through critical areas within the Straits.¹⁸⁸ Due to fear of future shipping casualties, there have been suggestions that a

¹⁸⁴ Julian Roberts, 'Compulsory Pilotage in International Straits: The Torres Strait PSSA Proposal' (2006) 37(1) *Ocean Development & International Law*, 93-112.

¹⁸⁵ The main argument against the imposition of compulsory pilotage is that it is not consistent with the regime of transit passage through straits used for international navigation in the LOSC. Secondly, some States have argued that the imposition of this scheme creates an unwarranted precedent which may be followed by other States bordering straits and result in restrictions on foreign vessels transiting these other straits. See Robert C. Beckman, 'PSSAs and Transit Passage - Australia's Pilotage System in the Torres Strait Challenges the IMO and UNCLOS' (2007) 38(4) *Ocean Development & International Law*, 341-350.

¹⁸⁶ In rebutting these arguments, Australia has asserted that compulsory pilotage does not impede transit passage through the Torres Strait, but instead it facilitates safe and environmentally responsible navigation through the difficult waters of the Torres Strait. The fee imposed for pilot engagement is not a levy imposed on vessels that transit the strait, but rather a fee for specified services provided for the transiting ships. On the second issue, Australia has contended that this would not set a precedent as different straits have different characteristics and in order to follow in Australia's footsteps, such areas would have to be designated as PSSAs. See Sam Bateman, 'The Compulsory Pilotage Regime in the Torres Strait- A "Melting Pot" of Operational, Legal and Political Considerations' in Aldo Chircop, Ted L. McDorman and Susan J. Rolston (eds), *The Future of Ocean Regime-Building: Essays in Tribute to Douglas M. Johnston* (Martinus Nijhoff, 2009), 276-278.

¹⁸⁷ For instance, Port Klang Authority makes it compulsory for ships to engage pilots when entering port limits. See Ports World Sdn. Bhd., *The National Maritime Portal: Port Klang* (2000) Ports World <<http://www.portsworld.com/ports/portklang.htm>>.

¹⁸⁸ Michael Leifer, 'Malacca, Singapore and Indonesia' in Gerard J. Mangone (ed), *International Straits of the World* (Sijthoff & Noordhoff, 1978), 205.

compulsory pilotage system should be introduced in the Straits of Malacca and Singapore.¹⁸⁹ This issue was discussed at the Singapore Meeting on the Straits of Malacca and Singapore in 2007.¹⁹⁰ During the meeting, consideration was given to establishing a Pilotage User Group for the Straits of Malacca and Singapore.¹⁹¹ Such groups has been established in other parts of the world; for example, a Pilotage User Group was formed in Denmark with the aim of finding ways of further enhancing the safety of navigation through the entrances to the Baltic Sea.¹⁹² The Danish Pilotage User Group attempts to create an open and transparent dialogue between pilotage service providers and users, in order to ensure optimal pilotage services in general and to encourage the use of pilots for ships navigating through the entrances to the Baltic Sea.¹⁹³

The issue of pilotage was highlighted at the International Symposium of Safety and Protection of the Marine Environment in the Straits of Malacca and Singapore (the Symposium) in Kuala Lumpur and at the 33rd TTEG meeting in Kuching, Malaysia, both held in 2008.¹⁹⁴ It was further discussed at the subsequent TTEG meetings in Singapore and Yogyakarta in 2009 and 2010 respectively.¹⁹⁵ During the 34th TTEG meeting in Singapore in 2009, the littoral States agreed on the proposed application of voluntary pilotage services for vessels navigating the Straits of Malacca and Singapore.¹⁹⁶ The littoral States also decided to prepare draft revised guidelines for the voluntary pilotage services that would subsequently be circulated between the littoral States

¹⁸⁹ Tim Wilkins, 'Considerations From Owners Operating Tankers in the Straits' (Paper presented at the Singapore Meeting on the Straits of Malacca and Singapore: Enhancing Safety, Security and Environmental Protection, Singapore, 2007).

¹⁹⁰ Mohd Hazmi bin Mohd Rusli, 'Protecting Vital Sea Lines of Communication: A Study of the Proposed Designation of the Straits of Malacca and Singapore as a Particularly Sensitive Sea Area' (2011) *Ocean and Coastal Management*, 11-14.

¹⁹¹ Ibid.

¹⁹² International Association of Independent Tanker Owners (INTERTANKO), *Danish Pilotage User Group-Update* (2007) INTERTANKO <<http://www.intertanko.com/templates/Page.aspx?id=43246>>.

¹⁹³ Ibid.

¹⁹⁴ Hasjim Djalal, 'The Development of Cooperation on the Straits of Malacca and Singapore' (Paper presented at the International Symposium on Safety and Protection of the Marine Environment in the Straits of Malacca and Singapore, Kuala Lumpur, 2008).

¹⁹⁵ Tripartite Technical Experts Group (TTEG), 'The 35th Meeting of the Tripartite Technical Experts Group on Safety of Navigation in the Straits of Malacca and Singapore: Report of the Drafting Group on Voluntary Pilotage Services (VPS) in the Straits of Malacca and Singapore' (TTEG, 2010), 1-3.

¹⁹⁶ Ibid.

and the IMO for comments and amendments.¹⁹⁷ Malaysia circulated the revised guidelines in November 2009.¹⁹⁸

The issue of voluntary pilotage was discussed at the 35th TTEG meeting in Yogyakarta, Indonesia, where Indonesia pointed out that in view of the increasing number of vessels transiting the Straits every year, there is a need to synchronise the standard guidelines to the existing littoral States' references on the qualifications of Straits Pilot to ensure sustainable implementation of this regime in the future.¹⁹⁹ It was also agreed that more time be given to finalise the revised guidelines for the application of voluntary pilotage and that a joint paper on this would be drafted and sent to the IMO after the littoral States reach an agreement on the revised guidelines.²⁰⁰

As the proposed voluntary pilotage services are not compulsory, they may be implemented outside the regime of the PSSA.²⁰¹ Nevertheless, given that the predicted traffic congestion in the Straits is likely to complicate navigation in future years, it may be entirely feasible for the littoral States of Malaysia, Singapore and Indonesia to consider following in the footsteps of Australia and PNG in imposing a compulsory pilotage system in the Straits of Malacca and Singapore. It is therefore crucial to examine the potential legal and political implications that may arise out of such an implementation.

Should Malaysia, Indonesia and Singapore, as the three littoral States of the Straits of Malacca and Singapore, agree to submit a PSSA proposal to the IMO, as required by Resolution A.982 (24), the submission is likely to contain proposed measures for the application of compulsory pilotage, which in this case, is the suggested APM for the Straits. This APM would fulfil the requirement of Resolution A.982 (24) as it is an APM that has been previously approved by the

¹⁹⁷ Ibid.

¹⁹⁸ Ibid.

¹⁹⁹ Tripartite Technical Experts Group (TTEG), 'The 35th Tripartite Technical Experts Group (TTEG) Meeting on the Safety of Navigation in the Straits of Malacca and Singapore: Report of the Meeting' (TTEG, 2010), 1-7.

²⁰⁰ Ibid.

²⁰¹ Mohd Hazmi bin Mohd Rusli, 'The Application of Compulsory Pilotage in Straits Used for International Navigation: A Study of the Straits of Malacca and Singapore' (2011) 3(4) *Asian Politics & Policy*, 501-526.

IMO in its application to the Torres Strait PSSA. Prior to submission of such a proposal, it would also be prudent to carry out a preliminary study on the feasibility of the application of compulsory pilotage in the Straits of Malacca and Singapore.²⁰² Based on the Australian and Papua New Guinean experience in 2003, when the proposal is submitted to the IMO, this application is likely to be considered by three committees of the IMO: the MEPC, the Legal Committee and the Sub-Committee on Safety of Navigation (NAV Sub Committee) of the MSC.²⁰³ The practice of the MEPC when dealing with the Torres Strait PSSA was that the MEPC would only recommend the APM without stating whether it is mandatory or advisory only. As contended by Bateman:

...it is **NOT** in the nature of the IMO to formally approve traffic management schemes but rather to recommend their acceptance.²⁰⁴
(Emphasis added)

Theoretically, based on these facts, it is possible that the Straits of Malacca and Singapore could be designated as a PSSA or that a number of PSSAs could be designated within the Straits. However, the application of proposed APMs, particularly a compulsory pilotage scheme, is likely to be contentious and there would be many controversial legal and political implications associated with such an application.

Singapore and the US are among the States that have consistently protested Australia's implementation of compulsory pilotage in the Torres Strait, contending that it has undermined the transit passage regime under the LOSC and is inconsistent with the decisions reached by the

²⁰² Ibid.

²⁰³ These Committees will review, evaluate and assess the proposed APM based on its legality under the LOSC. They will also look into the practicability and feasibility of its application and whether or not it would assist the littoral States to protect and preserve the marine environment of their maritime spaces. If the application is successful, the MEPC would then issue a Resolution recommending the application of the proposed APM in the maritime area that has been designated as a PSSA. See Robert C. Beckman, 'PSSAs and Transit Passage - Australia's Pilotage System in the Torres Strait Challenges the IMO and UNCLOS' (2007) 38(4) *Ocean Development & International Law*, 330-336; International Maritime Organization (IMO), *Structure* (2002) IMO <http://www.imo.org/about/mainframe.asp?topic_id=312#6>; See Note 106.

²⁰⁴ Sam Bateman, 'The Compulsory Pilotage Regime in the Torres Strait- A "Melting Pot" of Operational, Legal and Political Considerations' in Aldo Chircop, Ted L. McDorman and Susan J. Rolston (eds), *The Future of Ocean Regime-Building: Essays in Tribute to Douglas M. Johnston* (Martinus Nijhoff, 2009), 276.

IMO.²⁰⁵ Singapore has indicated its intention to bring Australia to international dispute resolution over this issue but this has not occurred as yet.²⁰⁶ The fundamental position taken by Singapore is that it is against any acts that could jeopardise, hamper or impede the freedom of navigation. Based on Singapore's clearly articulated position in relation to the issue of compulsory pilotage in the Torres Strait, it is unlikely that Singapore would agree that both the Straits of Malacca and Singapore could be designated as PSSAs with compulsory pilotage as the APM.²⁰⁷ If the Straits of Malacca and Singapore are treated separately rather than as one waterway then the scenario may be different.

As far as the Strait of Malacca is concerned, Malaysia and Indonesia are littoral States of the Strait. Both countries have been steadfast in declaring that the Straits of Malacca and Singapore are significant for international navigation and not international straits, while Singapore merely acknowledged the 1971 Joint Statement on the Straits of Malacca and Singapore without articulating its own view on this issue.²⁰⁸ This was because these countries had different national interests; Malaysia and Indonesia were more focused on insular interests and sovereignty over the Strait of Malacca while Singapore, as a bustling international port, was more focused on

²⁰⁵ Chan Beng Seng, 'Compulsory Pilotage in Torres: Aussie View of UNCLOS, IMO Positions Incorrect' (2006) *STI, ST Forum* <<http://law.nus.edu.sg/news/archive/2006/STI28122006.pdf>>.

²⁰⁶ Sam Bateman and Michael White, 'Compulsory Pilotage in the Torres Strait: Overcoming Unacceptable Risks to a Sensitive Marine Environment' (2009) 40(2) *Ocean Development and International Law*, 184-185.

²⁰⁷ Mohd Hazmi bin Mohd Rusli, 'The Application of Compulsory Pilotage in Straits Used for International Navigation: A Study of the Straits of Malacca and Singapore' (2011) 3(4) *Asian Politics & Policy*, 501-526.

²⁰⁸ The 1971 Joint Statement reads (i) the three Governments agreed that safety of navigation in the Straits of Malacca and Singapore is the responsibility of the coastal States concerned; (ii) the three Governments agreed on the need for tripartite co-operation on the safety of navigation in the two straits; (iii) the three Governments agreed that a body for co-operation to co-ordinate efforts for the safety of navigation in the Straits of Malacca and Singapore be established as soon as possible and that such body should be composed of only the three coastal States concerned; (iv) the three Governments also agreed that the problem of the safety of navigation and the question of internationalisation of the straits are two separate issues; (v) the Governments of the Republic of Indonesia and of Malaysia agreed that the Straits of Malacca and Singapore are not international straits, while fully recognising their use for international shipping in accordance with the principle of innocent passage, The Government of Singapore takes note of the position of the Governments of the Republic of Indonesia and of Malaysia on this point; (vi) on the basis of this understanding, the three Governments approved the continuation of the hydrographic survey. See 'Joint Statement of the Governments of Indonesia, Malaysia and Singapore' as quoted in Michael Leifer, 'Malacca, Singapore and Indonesia' in Gerard J. Mangone (ed), *International Straits of the World* (Sijthoff & Noordhoff, 1978), 204; Hashim Djalal, 'The Malacca-Singapore Straits Issue' (Paper presented at the Building A Comprehensive Security Environment in the Straits of Malacca, Kuala Lumpur), 274-275.

ensuring freedom of navigation for merchant vessels.²⁰⁹ With the conclusion of the Third United Nations Law of the Sea Conference (UNCLOS III) and the adoption of the LOSC in 1982, Malaysia, Singapore and Indonesia ultimately agreed with the provisions on transit passage for all vessels in straits used for international navigation in Part III of the LOSC.

In recent times, Malaysia, Indonesia and Singapore have continued to articulate their positions on environmental issues relating to the Straits of Malacca and Singapore.²¹⁰ Singapore expressed its concern over the protection and preservation of the marine environment of the Straits of Malacca and Singapore but at the same time acknowledged that navigation through the Straits cannot be hampered.²¹¹ Singapore, together with Malaysia and Indonesia agreed to enhance the existing co-operative mechanism to further protect and preserve the marine environment of the Straits and to promote safe navigation for transiting vessels.²¹²

Singapore is focused on providing better aids to navigational infrastructure to promote safer shipping for transiting vessels.²¹³ As an entrepot State, liberal navigational regimes such as transit passage are imperative for Singapore's economic interests and survival.²¹⁴ Malaysia and Indonesia, on the other hand, apart from acknowledging the importance of safe navigation, have taken other positions which to a certain extent may place constraints on navigation through the Straits of Malacca and Singapore in the interests of environmental protection. These include

²⁰⁹ Graham Gerard Ong-Webb, 'Conclusion: Building Upon the Research Agenda' in Graham Gerard Ong-Webb (ed), *Piracy, Maritime Terrorism and Securing the Malacca Straits* (Institute of South East Asia Studies, 2006), 241-244; J.N. Mak, 'Unilateralism and Regionalism: Working Together and Alone in the Malacca Straits' in Graham Gerard Ong-Webb (ed), *Piracy, Maritime Terrorism and Securing the Malacca Straits* (Institute of Southeast Asian Studies, 2006), 148-151.

²¹⁰ International Maritime Organization (IMO), 'Singapore Statement on Enhancement of Safety, Security and Environmental Protection in the Straits of Malacca and Singapore' (IMO/SGP 1/4, IMO, 2007), 1-5.

²¹¹ Ibid.

²¹² Ibid.

²¹³ Robert Beckman, *A Threat to Transit Passage?* (2006) Straits Times <http://app.mfa.gov.sg/pr/read_content.asp?View,6008>.

²¹⁴ Ibid.

support for the imposition of tolls on transiting ships,²¹⁵ capping the number of vessels transiting the Strait²¹⁶ and proposals for the application of compulsory pilotage to transiting vessels.²¹⁷

Based on these facts, it is clear that Malaysia and Indonesia, as compared to Singapore, have a longer and more positive history of supporting measures to protect and preserve the marine environment of the Straits, notwithstanding the fact that such attempts may indirectly constrain passage rights.²¹⁸ Considering the likelihood that Singapore may not support an application for the designation of the Strait of Singapore as a PSSA, it would nevertheless be open to Malaysia and Indonesia to submit a proposal to the IMO with a view to designation of the Strait of Malacca as a PSSA with compulsory pilotage as a proposed APM.

As with the Torres Strait, where compulsory pilotage only applies in the most critical area of the waterway, Malaysia and Indonesia could also propose the application of pilotage in the busiest part of the Strait, particularly between One Fathom Bank and Tanjung Piai.²¹⁹ The type and size of vessels that are subjected to the compulsory pilotage regime could also be defined in the

²¹⁵ J.N. Mak, 'Unilateralism and Regionalism: Working Together and Alone in the Malacca Straits' in Graham Gerard Ong-Webb (ed), *Piracy, Maritime Terrorism and Securing the Malacca Straits* (Institute of Southeast Asian Studies, 2006), 146-151.

²¹⁶ H.M. Ibrahim and Mansoureh Shahryari, 'The Ship Carrying Capacity of the Malacca Straits' (2008) 15(4) *MIMA Bulletin*, 15-16; Teh Eng Hock, 'Malaysia Seeks to Limit Maritime Traffic in Straits of Malacca' (2008) *The Star Online* <<http://thestar.com.my/news/story.asp?sec=nation&file=/2008/10/22/nation/2335917>>.

²¹⁷ Hasjim Djalal, 'The Development of Cooperation on the Straits of Malacca and Singapore' (Paper presented at the International Symposium on Safety and Protection of the Marine Environment in the Straits of Malacca and Singapore, Kuala Lumpur, 2008).

²¹⁸ It is true that the littoral States have in the 1971 Joint Statement agreed to treat the two Straits as a single strait. In fact, until today, co-operations between the littoral States, the users and the IMO have worked out based on this agreement. Nevertheless, the 1971 Statement was never meant to be a treaty but it was a joint statement of agreement made by the littoral States at the time when the density of shipping traffic was not as high as it is now. It has now been forty years since the 1971 Statement was made and considering the fact that the number of shipping traffic is going to increase, it may not be legally unfeasible to amend the agreement to the 1971 Statement in treating both Straits as separate straits as far as PSSA designation is concerned. If the fifth agreement of the 1971 Joint Statement (see 1971 Joint Statement, Note 208) on the application of innocent passage in the Straits of Malacca and Singapore could be changed and replaced with the transit passage regime when the LOSC came into force, the general agreement that the Straits are to be treated as a single strait could also be changed under the pretext of the proposed PSSA designation. See Michael Leifer, 'Malacca, Singapore and Indonesia' in Gerard J. Mangone (ed), *International Straits of the World* (Sijthoff & Noordhoff, 1978), 204; Mohd Hazmi bin Mohd Rusli, 'The Application of Compulsory Pilotage in Straits Used for International Navigation: A Study of the Straits of Malacca and Singapore' (2011) 3(4) *Asian Politics & Policy*, 501-526.

²¹⁹ Mohd Hazmi bin Mohd Rusli, 'The Application of Compulsory Pilotage in Straits Used for International Navigation: A Study of the Straits of Malacca and Singapore' (Paper presented at the 4th Oceanic Conference on International Studies, Auckland, 2010).

PSSA proposal to the IMO. Both countries could justify the imposition of compulsory pilotage based on a number of grounds; one of which is the existence of navigational hazards, as explained in Chapter 5, along the Straits of Malacca and Singapore.²²⁰ If the IMO were to endorse the proposal, Malaysia and Indonesia could also consider following Australia's domestic initiative of imposing penalties on any ships that failed to engage a pilot while transiting the Straits should such ships subsequently enter either Malaysian or Indonesian ports, rather than obstructing the passage of such ships as they transits the Strait of Malacca.²²¹

In view of the critical nature of the Strait of Malacca and the volume of shipping traffic passing through it, there is likely to be considerable controversy over the proposed plan to introduce compulsory pilotage in the Strait.²²² Firstly, nations that are against such a plan would contend that Malaysia and Indonesia have breached the provisions of the LOSC which allows for unimpeded transit passage in straits used for international navigation as provided for in Articles 38(1) and 44 of the LOSC. Secondly, they would assert that since the Strait of Malacca is indispensable in regulating global trade, the imposition of compulsory pilotage would not only impede passage, but it would also unreasonably increase shipping costs, as vessels and ships would have to employ pilots while transiting the Strait.²²³ Table 8-2 shows the average operating costs of a very large crude carrier (VLCC):

²²⁰ See Section 5.2.2.1 of Chapter 5 of this Thesis.

²²¹ Mohd Hazmi bin Mohd Rusli, 'The Application of Compulsory Pilotage in Straits Used for International Navigation: A Study of the Straits of Malacca and Singapore' (2011) 3(4) *Asian Politics & Policy*, 501-526.

²²² Mohd Hazmi bin Mohd Rusli, 'The Application of Compulsory Pilotage in Straits Used for International Navigation: A Study of the Straits of Malacca and Singapore' (Paper presented at the 4th Oceanic Conference on International Studies, Auckland, 2010); Mohd Hazmi bin Mohd Rusli, 'Laws, Regulations and Measures on Protection of the Marine Environment of Straits used for International Navigation: A Study of the Straits of Malacca and Singapore' (Paper presented at the 2011 International Law Association Asia-Pacific Regional Conference, Taipei, Taiwan, Republic of China, 2011); Mohd Hazmi bin Mohd Rusli, 'Balancing the Tensions Between Shipping and Marine Environmental Protection in the Straits of Malacca and Singapore: Have the Straits Reached an Environmental Tipping Point?' (Paper presented at the Seventh International Conference on Environmental, Cultural, Economic and Social Sustainability, Hamilton, New Zealand, 2011).

²²³ Mohd Hazmi bin Mohd Rusli, 'Laws, Regulations and Measures on Protection of the Marine Environment of Straits used for International Navigation: A Study of the Straits of Malacca and Singapore' (Paper presented at the 2011 International Law Association Asia-Pacific Regional Conference, Taipei, Taiwan, Republic of China, 2011).

Elements	Running Cost (USD)
Manning, including victualling	892,000
Lubes and stores	386,000
Spares, R & M	263,000
Dry docking (annualised cost)	688,000
Insurance	582,000
Administration	110,000
Miscellaneous	65,000
Total	2,986,000
Running costs per annum=US \$2,986,000	
Capital costs per annum=US \$4,825,000 (Calculated on a 5 per cent rate of return over 25 years on an initial cost of US \$68 million)	
Total operating cost per annum=US \$7,811,000	

Table 8-2: VLCC Operating Costs based on a vessel with a capital cost of US \$68 million and a life of 25 years (Source: Marlow & Gardner, 2006)²²⁴

Although a rigorous study has yet to be conducted to determine the impacts of the introduction of compulsory pilotage in the Straits of Malacca and Singapore on freight rates, data from Table 8-2 shows that any such application would add more expense to the average operating costs of a VLCC and this would ultimately affect the global international trade that moves through the Straits.

Thirdly, from a practical perspective, in terms of navigational importance the Strait of Malacca is more critical for international shipping than the Torres Strait, given the fact that it supports more than 74,000 vessel movements each year as compared to 3,000 in the Torres Strait.²²⁵ Could Malaysia and Indonesia provide a guarantee that the number of pilots would be sufficient for the busy waterway of the Strait of Malacca? It would be unreasonable to expect the voyages of international shipping through the Strait to be impeded because pilots could not be made available; this would clearly be inconsistent with the LOSC.

²²⁴ Peter B. Marlow and Bernard M. Gardner, 'The Marine Electronic Highway in the Straits of Malacca and Singapore - An Assessment of Costs and Key Benefits' (2006) 33(2) *Maritime Policy & Management*, 200.

²²⁵ Australian Maritime Safety Authority (AMSA), *The Torres Strait Particularly Sensitive Sea Area* (2010) AMSA <http://www.amsa.gov.au/Marine_Environment_Protection/Torres_Strait/Risk.asp>; See Table 2-5 of Chapter 2 of this Thesis.

Fourthly, in justifying its imposition of compulsory pilotage in the Torres Strait, Australia argued that no other strait routinely used in the world has a long history of pilotage as that of the Torres Strait. The Strait of Malacca does not have a history of pilotage since this was only seriously discussed as a potential ship routing and safety measure in 1977.²²⁶ Therefore, user States may argue that compulsory pilotage should neither be introduced nor imposed on ships that transit the Strait of Malacca.

Fifthly, co-operative mechanisms in both the Straits of Malacca and Singapore are doing well, with more States other than Japan agreeing to share the burden of protecting and preserving the marine environment of both Straits.²²⁷ These developments show that as far as the Straits of Malacca and Singapore are concerned, compulsory pilotage is likely to face political opposition and may not be the ultimate solution to the littoral States environmental protection dilemma.²²⁸

8.3.2.3.3 Possible Rebuttals by the Littoral States

Malaysia and Indonesia may nevertheless have arguments to rebut these potential criticisms and the opposition to a compulsory pilotage plan by user States.²²⁹ They may assert that the imposition of compulsory pilotage in the Strait of Malacca would not impede transit passage, but

²²⁶ Michael Leifer, 'Malacca, Singapore and Indonesia' in Gerard J. Mangone (ed), *International Straits of the World* (Sijthoff & Noordhoff, 1978), 205.

²²⁷ Robert Beckman, 'The Establishment of Cooperative Mechanism for the Straits of Malacca and Singapore under Article 43 of the United Nations Convention on the Law of the Sea' in Aldo Chircop, Ted L. McDorman and Susan J. Rolston (eds), *The Future of Ocean Regime-Building-Essays in Tribute to Douglas M. Johnston* (Martinus Nijhoff, 2009), 250-252; See Table 7-2 of Chapter 7 of this Thesis.

²²⁸ Mohd Hazmi bin Mohd Rusli, 'Protecting Vital Sea Lines of Communication: A Study of the Proposed Designation of the Straits of Malacca and Singapore as a Particularly Sensitive Sea Area' (2012) 57 *Ocean & Coastal Management*, 89-92.

²²⁹ Mohd Hazmi bin Mohd Rusli, 'The Application of Compulsory Pilotage in Straits Used for International Navigation: A Study of the Straits of Malacca and Singapore' (Paper presented at the 4th Oceanic Conference on International Studies, Auckland, 2010); Mohd Hazmi bin Mohd Rusli, 'Laws, Regulations and Measures on Protection of the Marine Environment of Straits used for International Navigation: A Study of the Straits of Malacca and Singapore' (Paper presented at the 2011 International Law Association Asia-Pacific Regional Conference, Taipei, Taiwan, Republic of China, 2011); Mohd Hazmi bin Mohd Rusli, 'Shipping Controls in Critical Straits: A Study of the Legal Feasibility of the Designation of the Straits of Malacca and Singapore as a Particularly Sensitive Sea Area' (Paper presented at the International Conference on Environment 2010, Penang, Malaysia, 2010); Mohd Hazmi bin Mohd Rusli, 'Balancing the Tensions Between Shipping and Marine Environmental Protection in the Straits of Malacca and Singapore: Have the Straits Reached an Environmental Tipping Point?' (Paper presented at the Seventh International Conference on Environmental, Cultural, Economic and Social Sustainability, Hamilton, New Zealand, 2011).

rather would facilitate safe and environmentally responsible passage of the Strait. For narrow parts of the Strait that are burdened with high navigational traffic, compulsory pilotage could be necessary to prevent future mishaps and casualties. Taking the Torres Strait example, there are parallels with some parts of the Strait of Malacca as both are waterways with many navigational hazards.²³⁰

It is true that co-operative mechanisms between the littoral States and the user States have seen positive developments in recent years. Nevertheless, these developments have been moving rather slowly and have not kept pace with the increasing number of ships that transit the Straits of Malacca and Singapore each year.²³¹ As such, compulsory pilotage, given its success in the Torres Strait, may be seen by the littoral States as a better solution to further preserve and protect the marine environment of the Strait of Malacca.²³² There is relatively little doubt that efficient pilotage services would help to increase safety of passage.²³³ In a study conducted on pilotage, only around 18 per cent of mariners responded with the opinion that pilotage would not make much difference in contributing to the improvement of safety in the Straits.²³⁴

It is more difficult for Malaysia and Indonesia to rebut the other opposing arguments. In comparison with the Torres Strait, the Strait of Malacca is heavily relied upon to link the East and the West. The annual volume of shipping traffic is approximately 25 times higher than that of the Torres Strait. The imposition of compulsory pilotage would inevitably increase global shipping costs. The Strait of Malacca does not have a long history of pilotage. Certain analysts have claimed that even though the exercise of pilotage may increase the safety of navigation, it

²³⁰ Melda Malek, 'The PSSA as a Tool for Marine Protection: Options for Malaysia' (2011) 18(2) *MIMA Bulletin*, 28-33.

²³¹ See Section 7.3.2.1.3 of Chapter 7 of this Thesis.

²³² Mohd Hazmi bin Mohd Rusli, 'The Application of Compulsory Pilotage in Straits Used for International Navigation: A Study of the Straits of Malacca and Singapore' (2011) 3(4) *Asian Politics & Policy*, 501-526; Mohd Hazmi bin Mohd Rusli, 'Protecting Vital Sea Lines of Communication: A study of the Proposed Designation of the Straits of Malacca and Singapore as a Particularly Sensitive Sea Area' (2012) 57 *Ocean & Coastal Management*, 89-92.

²³³ Wan Shukry Wan Karma and Sim Lin Woon, 'Safety of Navigation in the Straits of Malacca and Singapore' (1998) 2(2) *Singapore Journal of International & Comparative Laws*, 487-490.

²³⁴ *Ibid.*

would raise major problems in matters of the funding of, and jurisdiction over, pilotage.²³⁵ With the high number of ships passing through the Strait, would Malaysia and Indonesia be able to provide enough pilots? This difficulty would need to be resolved prior to preparing the Strait of Malacca for the imposition of compulsory pilotage, with both littoral States of the Strait needing to make appropriate arrangements to meet the future demand for pilots.

8.3.3 Ship Routeing Measures Outside The PSSA

Should the PSSA proposal be unsuccessful, the littoral States could also attempt to introduce and develop their own ship routeing system, based on any of the three proposed APMs, outside the PSSA scheme by making such an application to the IMO's Maritime Safety Committee. To date, the only ship routeing systems that have been introduced in the Straits of Malacca and Singapore are the TSS and the minimum under keel clearance. The imposition of the TSS is clearly supported by the LOSC in Article 41, while there is no provision in the LOSC that supports the imposition of a minimum under keel clearance of 3.5 metres for ships sailing the Straits of Malacca and Singapore. The minimum under keel clearance requirement in the Straits of Malacca and Singapore, however, was endorsed by the IMO in 1977. Following this precedent, the littoral States could also attempt to introduce the three APMs; namely, the traffic limitation scheme, the cost-recovery mechanism and the compulsory pilotage regime, outside Special Areas or PSSA with the aim of promoting safe and convenient navigation in the Straits of Malacca and Singapore. However, these proposals are likely to be resisted by maritime States.

Firstly, as discussed in Chapter 6, the reason behind the adoption of the minimum under keel clearance requirement of 3.5 meters was the understanding reached between the littoral States and the maritime States during UNCLOS III on the application of Article 233 of the LOSC in the Straits of Malacca and Singapore.²³⁶ This understanding required that any violation of the TSS and under keel clearance regulations in the Straits would be deemed as a violation of Article 233. There have never been any similar understandings between the littoral States and the maritime

²³⁵ Mark Cleary and Goh Kim Chuan, *Environment and Development in the Straits of Malacca*, Routledge Studies in Development and Society (Routledge, Taylor and Francis Group, 2000), 147.

²³⁶ See Section 6.3.6 of Chapter 6 of this Thesis.

States pertaining to the imposition of compulsory pilotage, cost-recovery schemes or traffic limitation regimes in the Straits of Malacca and Singapore as far as Article 233 of the LOSC is concerned. Secondly, such measures would be resisted by maritime States as they could be seen as attempts to compromise the unimpeded right of transit passage of all vessels through these crucial waterways. In view of these issues, the littoral States may have to conduct in-depth research to gather more data on the viability of the implementation of these potential measures before proposing their introduction in the Straits of Malacca and Singapore.

In justifying their arguments, the littoral States may rely on Articles 192, 194 and 197 of the LOSC. Collectively, these Articles provide that all States have the duty to protect and preserve the marine environment by individually and co-operatively working towards preventing, reducing and controlling pollution of the marine environment. In addition, with the relatively slow development of the co-operative mechanism, the littoral States may argue that it would be reasonable to implement additional environmental protection measures in the Straits in order to ensure that the marine environment does not suffer further degradation.

8.4. CONCLUSION

This Chapter has analysed potential future measures to protect and preserve the marine environment of the Straits of Malacca and Singapore. This could be achieved through the proposed designations of the Straits as a Special Area under MARPOL 73/78 and a PSSA.

The discharge of operational oil and pollutants from ships would be better managed if the Straits were designated as Special Areas under MARPOL; however, a key problem would be whether or not the littoral States of the Straits of Malacca and Singapore have the infrastructure and facilities needed for such a designation. Over the years, Malaysian, Singaporean and Indonesian ports have developed their reception facilities' infrastructure and this should suffice, at least on an interim basis, as not all ships transiting the Straits would initially call at ports along the Straits of Malacca and Singapore.

There are a number of potential APMs which could be considered for the proposed Straits of Malacca and Singapore PSSA. These APMs include the cost-recovery mechanism and the introduction of a traffic limitation regime or through the implementation of compulsory pilotage. Some user States may argue that these measures are inconsistent with the LOSC and these APMs could only be implemented and enforced with the agreement of the IMO. Taking the adverse reactions of some user States to implementation of compulsory pilotage in the Torres Strait into account, it is likely that a proposal for imposing this measure in the Straits of Malacca and Singapore would be followed by similar reactions. In addition, unlike the designation of the Torres Strait as a PSSA, which was endorsed by the IMO as an extension of the Great Barrier Reef PSSA, the proposed designation of the Straits of Malacca and Singapore as a PSSA would be a new proposal and thus is likely to have a more difficult passage through the IMO.

Assuming that an application for the designation of the Straits of Malacca and Singapore as a PSSA was successful, this Chapter submits that the proposed traffic limitation regime is the most desirable and practically feasible measure for protecting and preserving the marine environment of the Straits. The guidelines for the proposed traffic limitation scheme could be jointly developed by the littoral States, the IMO and the user States. The traffic limitation scheme could be formulated in such a way as to allow a more equitable balance between transiting shipping and the control of vessel-source pollution in the Straits of Malacca and Singapore, without significantly restricting the flow of global trade through the Straits. Nonetheless, given the fact that these measures are likely to draw strong protests from various States, it is crucial to venture into the potential unilateral measures that the littoral States could consider resorting to without having to impose them through the mechanisms of the IMO. These potential unilateral measures are discussed in Chapter 9 of this Thesis.

CHAPTER 9.
POTENTIAL FUTURE UNILATERAL MEASURES ON SAFETY OF NAVIGATION
AND THE CONTROL OF VESSEL-SOURCE POLLUTION

9.1 INTRODUCTION

Chapter 8 has suggested the potential IMO measures that the littoral States could consider resorting to in protecting the marine environment of the Straits of Malacca and Singapore from vessel-source pollution. As the proposed measures may impede the right of transit passage, these proposals may face complications at the IMO level. Nevertheless, the littoral States are not left without other possible options. This Chapter will discuss the two potential unilateral measures that might be implemented by the littoral States specifically Malaysia and Indonesia. The first part of this Chapter will focus on the first unilateral measure; namely, the proposed application of non-suspendable innocent passage in the Strait of Malacca. The second part of this Chapter will discuss the other potential unilateral measure; the proposed reversion of territorial sea claims in the Strait of Malacca from twelve nautical miles to three nautical miles. This Chapter will also examine and appraise the potential legal implications arising from such implementations before concluding whether or not these potential measures may be legally practical for imposition in the Strait of Malacca.

9.2 POSSIBLE UNILATERAL MEASURES BY LITTORAL STATES

The first proposed measure is to invoke the application of non-suspendable innocent passage in the Strait of Malacca. The following section critically examines the viability and practicability of such an imposition.

9.2.1 The Application of Non-Suspendable Innocent Passage in the Strait of Malacca

The Straits of Malacca and Singapore are located between two main oceans; the Indian Ocean to the west via the Andaman Sea, and the Pacific Ocean to the east via the South China Sea.¹ The

* This Chapter has been published (wholly or in part) in the following peer-reviewed journals:

(a) Mohd Hazmi bin Mohd Rusli, 'Balancing the Tensions between Shipping and Marine Environmental Protection in the Straits of Malacca and Singapore: Have the Straits Reached an Environmental

Straits form a waterway linking these two regions of the world together.² In terms of maritime navigation, the Straits have always been regarded as a single strait, even though the waterway is formed by two different straits: the Strait of Malacca and the Strait of Singapore.³ The Straits of Malacca and Singapore therefore fit the definition of a strait used for international navigation in Articles 37⁴ and 38(1)⁵ of the LOSC. Hence, the transit passage regime is applicable in these straits and inevitably opens them to international shipping traffic, with the burden of

Tipping Point' (2011) 7(2) *The International Journal of Environmental, Cultural, Economic and Social Sustainability*, 39-51;

- (b) Mohd Hazmi bin Mohd Rusli, 'The Legal Feasibility of Imposing Shipping Controls in Straits Used for International Navigation: A Study of the Straits of Malacca and Singapore' (2011) 2(9) *OIDA International Journal of Sustainable Development*, 69-82;
- (c) Mohd Hazmi bin Mohd Rusli, 'The Application of Transit Passage Regime in Straits Used for International Navigation: A Study of the Straits of Malacca and Singapore' (2012) *Asian Politics & Policy* (imprint).

¹ See Section 4.3.1 of Chapter 4 of this Thesis.

² Mokhzani Zubir, 'The Strategic Value of the Strait of Malacca' (2005) <<http://www.mima.gov.my/mima/htmls/papers/pdf/mokhzani/strategic-value.pdf>>; S. Tiwari, 'Legal Mechanisms for Establishing a Fund' (1999) 3 *Singapore Journal of International & Comparative Laws*, 470-471; Catherine Zara Raymond, 'Piracy and Armed Robbery in the Malacca Strait' (2009) 62(3) *Naval War College Review*, 31-32; Mary George, *Legal Regime of the Straits of Malacca and Singapore* (LexisNexis, 2008), 5-8.

³ Tommy Koh stated that 'The Straits of Malacca and Singapore, which are interconnected...should be treated as one watercourse'. See Tommy Koh, 'Opening Remarks by Prof Tommy Koh, Chair of the IMO-IPS Conference on the Straits of Malacca and Singapore; Ambassador-At-Large, Ministry of Foreign Affairs, Singapore' (1999) 3 *Singapore Journal of International & Comparative Laws*, 295. This view is also shared by Beckman, which contended that 'The Malacca Strait and the Singapore Strait are connected. They are treated by the three littoral States of Indonesia, Malaysia and Singapore, and by the IMO, as a single strait, which is referred to as the Straits of Malacca and Singapore'. See Robert Beckman, 'Singapore Strives to Enhance Safety, Security, and Environmental Protection in its Port and in the Straits of Malacca and Singapore' (2009) 14(2) *Ocean and Coastal Law Journal*, 167-169. There is also a view that the Straits of Malacca and Singapore are actually one watercourse with the Strait of Singapore forming the narrowest part of the waterway, which represents the real choke point. See Abdul Ghafur Hamid @ Khin Maung Sein, 'Maritime Terrorism, the Straits of Malacca and the Issue of State Responsibility' (2006) 15(1) *Tulane Journal of International and Comparative Law*, 155-179. The Straits of Malacca and Singapore connect to each other making one single stretch of navigational channel extending approximately 521.39 nautical miles in length. Therefore, these straits should be regarded as together in terms of maritime navigation. See Raja Malik Kamaruzaman, 'Navigational Safety in the Strait of Malacca' (1998) 2(2) *Singapore Journal of International & Comparative Laws*, 469-470.

⁴ Article 37 of the LOSC mentions that 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'.

⁵ Article 38 (1) of the LOSC reads 'In straits referred to in article 37, all ships and aircraft enjoy the right of transit passage, which shall not be impeded...'

accommodating unlimited shipping traffic falling on the littoral States.⁶ This is the case if the Straits of Malacca and Singapore are considered as one entity.⁷



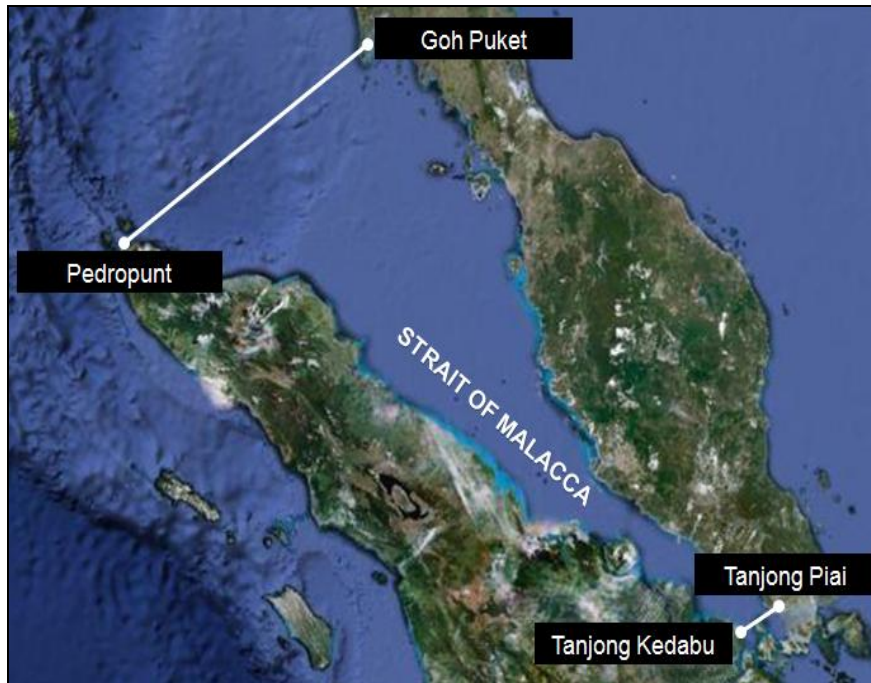
Map 9-1: The Straits of Malacca and Singapore
(Modified from Google Maps)

However, the International Hydrographic Organization (IHO) considers the Straits of Malacca and Singapore as two separate straits and defines the limits of these straits differently, illustrated in Map 9-2 and Map 9-3.⁸

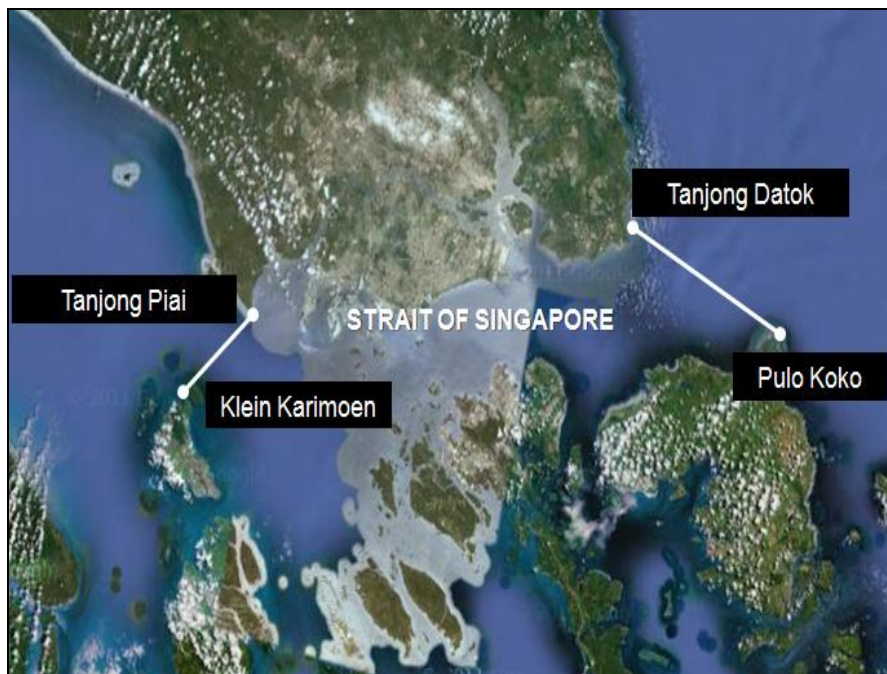
⁶ Naoya Okuwaki, 'Improving Navigational Safety Governance in Straits of Malacca and Singapore' (Paper presented at the International Symposium on Safety and Protection of the Marine Environment of the Straits of Malacca and Singapore, Kuala Lumpur, 2007), 17-21; Jon M. Van Dyke, 'Legal and Practical Problems Governing International Straits' in Hamzah Ahmad (ed), *The Straits of Malacca: International Co-operation in Trade, Funding and Navigational Safety* (Pelanduk, 1997), 319-321; Mohd Hazmi bin Mohd Rusli, 'The Legal Feasibility of the Imposition of a Traffic Limitation Scheme in Straits Used for International Navigation: A Study of the Straits of Malacca and Singapore' (2011) 1(6) *International Journal of Humanities and Social Science*, 122-130; Article 44 of the LOSC provides that 'States bordering straits shall not hamper transit passage and shall give appropriate publicity to any danger to navigation... There shall be no suspension of transit passage'.

⁷ Satya N. Nandan, 'The Management of Straits used for International Navigation: International Cooperation in Malacca and Singapore Straits' (1999) 3 *Singapore Journal of International & Comparative Laws*, 430-432.

⁸ International Hydrographic Organization, 'Limits of Oceans and Seas' (150-XII-1971, International Hydrographic Organization, 1953), 23.



Map 9-2: Limits of the Strait of Malacca
(Modified from Google Maps)



Map 9-3: Limits of the Strait of Singapore
(Modified from Google Maps)

If the Straits of Malacca and Singapore are not treated as one single strait the transit passage regime would no longer apply to foreign vessels plying the Strait of Malacca.⁹ If considered separately from the Strait of Singapore, the Malaysian side of the Strait of Malacca would fulfil the requirements needed for non-suspendable innocent passage to apply as provided in Article 45(2) of the LOSC.¹⁰ Similarly, the Indonesian side of the Strait of Malacca, if considered separately from the Strait of Singapore, would be a strait that connects one part of the high seas or EEZ to the territorial sea of Singapore.¹¹ It could also be argued that the Indonesian side of the Strait of Malacca, if it is not presumed to form one single strait with its Singaporean counterpart, would be a strait that connects one part of high seas or EEZ to the territorial seas of both Singapore and Indonesia as well as to the archipelagic waters of Indonesia.¹² The LOSC is silent on the navigational regime applicable in a strait that connects a part of an EEZ to the archipelagic waters of another State.

Under this new interpretation, the Strait of Singapore would be considered a strait that connects the South China Sea, which forms one part of the high seas/EEZ to the territorial sea of Malaysia and Indonesia in the Strait of Malacca. Therefore, non-suspendable innocent passage would likely be the navigational regime applicable in the Strait of Singapore. Nevertheless, it may also be asserted that since there is an EEZ area in the Strait of Malacca, transit passage would still be the navigational regime applicable in the Strait of Singapore as it is still legally a strait that connects one part of the high seas/EEZ of the South China Sea to another part of the high seas/EEZ of the Strait of Malacca.¹³

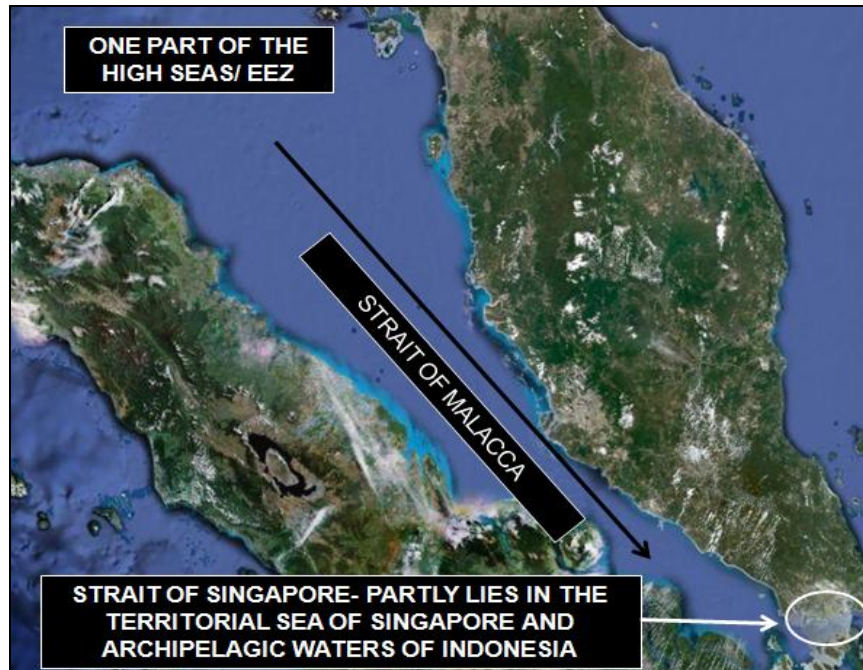
⁹ Mohd Hazmi bin Mohd Rusli, 'Balancing the Tensions between Shipping and Marine Environmental Protection in the Straits of Malacca and Singapore: Have the Straits Reached an Environmental Tipping Point' (2011) 7(2) *The International Journal of Environmental, Cultural, Economic and Social Sustainability*, 45-46.

¹⁰ Article 45(1) (b) of the LOSC reads 'The regime of innocent passage, in accordance with Part II, section 3, shall apply in straits used for international navigation between a part of the high seas or an exclusive economic zone and the territorial sea of a foreign State'. The difference between this navigational regime and that of innocent passage in Part II of the LOSC is that this regime is non-suspendable. See Section 4.2.1 of Chapter 4 of this Thesis.

¹¹ Vivian Louis Forbes and Mohd Nizam Basiron, *Defining Maritime Limits: Western Approaches to the Strait of Singapore*, Malaysia's Maritime Space: An Analytical Atlas of Environments and Resources (Maritime Institute of Malaysia, 1998), 13.

¹² *Ibid.*

¹³ The Strait of Singapore is collectively bordered by Malaysia, Indonesia and Singapore. Unlike Malaysia and Indonesia, since UNCLOS III, Singapore has always been a keen supporter of freedom of navigation for vessels navigating through straits used for international navigation. As an important international maritime hub, the transit passage regime is crucial for the well-being of Singapore's thriving shipping industry. Looking from this



Map 9-4: The Strait of Malacca Treated Separately from the Strait of Singapore
(Modified from Google Maps)

Putting this assertion aside, it could rightly be argued that if the Strait of Malacca and the Strait of Singapore are considered as separate straits, the Strait of Malacca may be seen as a strait that connects one part of the high seas or EEZ to the territorial sea of a foreign State, and therefore, non-suspendable innocent passage would apply in the Strait of Malacca instead of transit passage.¹⁴

9.2.1.1 Political and Legal Implications

If Malaysia and Indonesia, as States bordering the Strait of Malacca, supported such an interpretation of the Strait's status, the navigational regime in the Strait of Malacca would be

perspective, it is likely that Singapore and other maritime States would not support any attempts to re-interpret the legal status of the Strait of Singapore. See Section 3.3.1.3 of Chapter 3 of this Thesis.

¹⁴ Mohd Hazmi bin Mohd Rusli, 'Balancing the Tensions between Shipping and Marine Environmental Protection in the Straits of Malacca and Singapore: Have the Straits Reached an Environmental Tipping Point' (2011) 7(2) *The International Journal of Environmental, Cultural, Economic and Social Sustainability*, 45-46; Mohd Hazmi bin Mohd Rusli, 'Laws, Regulations and Measures on Protection of the Marine Environment of Straits used for International Navigation: A Study of the Straits of Malacca and Singapore' (Paper presented at the 2011 International Law Association Asia-Pacific Regional Conference, Taipei, Taiwan, Republic of China, 2011).

viewed differently by these States, who would contend that foreign vessels would cease to have the right to exercise transit passage in the Strait.¹⁵ The application of non-suspendable innocent passage would allow both Malaysia and Indonesia to impose more shipping control mechanisms on ships and aircraft transiting the Strait.¹⁶ Under the non-suspendable innocent passage regime, submarines are required to travel on the surface while exercising innocent passage¹⁷ and foreign aircraft would have no freedom of overflight over the Strait of Malacca.¹⁸

Article 233¹⁹ of the LOSC contains a provision relating to the enforcement jurisdiction of States bordering straits on environmental safeguards with respect to straits used for international navigation.²⁰ Under Article 233, States bordering straits are entitled to take enforcement measures against ships in transit passage only provided if such ships have committed a violation of the laws and regulations stipulated in Articles 42(1) (a) and (b)²¹ of the LOSC which thereafter may threaten or cause major damage to the marine environment of the straits.²²

¹⁵ Mohd Hazmi bin Mohd Rusli, 'Balancing the Tensions Between Shipping and Marine Environmental Protection in the Straits of Malacca and Singapore: Have the Straits Reached an Environmental Tipping Point?' (Paper presented at the Seventh International Conference on Environmental, Cultural, Economic and Social Sustainability, Hamilton, New Zealand, 2011).

¹⁶ Mohd Hazmi bin Mohd Rusli, 'Balancing the Tensions between Shipping and Marine Environmental Protection in the Straits of Malacca and Singapore: Have the Straits Reached an Environmental Tipping Point?' (2011) 7(2) *The International Journal of Environmental, Cultural, Economic and Social Sustainability*, 39-48; Mohd Hazmi bin Mohd Rusli, 'Shipping Controls in the Malacca Strait: Has the Strait Reached an Environmental Tipping Point?' (Paper presented at the 7th Asian Law Institute Conference, Kuala Lumpur, Malaysia, 2010).

¹⁷ Article 20 of the LOSC reads 'In the territorial sea, submarines and other underwater vehicles are required to navigate on the surface and to show their flag.'; Bernard H Oxman, 'The New Law of the Sea' (1983) 69 *American Bar Association Journal*, 156-158.

¹⁸ Unlike transit passage, innocent passage regime only confers passage rights to ships and not aircrafts. See Boleslaw A. Boczek, *International Law: A Dictionary* (Scarecrow Press, 2005), 313-314; Robin Rolf Churchill and Alan Vaughan Lowe, *The Law of the Sea* (Manchester University Press, 1988), 105; Bernard H Oxman, 'The New Law of the Sea' (1983) 69 *American Bar Association Journal*, 156-160.

¹⁹ The first part of Article 233 of the LOSC reads 'Nothing in sections 5, 6 and 7 affects the legal regime of straits used for international navigation'.

²⁰ Erik Jaap Molenaar, *Coastal State Jurisdiction over Vessel-Source Pollution* (Doctor of Philosophy Thesis, Utrecht University, 1965), 295-298.

²¹ Article 42(1) of the LOSC reads 'Subject to the provisions of this section, 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, as provided in article 41; (b) the prevention, reduction and control of pollution, by giving effect to applicable international regulations regarding the discharge of oil, oily wastes and other noxious substances in the strait.'

²² International Maritime Organization (IMO), 'Implications of the United Nations Convention on the Law of the Sea for the International Maritime Organization' (LEG/MISC.6, IMO, 2008), 64.

As explained earlier in Chapter 4, it is to be noted that there are two types of straits used for international navigation; namely, straits where transit passage applies and straits where transit passage does not apply.²³ However, the LOSC does not explicitly specify the types of straits used for international navigation that are subjected to the wording of Article 233.²⁴ There is also no clear nexus that links both Article 233 and Part III of the LOSC.²⁵ The LOSC is silent on this interpretation.

The second part of Article 233 reads:

...However, if a foreign ship...has committed a violation of the laws and regulations referred to in Article 42, Paragraph 1(a) and (b), causing or threatening major damage to the marine environment of the straits, the States bordering the straits may take appropriate enforcement measures...

From the wording of the second part of Article 233, it could be said that there is, however, a relation between Article 233 and Part III of the LOSC. Article 233 expressly mentions on the application of Article 42(1), which forms one of the legal provisions of Part III. Article 42(1) provides that:

Subject to the provisions of this section, States bordering straits may adopt laws and regulations relating to transit passage through straits...

Article 42(1), as cited above, specifically provides that it applies in straits used for international navigation where transit passage is applicable. For that reason, it may also be contended that neither Article 42(1) nor Article 233 applies to straits where non-suspendable innocent passage is exercisable by foreign vessels. Assuming that Article 233 only applies to straits used for international navigation that are subjected to the transit passage regime, the littoral States of the Strait of Malacca supporting a non-suspendable innocent passage regime in the Strait would not consider themselves bound by the enforcement limitations on marine pollution incidents

²³ See Sections 4.3.1 and 4.3.2 of Chapter 4 of this Thesis.

²⁴ See Section 6.3.6 of Chapter 6 of this Thesis.

²⁵ Mary George, *Legal Regime of the Straits of Malacca and Singapore* (LexisNexis, 2008), 73-77.

particularly as embodied in Article 233 of Part XII of the LOSC.²⁶ This is because in straits used for international navigation where non-suspendable innocent passage applies, the navigational regime in that strait would be governed by the regime of innocent passage in accordance with Part II, Section 3 of the LOSC.²⁷ The littoral States could also apply Sections 5, 6 and 7 of Part XII of the LOSC on enforcement and procedural powers in cases where they have evidence that ships have breached their marine pollution laws.²⁸

With Article 42(1) of the LOSC no longer binding upon the littoral States of the Strait of Malacca, they may then employ laws and regulations outside the scope permitted by Article 42(1). Both Malaysia and Indonesia may formulate laws and regulations on the protection of the marine environment of the Strait which are not restricted only to matters pertaining to safety of navigation and the regulation of maritime traffic.²⁹ Furthermore, the littoral States may also no longer need to enact laws and regulations by giving effect to applicable international regulations regarding the discharge of oil, oily wastes and other noxious substances in the Strait.³⁰ Under the transit passage regime, States bordering straits are conferred with limited enforcement powers, as reiterated by Beckman:

If a vessel exercising the right of transit passage violates obligations under Article 39(2), but the vessel in question does not come into port, and the violation in question does not cause or threaten major damage to the marine environment of the straits, the rights of the littoral State are more limited.³¹

²⁶ As stated earlier in Section 6.3.6.2 of Chapter 6 of this Thesis, Article 233 does not make any reference to Part III of the LOSC. Therefore, it is not clear whether it only applies to straits used for international navigation where transit passage is exercisable or otherwise.

²⁷ See LOSC Art 45(1) (b).

²⁸ Mohd Hazmi bin Mohd Rusli, 'Balancing the Tensions between Shipping and Marine Environmental Protection in the Straits of Malacca and Singapore: Have the Straits Reached an Environmental Tipping Point' (2011) 7(2) *The International Journal of Environmental, Cultural, Economic and Social Sustainability*, 45-46.

²⁹ Article 42(1) stipulates that 'Subject to the provisions of this section, 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...'.

³⁰ Article 42(1)(b) allows States bordering straits to adopt laws and regulations relating to 'the prevention, reduction and control of pollution, by giving effect to applicable international regulations regarding the discharge of oil, oily wastes and other noxious substances in the strait'.

³¹ Robert Beckman, 'Transit Passage Regime in the Straits of Malacca: Issues for Consideration' (Paper presented at the Building A Comprehensive Security Environment in the Straits of Malacca, Kuala Lumpur, 2004), 249-250.

The replacement of transit passage with the non-suspendable innocent passage regime means that the littoral States of Malaysia and Indonesia may take appropriate enforcement measures against any ships that have violated their marine pollution laws without having to wait for an actual incident that may cause or may threaten to cause major damage to the marine environment of the Strait. Moreover, in straits where transit passage is applicable, States bordering straits are permitted to enact laws and regulations governing marine pollution based on the requirements set in Articles 42(1) (a) and (b) as well as Article 42(2) of the LOSC. Article 42(2) reads:

Such laws and regulations shall not discriminate in form or in fact among foreign ships or in their application have the practical effect of denying, hampering or impairing the right of transit passage...

Therefore, given that the transit passage regime may no longer be applicable for foreign vessels in the Strait of Malacca under this new legal interpretation, the littoral States may consequently formulate laws and regulations outside the guidelines stipulated in Article 42(2). Nevertheless, as the LOSC has provided that the non-suspendable innocent passage regime is not suspendable, it would not be too simplistic to state that the littoral States are not permitted under the LOSC to exercise the same degree of regulatory powers they possess within their territorial seas in regulating shipping in the Strait of Malacca.³² To a certain extent, it is undeniable that the application of a non-suspendable innocent passage regime would ultimately strengthen the regulatory powers of the littoral States, which are more limited under the transit passage regime. However, this does not in any way mean that the littoral States could suspend the passage of vessels plying the Strait of Malacca without any valid or compelling reason to do so.

This interpretation of the navigational regime applicable in the Strait would be highly contentious among other States. Given the fact that the non-suspendable innocent passage regime is less liberal than that of transit passage this may incite various mixed reactions, particularly

³² As elaborated in Chapter 4, the right of innocent passage is the strictest type of navigational regime. Under the regime of innocent passage, the coastal State may suspend temporarily the passage of a foreign vessel under the pretext of upholding the security of the coastal State, as provided in Article 25(3) of the LOSC. This is a right not possessed by a State bordering a strait as the navigational regimes applicable in straits used for international navigation are different from that of territorial sea. See Donat Pharand, 'The Northwest Passage in International Law' in Charles B. Bourne (ed), *The Canadian Yearbook of International Law/ Annuaire canadien de Droit international* (The University of British Columbia, 1980) vol XVII, 114-115; See Sections 4.2.1 and 4.2.2 of Chapter 4 of this Thesis.

among the States which are heavily dependent on the Strait of Malacca. In rejecting this new interpretation of the legal status of the Strait, the opposing States may contend that the Strait of Malacca is used for international navigation of global standing and that the littoral States have over the years acquiesced in the application of transit passage to the Strait.³³ This supports the view that the customary international law position is that transit passage applies in both the Straits of Malacca and Singapore. Conversely, based on the earlier discussion in Chapter 3, the littoral States may also contend that, being a relatively new regime, there is no general consensus that transit passage has been accepted as part of customary international law.³⁴

Moreover, separation of the Straits of Malacca and Singapore will not change the status of the Strait of Malacca as it is inseparable from that of the Strait of Singapore. It is not possible for a vessel to pass through the Strait of Malacca without having to transit the Strait of Singapore to navigate to the east or west. This is the reason why academic commentators such as Koh, Beckman and Kamaruzzaman regarded the Straits of Malacca and Singapore as a single waterway.³⁵

³³ The Strait of Malacca has not only been regarded as one of the world's great international sea ways, it is also an international strait of global standing. See Vivian Louis Forbes, 'Managing Marine Environment, Resources and Space in the Torres Strait: The Future Charted' (Paper presented at the Sixth MIMA Conference on the Straits of Malacca: Charting the Future, Kuala Lumpur, 2009), 92-110. Most maritime States namely China, Japan, the US and shipping organisations like INTERTANKO have considered that transit passage as the most appropriate regime to be applicable in the Strait of Malacca. See Joshua H. Ho, 'Enhancing Safety, Security and Environmental Protection of the Straits of Malacca and Singapore: The Co-operative Mechanism' (2009) 40(2) *Ocean Development and International Law*, 233-247. One of the reasons of the introduction of Article 43 of the LOSC on voluntary co-operation between States bordering straits and the user States was as an inducement for States bordering straits to accept transit passage as the applicable navigational regime in straits used for international navigation. Currently, there is a co-operation mechanism developing under the ambit of Article 43 as far as the Straits of Malacca and Singapore are concerned. Therefore, this ongoing co-operation directly or indirectly shows that the littoral States have accepted the status of both the Straits of Malacca and Singapore as straits which are subjected to the transit passage regime. See Hasjim Djalal, 'Funding and Managing International Partnership for the Malacca and Singapore Straits Consonant with Article 43 of the UNCLOS 1982' (1999) 3 *Singapore Journal of International & Comparative Laws*, 457-469.

³⁴ This view should be considered by looking at the status of the transit passage regime itself. There are conflicting views on whether or not transit passage has become part of the customary international law. The littoral States may, on the other hand contend that since the transit passage regime was a creation of UNCLOS III, therefore, it is a new navigational regime and has yet to achieve such a status. For further discussion, see Section 3.2.1.4 of Chapter 3 of this Thesis.

³⁵ See Note 3.

The proposed new interpretation of the legal status of the Strait of Malacca may also be seen as violating the earlier acknowledgement declared in the 1971 Joint Statement of the Governments of Malaysia Indonesia and Singapore on the Malacca Straits (1971 Joint Statement).³⁶ In the 1971 Joint Statement, the three littoral States agreed that:

- (1) The safety of navigation in the Straits of Malacca and Singapore is the responsibility of the coastal States concerned;
- (2) A tripartite co-operation on the safety of navigation in the two straits is to be established;
- (3) A body of co-operation to co-ordinate efforts for the safety of navigation in the Straits of Malacca and Singapore be established as soon as possible and that such body should be composed of only the three coastal States concerned;
- (4) The problem of the safety of navigation and the question of internationalisation of the straits are two separate issues;
- (5) The Governments of the Republic of Indonesia and Malaysia agreed that the Straits of Malacca and Singapore are not international straits, while fully recognising their use for international shipping in accordance with the principle of innocent passage. The Government of Singapore takes note of the position of the Government of the Republic of Indonesia and of Malaysia on this point.
- (6) On the basis of this understanding, the three Governments approved the continuation of the hydrographic survey conducted on the Straits of Malacca and Singapore.³⁷

During the ministerial meeting that led to the issue of the 1971 Joint Statement, the three littoral States agreed, for the purposes of safety of navigation and the protection of the environment of the Straits, to treat the Straits of Malacca and Singapore as one single strait.³⁸ As discussed earlier in Chapter 7, the agreement achieved in the 1971 Joint Statement formed the basis of the

³⁶ 'The Joint Statement of the Governments of Indonesia, Malaysia and Singapore' as quoted in Michael Leifer, 'Malacca, Singapore and Indonesia' in Gerard J. Mangone (ed), *International Straits of the World* (Sijthoff & Noordhoff, 1978), 204.

³⁷ Ibid.

³⁸ Hasjim Djalal, 'Funding and Managing International Partnership for the Malacca and Singapore Straits Consonant with Article 43 of the UNCLOS 1982' (1999) 3 *Singapore Journal of International & Comparative Laws*, 459-463; Satya N. Nandan, 'The Management of Straits used for International Navigation: International Cooperation in Malacca and Singapore Straits' (1999) 3 *Singapore Journal of International & Comparative Laws*, 431.

establishment of the TTEG in 1977 that to date has worked together for more than four decades to maintain the well-being of the Straits.³⁹ Japan has assisted the littoral States by promoting co-operation between the Malacca Straits Council (MSC) and the Nippon Foundation with the TTEG.⁴⁰ In fact, the subsequent co-operation scheme that exists between the littoral States and other user States and organisations including the US, South Korea, Australia, China and Germany, as well as INTERTANKO and MENAS was officially formalised through the recently established Co-operative Mechanism, a mechanism that has been developed largely through the TTEG with the assistance of the IMO, as provided by Article 43 of the LOSC.⁴¹ If Malaysia and Indonesia went ahead with their plan to reinterpret the legal status of the Straits by separating them, the existing co-operation mechanism may end through frustration, with user States likely to be reluctant to participate as they could no longer enjoy the unimpeded right of transit passage through the Straits of Malacca and Singapore. Furthermore, this re-interpretation of the legal status of the Strait of Malacca may also be seen as defeating the purpose of Article 43 of the LOSC.

However, in response, the littoral States could argue that though it is true that the governments of Malaysia, Indonesia and Singapore have previously agreed to treat both Straits as one entity, this was essentially simply an agreement. The 1971 Joint Statement was agreed upon 40 years ago, at a time when the volume of shipping traffic transiting the Strait of Malacca was not as great as it is now. From 1970 until 1986, the average number of shipping transits did not exceed 50,000 per year.⁴² Currently, there are approximately 74,000 transits per year, an increase of about 34.21 per cent from the number of transits the Straits accommodated nearly four decades ago.⁴³ This figure

³⁹ See Section 7.3.4 of Chapter 7 of this Thesis.

⁴⁰ See Section 7.3.1 of Chapter 7 of this Thesis.

⁴¹ Article 43 of the LOSC reads 'User States and States bordering a strait should by agreement cooperate (a) in the establishment and maintenance in a straits of necessary navigational and safety aids or other improvements in aid of international navigation; and (b) for the prevention, reduction and control of pollution from ships'.

⁴² Muhammad Razif bin Ahmad, 'The Financial Cost of Risk Management in the Straits of Malacca' in Hamzah Ahmad (ed), *The Straits of Malacca: International Co-operation In Trade, Funding & Navigational Safety* (Pelanduk, 1997), 187-188; G. Naidu, 'The Straits of Malacca In The Malaysian Economy' in Hamzah Ahmad (ed), *The Straits of Malacca: International Co-operation In Trade, Funding & Navigational Safety* (Pelanduk, 1997), 33-34.

⁴³ See Tables 2-5 of Chapter 2 of this Thesis.

is anticipated to increase up to 150,000 transits per year by the year 2020.⁴⁴ Indeed, the agreement made via the 1971 Joint Statement was never intended to be a treaty and therefore, given the increasing volume of shipping traffic, the littoral States have the option to consider reviewing this previous agreement.⁴⁵

The contention that the replacement of the transit passage regime with non-suspendable innocent passage would impede the free flow of international trade passing through the Straits is in fact not entirely accurate.⁴⁶ This is because vessels and ships would continue to enjoy non-suspendable innocent passage through the Strait of Malacca. As mentioned earlier, the application of this navigational regime would neither impede nor hamper free passage of shipping because there is no right of suspension, even for security purposes, on the part of the littoral States.⁴⁷ While ships comply with accepted international rules and do not commit any acts in violation of the marine pollution laws of the littoral States, then these States would not interrupt their passage. With user States enjoying non-suspendable passage through the Strait of Malacca, the development of the co-operation mechanism existing between the littoral States and the users of the Straits would unlikely to be inhibited. Unlike Iran, which has in the past closed the Strait of Hormuz to international shipping, the littoral States of the Straits of Malacca and Singapore do not have this reputation.⁴⁸ In fact, the three littoral States have worked together,

⁴⁴ Robert Beckman, 'The Establishment of Cooperative Mechanism for the Straits of Malacca and Singapore under Article 43 of the United Nations Convention on the Law of the Sea' in Aldo Chircop, Ted L. McDorman and Susan J. Rolston (eds), *The Future of Ocean Regime-Building-Essays in Tribute to Douglas M. Johnston* (Martinus Nijhoff, 2009), 234-235; Mohd Hazmi bin Mohd Rusli, 'The Application of Compulsory Pilotage in Straits Used for International Navigation: A Study of the Straits of Malacca and Singapore' (2011) 3(4) *Asian Politics & Policy*, 506; Vijay Sakhuja, *Malacca: Who's to Pay for Smooth Sailing?* (2007) Asia Times Online <http://www.atimes.com/atimes/Southeast_Asia/IE16Ae01.html>.

⁴⁵ Mohd Hazmi bin Mohd Rusli, 'The Application of Compulsory Pilotage in Straits Used for International Navigation: A Study of the Straits of Malacca and Singapore' (2011) 3(4) *Asian Politics & Policy*, 501-526.

⁴⁶ Mohd Hazmi bin Mohd Rusli, 'The Legal Feasibility of Imposing Shipping Controls in Straits Used for International Navigation: A Study of the Straits of Malacca and Singapore' (2011) 2(9) *OIDA International Journal of Sustainable Development*, 74-75.

⁴⁷ Donat Pharand, 'The Northwest Passage in International Law' in Charles B. Bourne (ed), *The Canadian Yearbook of International Law/ Annuaire canadien de Droit international* (The University of British Columbia, 1980) vol XVII, 114-115.

⁴⁸ Sabahat Khan, 'Iranian Mining of the Strait of Hormuz- Plausibility and Key Considerations' (Institute for Near East & Gulf Military Analysis (INEGMA), 2009), 1-11; Leighton G. Luke, 'Closing the Strait of Hormuz - An Ace up the Sleeve or an Own Goal' (Future Directions International-Strategic Analysis Paper, Independent Strategic Analysis of Australia's Global Interest, 10 February 2010), 1-5.

particularly through the TTEG, to ensure that the Straits of Malacca and Singapore are always open and safe for international shipping activity.⁴⁹

The question of the validity of the replacement of transit passage with non-suspendable innocent passage in the Strait of Malacca may still be arguable by observing the conduct of the littoral States during UNCLOS III. Article 233 of the LOSC was drafted to satisfy the needs of States bordering straits in terms of the safeguarding of the marine environment of their territorial straits. As discussed earlier in Chapter 6, Article 233 has been regarded by many as Malaysia's brainchild.⁵⁰ During the negotiation process at UNCLOS III, Malaysia sent a letter to the President of UNCLOS III containing a statement on how Article 233 should take effect in the Straits of Malacca and Singapore. Malaysia contended that the littoral States may take enforcement measures as provided in Article 233 against offending vessels that have violated its laws on the TSS and the minimum under keel clearance of 3.5 metres.⁵¹ This statement was subsequently supported and corroborated by letters sent by the Singaporean and Indonesian delegations.⁵² This conduct signifies that Malaysia, Indonesia and Singapore have acknowledged and acquiesced to the application of transit passage in both Straits of Malacca and Singapore. Based on this fact, if Malaysia and Indonesia, as the littoral States of the Strait of Malacca, went ahead with the proposed measure to reinterpret the legal status of the Strait, the reaction and responses anticipated from other States, particularly major maritime States that possess interests in the Straits, is unlikely to be a positive one.

⁴⁹ Maritime and Port Authority of Singapore (MPA), *Work and Close Co-operation of the Tripartite Technical Experts Group (Tteg) Have Contributed Significantly To The Safety of Navigation in the Straits of Malacca and Singapore- MPA Hosts 25th Anniversary Celebration of Tteg* (2009) MPA <http://www.mpa.gov.sg/sites/global_navigation/news_center/mpa_news/mpa_news_detail.page?filename=000509.xml>; International Association of Independent Tanker Owners (INTERTANKO), *Straits of Malacca and Singapore Tripartite Technical Experts Group's (TTEG) 25th Anniversary* (2000) INTERTANKO <<http://www.intertanko.com/templates/Page.aspx?id=33614>>; See Section 7.3 of Chapter 7 of this Thesis.

⁵⁰ Raj Sativale, 'Transit Passage in the Straits of Malacca' (2003) *MIMA Bulletin*, 1-14; Mary George, *Legal Regime of the Straits of Malacca and Singapore* (LexisNexis, 2008).

⁵¹ United Nations, 'DOCUMENT A/CONF.62/L.145: Letter dated 28 April from the representative of Malaysia to the President of the Conference' (A/CONF.62/L.145, United Nations, 1982), 250-251.

⁵² United Nations, *DOCUMENT A/CONF.62/L.145/ADD.2*, United Nations Conferences on the Law of the Sea: Official Records (William S. Hein & Co., 2000); United Nations, *DOCUMENT A/CONF.62/L.145/ADD.1*, United Nations Conferences on the Law of the Sea Official Records (William S. Hein & Co., 2000); See Section 3.3.1.3 and Section 6.3.6 of Chapter 6 of this Thesis.

On this, the littoral States, principally Malaysia and Indonesia may conversely assert that they have supported the application of innocent passage and not the transit passage regime in straits used for international navigation since before UNCLOS III was convened. Statement 4 of the 1971 Joint Statement reads:

...the Governments of the Republic of Indonesia and Malaysia agreed that the Straits of Malacca and Singapore are not international straits, while fully recognising their use for international shipping in accordance with the principle of innocent passage...⁵³

In fact, during UNCLOS III, Malaysia and Indonesia, along with other States bordering straits; namely, Spain, Yemen, the Philippines and Greece have always acknowledged and supported the idea that straits be dealt with as one entity with their territorial seas.⁵⁴ Nevertheless, the acceptance of transit passage regime via the letters sent by the delegations of the littoral States to the President of UNCLOS III and through the current practice of the exercise of the transit passage regime by both the littoral States and user States in the Straits of Malacca and Singapore would generally be considered as overriding that earlier acknowledgement.

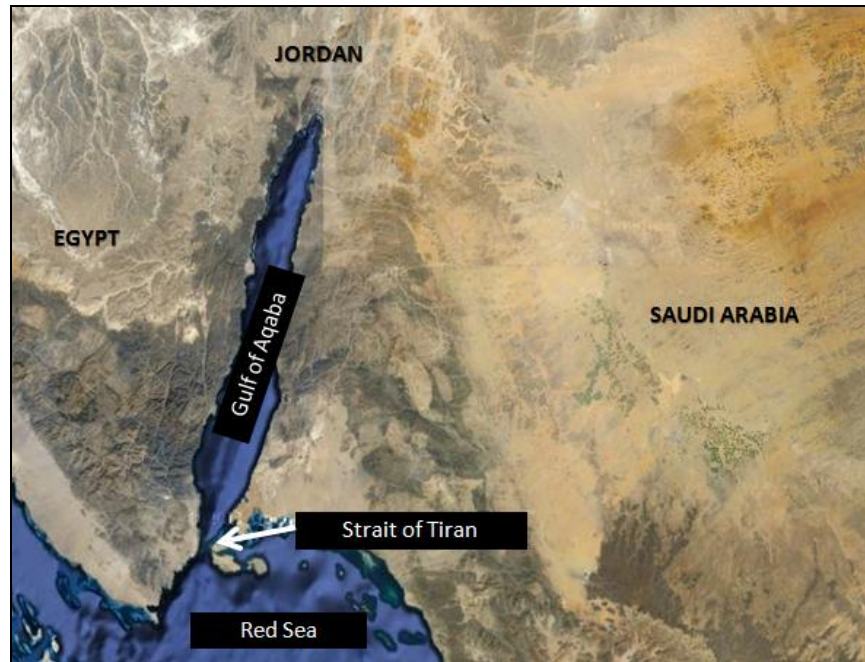
In addition, opposing States may also contend that Articles 45(1) (b) and 45(2) of the LOSC are only applicable to a strait that connects one part of the high seas or EEZ to territorial sea of a foreign State in an enclosed sea area such as the Strait of Tiran⁵⁵ and the Strait of Georgia ('dead

⁵³ 'The Joint Statement of the Governments of Indonesia, Malaysia and Singapore', as quoted in Michael Leifer, 'Malacca, Singapore and Indonesia' in Gerard J. Mangone (ed), *International Straits of the World* (Sijthoff & Noordhoff, 1978), 204.

⁵⁴ United Nations (UN), *The Law of the Sea: Straits Used for International Navigation: Legislative History of Part III of the United Nations Convention on the Law of the Sea Volume I* (United Nations, 1992), 75-76; Shekhar Ghosh, 'The Legal Regime of Innocent Passage Through the Territorial Sea' in Hugo Caminos (ed), *Law of the Sea* (Dartmouth, 2001), 51-56; S.N. Nandan and D.H. Anderson, 'Straits Used for International Navigation: A Commentary on Part III of the United Nations Convention on the Law of the Sea 1982' in Hugo Caminos (ed), *Law of the Sea* (Dartmouth, 2001), 70-73.

⁵⁵ Besides the LOSC, the navigational regime through the Strait of Tiran is also governed by the Egyptian-Israeli Peace Treaty of 26 March 1979. Article V (2) of the Treaty reads 'The Parties consider the Strait of Tiran and the Gulf of Aqaba to be international waterways open to all nations for unimpeded and non-suspendable freedom of navigation and over-flight. The Parties will respect each other's right to navigation and overflight for access to either country through the Strait of Tiran and the Gulf of Aqaba'. This treaty is not a 'long-standing international convention' and therefore the passage through the Strait of Tiran and the Gulf of Aqaba is governed mainly by Article 45 (1) (b) and Article 45 (2) of the LOSC. See Ministry of Foreign Affairs, Israel, *Peace Treaty Between*

end' straits).⁵⁶ The Strait of Tiran links the Red Sea to the Gulf of Aqaba, an enclosed maritime passageway of considerable importance in the Middle East which is jointly bordered by Egypt, Jordan, Israel and Saudi Arabia.⁵⁷ The location of the Strait of Tiran is shown in Map 9-5:



Map 9-5: Strait of Tiran
(Modified from Google Maps)

This contention was confirmed by Rozakis and Stagos:

...the regime of innocent passage applies where a part of the high seas or exclusive economic zone is linked to the territorial sea of a foreign State, such as the Strait of Tiran connecting the Red Sea and the Gulf of Aqaba (Rozakis & Stagos, 1987, pp. 72–77).⁵⁸

Israel and Egypt (1979) Ministry of Foreign Affairs, Israel <<http://www.mfa.gov.il/MFA/Peace+Process/Guide+to+the+Peace+Process/Israel-Egypt+Peace+Treaty.htm>>.

⁵⁶ Ana G. Lopez Martin, *International Straits: Concept, Classification and Rules of Passage* (Springer-Verlag, 2010), 80-81.

⁵⁷ Leo Gross, 'Passage Through the Strait of Tiran and in the Gulf of Aqaba' (1968) 33(1) *Law and Contemporary Problems*, 125-146.

⁵⁸ Christos L Rozakis and Petros N. Stagos, 'The Turkish Straits' in Gerard J Mangone (ed), *International Straits of the World* (Martinus Nijhoff, 1987) vol 9, 72-77.

The Strait of Georgia is also a ‘dead end’ strait as it connects the Pacific Ocean to the territorial sea of Canada in an enclosed maritime area as shown in the following Map 9-6:



Map 9-6: Strait of Georgia
(Modified from Google Maps)

Consequently, even though the Strait of Malacca connects the Indian Ocean to the territorial sea of Singapore, the Strait could not be considered as falling under the same category as the Strait of Tiran and the Strait of Georgia, as the Strait of Malacca connects one part of the high seas or EEZ to another part of the high seas or EEZ via the Strait of Singapore. Most importantly, the Strait of Malacca is not a ‘dead end’ strait.

Nevertheless, Malaysia and Indonesia could rebut this argument by stating that Part III of the LOSC does not specifically state that it applies to a strait that connects one part of the high seas or EEZ to the territorial sea of a foreign State in an enclosed sea. Articles 45(1) (b) and 45(2) of the LOSC stipulate:

Article 45

- (1) The regime of innocent passage...shall apply in straits used for international navigation: (b) between a part of the high seas or an exclusive economic zone and the territorial sea of a foreign State.
- (2) There shall be no suspension of innocent passage through such straits.

There is nothing in the wordings of Article 45(1) (b) or Article 45(2) of the LOSC indicating that they apply only to 'dead end' straits. As such, the new legal assertion that the Strait of Malacca is a strait that falls under the same category as the Strait of Tiran and the Strait of Georgia is not in contravention of the provisions of the LOSC. In addition, given that the application of non-suspendable innocent passage would not be likely to impede navigation, it is not too simplistic to contend that the proposed separation of the Straits of Malacca and Singapore is in fact legally viable for implementation.

Even though this measure seems to be appealing, particularly in terms of enhancing the regulatory powers of the littoral States, this proposed measure may also be likely to be seen as highly contentious, particularly among the other users of the Strait of Malacca. Considering the current political and world trade situation, there is little prospect that this argument would be acceptable to the majority of the international community given the fact that the Strait of Malacca now has become indispensable to global shipping and trade.⁵⁹

9.2.2 The Reversion of Territorial Sea Claims in the Strait of Malacca

The second suggested unilateral measure is the reversion of territorial sea claims in the Strait of Malacca from twelve nautical miles to three nautical miles. Japan and South Korea have retained their three nautical mile territorial sea claims in the Korea Strait. This part of the Chapter

⁵⁹ Jose L. Tongzon, 'Whither the Malacca Straits: The Rise of New Hub Ports in Asia' in Graham Gerard Ong-Webb (ed), *Piracy, Maritime Terrorism and Securing the Malacca Straits* (Institute of Southeast Asian Studies, 2006), 202; H.M. Ibrahim, Hairil Anuar Husin and Deneswari Sivaguru, 'The Straits of Malacca: Setting The Scene' in H.M. Ibrahim and Hairil Anuar Husin (eds), *Profile of the Straits of Malacca: Malaysia's Perspective* (Maritime Institute of Malaysia, 2008), 34-35; Sam Bateman, 'Regime building in the Malacca and Singapore Straits: Two Steps Forward, One Step Back' (2009) 4(2) *The Economics of Peace and Security Journal*, 45-50.

examines and analyses this measure by looking at State practice with special reference to that of the Korea Strait.

9.2.2.1 The Korea Strait

The extension of the maximum territorial sea limit from three nautical miles to twelve nautical miles led to the introduction of the transit passage regime in straits used for international navigation in order to ensure the smooth flow of maritime traffic through straits.⁶⁰ As discussed in Chapter 3, for straits that are wide enough and possess a convenient high seas or EEZ corridor, transit passage would not be applicable; instead, freedom of navigation in the high seas or EEZ corridor would apply along such routes. Article 36 specifies that transit passage:

...does not apply to a strait used for international navigation if there exists through the strait a route through the high seas or through an EEZ of similar convenience with respect to navigational and hydrographical characteristics...

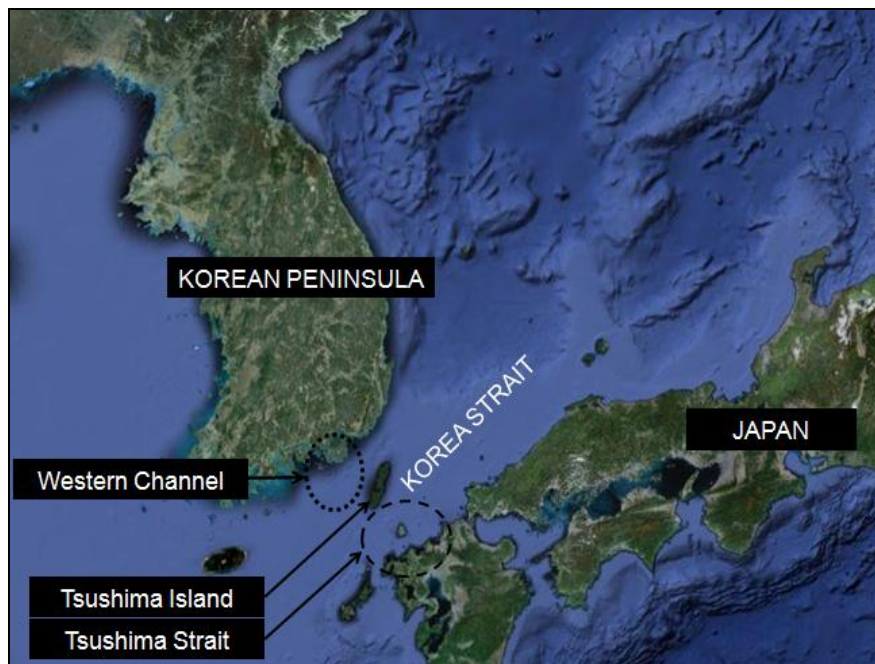
When the LOSC extended the maximum territorial sea limit from three nautical miles to twelve nautical miles, some States were reluctant to do so with regard to particular straits lying within their territorial seas.⁶¹ Japan and South Korea were among the States that did not extend their territorial sea limits up to the maximum twelve nautical miles in their maritime areas in the Korea Strait.⁶²

⁶⁰ Sam Bateman, 'The Regime of Straits Transit Passage in the Asia Pacific: Political and Strategic Issues' in Donald R. Rothwell and Sam Bateman (eds), *Navigational Rights and Freedoms and the New Law of the Sea* (Kluwer, 2000), 94-98; Mohd Hazmi bin Mohd Rusli, 'The Application of Compulsory Pilotage in Straits Used for International Navigation: A Study of the Straits of Malacca and Singapore' (Paper presented at the 4th Oceanic Conference on International Studies, Auckland, 2010); Said Mahmoudi, 'Customary International Law and Transit Passage' (1989) 20(2) *Ocean Development and International Law*, 163-168; Rakish Suppiah and Thulasi Kamalanathan, 'Straits Used for International Navigation: Requirements of International Law' (2009) 16(1) *MIMA Bulletin*, 4.

⁶¹ Luke T. Lee, 'Book Reviews and Notes: The Korean Straits' (1990) 84(1) *The American Journal of International Law*, 328-340.

⁶² Mark J. Valencia, 'The East China Sea Dispute: Context, Claims, Issues, and Possible Solutions' (2007) 31(1) *Asian Perspective*, 127-167; Zou Keyuan, 'Implementing the United Nations Convention on the Law of the Sea in East Asia: Issues and Trends' (2005) 9 *Singapore Year Book of International Law and Contributors*, 1-4.

The Korea Strait is a body of water that forms a sea passage between South Korea and Japan, situated off the south-eastern tip of the Korean Peninsula, linking the Sea of Japan and East China Sea in the north-west region of the Pacific Ocean.⁶³ Tsushima Island straddles the middle of the Strait, creating smaller tributary channels in the waterway; the Western Channel and the Eastern Channel (Tsushima Strait).⁶⁴ The Strait is approximately 131.22 nautical miles long, with the narrowest point of the Western Channel measuring 20.16 nautical miles in width and 23.11 nautical miles at its widest point.⁶⁵ The narrowest segment of the Eastern Channel is approximately 21.72 nautical miles wide, and is located between the north-western coast of Kyushu Island and the southern tip of the Tsushima islands.⁶⁶



Map 9-7: The Korea Strait and its Tributary Channels
(Modified from Google Maps)

⁶³ Office of Naval Research, 'Sea of Japan - Korea Strait: An Atlas of Oceanic Internal Solitary Waves' (Code 322 PO, Global Ocean Associates, 2004), 345-356.

⁶⁴ Ibid.

⁶⁵ Linda M. B. Paul, 'A Vessel Traffic System Analysis for the Korea/Tsushima Strait' (Paper presented at the ESENA Workshop: Energy-Related Marine Issues in the Regional Seas of Northeast Asia, Berkeley, California, 1997), 1.

⁶⁶ Ibid.

The Korea Strait, together with the Tsugaru Strait, located between the Japanese islands of Hokkaido and Honshu and the Soya (La Pérouse) Strait that lies between Sakhalin Island and Hokkaido form the three major routes that connect the Sea of Japan to the Pacific Ocean.⁶⁷ Due to its location, the Korea Strait has been a crucial seaway linking the East China Sea with Vladivostok, a major East Asian naval base for the United Socialist Soviet Republic (USSR).⁶⁸ The closure of the Korea Strait would force Soviet naval vessels travelling to Vladivostok from the East China Sea to transit via the Soya Strait route, a journey of twice the distance of the Korea Strait route.⁶⁹ The Strait was considered by the US as one of the most crucial waterways in protecting the American sea lane communications, particularly during the US-USSR rivalry during the Cold War.⁷⁰

Besides being a crucial waterway, the Korea Strait is also important for fisheries and oil exploration activities. The Strait, on both the Eastern and Western channels, is rich in fishery resources that include pompano, mackerel and squid.⁷¹ Efforts have also been made by both South Korea and Japan in conducting exploration works focused on oil and gas on the continental shelf at the entrance to the Korea Strait.⁷²

⁶⁷ Chi Young Pak, 'The Korean Straits' in Gerard J. Mangone (ed), *International Straits of the World* (Martinus Nijhoff, 1988), 58-64.

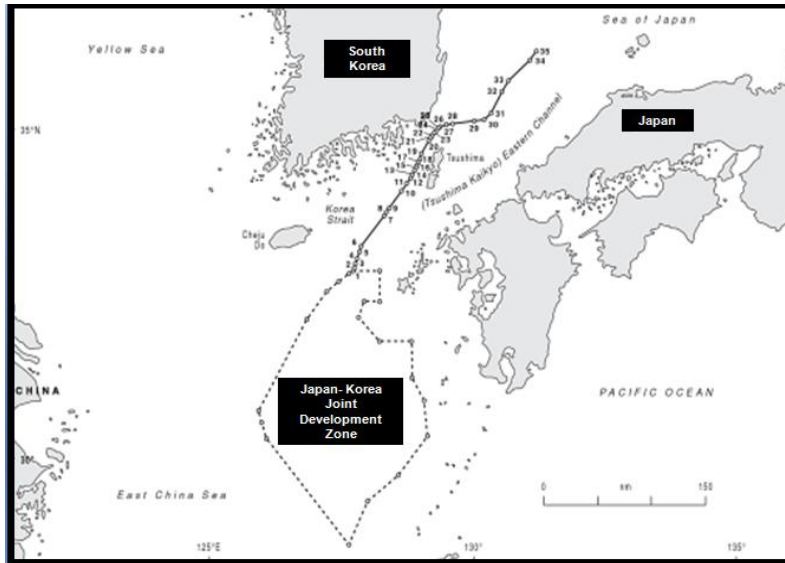
⁶⁸ Ibid.

⁶⁹ Robert E. Osgood, 'US Security Interests in Ocean Law' (1974) 2(1) *Ocean Development and International Law*, 12-13.

⁷⁰ The Cold War was the continuing state of political conflict, military tension, proxy wars and economic competition between two blocs of the world namely, the Communist Bloc led by the USSR and the powers of the Western world, led by the US and its allies. The Korea Strait was an important waterway for the strategic calculations for both the USSR and American military interests, particularly in the East Asian region. The Cold War ended after the collapse of the USSR in 1991, leaving the US as the leading military power until now. See Elmer Belmont Potter and Henry Hitch Adams, *Sea Power: A Naval History* (United States Naval Institute, 1981), 354-362; John Mueller, 'When did the Cold War End?' (Paper presented at the 2002 Annual Meeting of the American Political Science Association, Boston, 2002), 1-17.

⁷¹ Chi Young Pak, 'The Korean Straits' in Gerard J. Mangone (ed), *International Straits of the World* (Martinus Nijhoff, 1988), 3-12.

⁷² Masahiro Miyoshi, *Maritime Briefing: The Joint Development of Offshore Oil and Gas in Relation to Maritime Boundary Delimitation* (International Boundaries Research Unit, 1999), 11-13.



Map 9-8: The Japan-Korea Joint Development Zone in the Korea Strait
(Source: Miyoshi, 1999)⁷³

As the two littoral States that jointly border the Korea Strait, South Korea and Japan have entered a Joint Development Zone Agreement in 1974 to co-exploit and co-develop the overlapping areas in the Strait, as shown in Map 9-8.⁷⁴

9.2.2.2 The Territorial Claims of Japan and South Korea in the Korea Strait

Japan extended its territorial sea limits from three nautical miles to twelve nautical miles as promulgated by its domestic law, the Law on the Territorial Sea (Law No. 30/1997).⁷⁵ Article 1 of Law No. 30/1997 states ‘the territorial Sea of Japan comprises the areas of the sea extending from the baseline to the line twelve nautical miles seaward thereof’. However, the application of the twelve nautical mile limit was exempted for five straits lying within the Japanese territorial

⁷³ Ibid.

⁷⁴ Mark J. Valencia, ‘The East China Sea Dispute: Context, Claims, Issues, and Possible Solutions’ (2007) 31(1) *Asian Perspective*, 127-167; Sun Pyo Kim, *Maritime Delimitation and Interim Arrangements in North East Asia* (Martinus Nijhoff, 2004), 225-228; Masahiro Miyoshi, *Maritime Briefing: The Joint Development of Offshore Oil and Gas in Relation to Maritime Boundary Delimitation* (International Boundaries Research Unit, 1999), 11-13; Ana E. Bastida et al, ‘Cross-Border Unitization and Joint Development Agreements: An International Law Perspective’ (2007) 29(2) *Houston Journal of International Law*, 400-402.

⁷⁵ ‘Law on the Territorial Sea’ (Law No. 30 of 2 May 1977, Government of Japan, 1977); Yutaka Kawasaki-Urabe and Vivian L. Forbes, ‘Japan’s Ratification of UN Law of the Sea Convention and Its New Legislation on the Law of the Sea’ (1997) 1996-1997 *IBRU Boundary and Security Bulletin*, 92-100.

sea, as stipulated in Article 2 of the Supplementary Provisions on the extent of the territorial sea pertaining to the designated areas, which reads:

For the time being, the provisions of Article 1 shall not apply to Soya Strait, the Tsugaru Strait, the Eastern Channel of the Tsushima Strait, the Western Channel of the Tsushima Strait and the Osumi Strait...hereinafter referred to as 'designated areas'. The territorial sea pertaining to the designated areas shall be respectively the areas of the sea extending from the baseline to the line **three nautical miles** seaward thereof...⁷⁶ (Emphasis added).

South Korea shares the Western Channel of the Korea Strait with Japan, and also did not extend its territorial sea more than three nautical miles in some parts of the Strait, as regulated by Article 3 of Annex II of the Enforcement Decree of Territorial Sea and Contiguous Zone Act 1977 (TSC 1977).⁷⁷ The TSC 1977 was amended in 1977 and entered into force on 1 August 1996.⁷⁸ The reasons given by South Korea for deciding not to extend its territorial limits from three nautical miles to twelve nautical miles in these designated areas were:

- (a) The narrowest area of the Western Channel of the Korea Strait is only 20.16 miles wide between Namhyongche-do on the Korean side and Saozaki on the Tsushima Islands. If South Korea extends its territorial sea limit to twelve nautical miles, its territorial sea will overlap with that of Japan in some areas in the Western Channel.⁷⁹ By continuing to adopt a three nautical mile limit, a high seas corridor of 11.8 nautical miles wide will be

⁷⁶ 'Law on the Territorial Sea' (Law No. 30 of 2 May 1977, Government of Japan, 1977).

⁷⁷ The Government of the Republic of Korea, 'Territorial Sea & Contiguous Zone Act (Law No. 4986)' (DoD 2005.1-M, Republic of Korea, 1996); United States Department of State Bureau of Oceans and International Environmental and Scientific Affairs, 'Limits in the Seas, Straight Baseline and Territorial Sea Claims: South Korea' (No. 121, 1998), 1-23; Sun Pyo Kim, *Maritime Delimitation and Interim Arrangements in North East Asia* (Martinus Nijhoff, 2004), 225-228; Mark J. Valencia, 'The East China Sea Dispute: Context, Claims, Issues, and Possible Solutions' (2007) 31(1) *Asian Perspective*, 141-142; United Nations (UN), 'Oceans and the Law of the Sea: Report of the Secretary-General' (A/52/487, UN, 1997), 21-22.

⁷⁸ United Nations (UN), 'Oceans and the Law of the Sea: Report of the Secretary-General' (A/52/487, UN, 1997), 21-22.

⁷⁹ Robert E. Osgood, 'US Security Interests in Ocean Law' (1974) 2(1) *Ocean Development and International Law*, 11-15.

created in the Strait in which vessels belonging to maritime States can continue to transit freely;⁸⁰

- (b) Should South Korea extend its territorial sea to the twelve nautical mile limit, this would have been followed by political problems pertaining to the long-recognised Soviet right of free passage through the Strait.⁸¹ Even if the LOSC (which was still in negotiation at that time) would provide the right of transit passage for Soviet vessels, the twelve nautical mile limit would cause complications for Korea as it would have to monitor the movements of Soviet warships through its territorial Strait.⁸² Therefore, the continuation of the application of the three nautical mile territorial sea limit regime in the Korea Strait spared South Korea certain potential problems that may have arisen from the passage of Soviet warships in the Strait;⁸³
- (c) Such an extension would pose the problem of joint management of the Western Channel by the two countries;⁸⁴
- (d) The adoption of a twelve nautical mile territorial sea limit in South Korea's part of the Western Channel in the Korea Strait would be inconsistent with its stance of supporting freedom of navigation through straits used for international navigation. South Korea did not want the freedom of navigation regime practised in the Korea Strait to be replaced with the right of transit passage.⁸⁵

⁸⁰ Sam Bateman, 'The Regime of Straits Transit Passage in the Asia Pacific: Political and Strategic Issues' in Donald R. Rothwell and Sam Bateman (eds), *Navigational Rights and Freedoms and the New Law of the Sea* (Kluwer, 2000), 106-107.

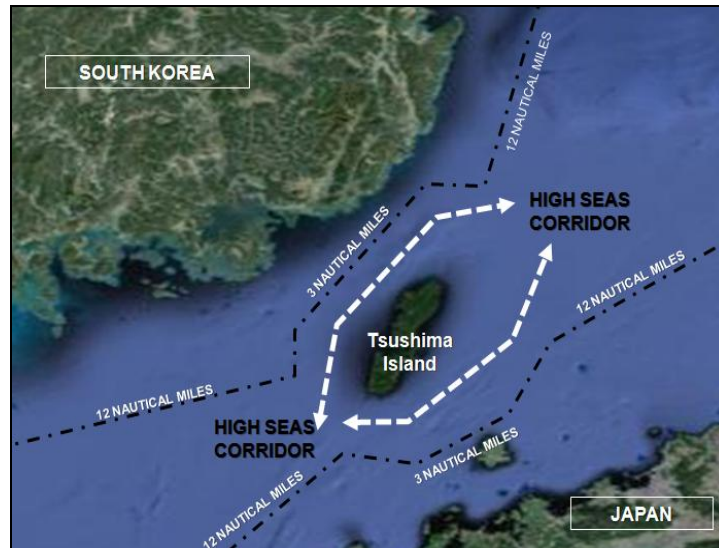
⁸¹ Park Hee Kwon, *The Law of the Sea and Northeast Asia: A Challenge for Cooperation* (Kluwer, 2000), 31-37.

⁸² Chi Young Pak, 'The Korean Straits' in Gerard J. Mangone (ed), *International Straits of the World* (Martinus Nijhoff, 1988), 75-77.

⁸³ Ibid.

⁸⁴ Park Hee Kwon, *The Law of the Sea and Northeast Asia: A Challenge for Cooperation* (Kluwer, 2000), 30-37.

⁸⁵ Chi Young Pak, 'The Korean Straits' in Gerard J. Mangone (ed), *International Straits of the World* (Martinus Nijhoff, 1988), 75-77; Park Hee Kwon, *The Law of the Sea and Northeast Asia: A Challenge for Cooperation* (Kluwer, 2000), 30-37. During the UNCLOS III, South Korea expressed its support towards freedom of navigation through straits used for international navigation. Nevertheless, it also support for the promotion of the continuation of negotiations on the legal status of straits. See United Nations (UN), *The Law of the Sea: Straits Used for International Navigation: Legislative History of Part III of the United Nations Convention on the Law of the Sea Volume II* (United Nations, 1992), 106.



Map 9-9: The South Korean and Japanese Territorial Sea Claims in the Korea Strait⁸⁶
(Modified from Google Maps)

Japan retained a three nautical mile territorial sea limit in the Korea Strait and other straits within its territorial sea. These are collectively known as the ‘designated areas’.⁸⁷ This policy was justified based on the following issues:

- (a) At the time when Japan decided to apply three nautical mile territorial sea limits in the designated areas, there was no consensus on the exact regime of passage in straits used for international navigation. The navigational regime to be applied in such straits was still being negotiated by at UNCLOS III and due to this uncertainty, Japan decided to retain three nautical mile territorial sea limits in the designated areas;⁸⁸
- (b) The application of a twelve nautical mile territorial sea limit would contradict Japan’s stance in supporting freedom of passage through straits used for international

⁸⁶ Note: Lines drawn on the map do not represent the exact territorial sea claims of both Japan and South Korea in the Korea Strait (for illustrative purposes only).

⁸⁷ Mark J. Valencia, ‘The East China Sea Dispute: Context, Claims, Issues, and Possible Solutions’ (2007) 31(1) *Asian Perspective*, 142-143; United States Department of State Bureau of Oceans and International Environmental and Scientific Affairs, ‘Limits in the Seas, Straight Baseline and Territorial Sea Claims: Japan’ (No. 120, Bureau of Oceans and International Environmental and Scientific Affairs, United States Department of State, 1998), 1-37; ‘Law on the Territorial Sea’ (Law No. 30 of 2 May 1977, Government of Japan, 1977).

⁸⁸ Chi Young Pak, ‘The Korean Straits’ in Gerard J. Mangone (ed), *International Straits of the World* (Martinus Nijhoff, 1988), 77-79.

navigation.⁸⁹ Should Japan extend its territorial sea limits from three nautical miles to twelve nautical miles in the designated areas, straits that are located within its waters would be incorporated as territorial Straits. Hence, freedom of navigation within those waterways would be replaced with the transit passage regime;⁹⁰

- (c) Japan was of the opinion that the transit passage regime would be difficult to apply due to ambiguities in the language used to describe it. The regime did not clearly spell out the extent of the power of coastal States to regulate transit passage of foreign vessels through their waters;⁹¹
- (d) At the time, the Japanese government had declared the non-nuclear policy to be in effect within Japanese territory.⁹² The three principles of this policy include not possessing, manufacturing or bringing nuclear weapons into Japan.⁹³ Japanese straits, particularly those of the ‘designated areas’ are vital waterways for Russian warships with nuclear weapons to travel from Vladivostok to Petropavlovsk.⁹⁴ Therefore, the application of a three nautical mile territorial sea limit would leave a high seas corridor within its straits and there would be no reason for foreign ships to invoke transit passage when navigating

⁸⁹ During the UNCLOS III, Japan, together with other maritime powers, has supported free passage rights for all vessels sailing through straits used for international navigation. See Kazuomi Ouchi, Kentaro Serita and Yuichi Takano, ‘Japanese Perspective on the Law of the Sea’ (1977) 71 *Proceedings of the Annual Meeting (American Society of International Law)*, 161-162. During the UNCLOS III, Japan asserted that freedom of navigation for international traffic should be ensured to the maximum extent. See United Nations (UN), *The Law of the Sea: Straits Used for International Navigation: Legislative History of Part III of the United Nations Convention on the Law of the Sea Volume II* (United Nations, 1992), 14.

⁹⁰ Chi Young Pak, ‘The Korean Straits’ in Gerard J. Mangone (ed), *International Straits of the World* (Martinus Nijhoff, 1988), 77-79.

⁹¹ Ibid.

⁹² Japan adopted the non-nuclear weapons policy imposed by the US after Japan’s defeat in World War II. Following the deconstruction of the Japanese imperial military and the disastrous atomic bombings of Hiroshima and Nagasaki, public sentiment was strongly against the use, and even presence on Japanese soil of nuclear weapons. The then Prime Minister of Japan, Eisaku Sato introduced the Three Non-Nuclear Principles in 1967, which was then broaden in 1968 through the implementation of ‘Four Pillars Nuclear Policy’. The policy is based on four principles, which are firstly, the promotion of the use of nuclear power for peaceful purposes, secondly, to promote global nuclear disarmament, thirdly, to rely on the US nuclear deterrent for protection from nuclear attack and fourthly, to support the Three Principles of not possessing, not manufacturing and not bringing nuclear weapons into Japan. See Tsuneo Akaha, ‘Japan’s Nonnuclear Policy’ (1984) 24(8) *Asian Survey*, 852-877; Chaiwat Khamchoo, ‘Japan’s Role in Southeast Asian Security: “Plus ca Change...”’ (1991) 64(1) *Pacific Affairs*, 19-22.

⁹³ Tsuneo Akaha, ‘Japan’s Nonnuclear Policy’ (1984) 24(8) *Asian Survey*, 852-877; Tomoko Kiyota, ‘Japan & Nuclear Disarmament: Looking through the US Umbrella’ (2009) (14) *CBRN South Asia Brief*, 1-4.

⁹⁴ Chi Young Pak, ‘The Korean Straits’ in Gerard J. Mangone (ed), *International Straits of the World* (Martinus Nijhoff, 1988), 77-79; Marian Leighton, ‘Soviet Strategy toward Northern Europe and Japan’ in Robbin Frederick Laird and Erik P. Hoffmann (eds), *Soviet Foreign Policy in a Changing World* (Aldine, 1975), 290-292.

that area.⁹⁵ With Soviet nuclear warships transiting within the high seas corridor of the straits, Japan would be able to relinquish its responsibility for regulating the passage of such vessels and at the same time uphold the non-nuclear principles proclaimed by the Japanese government.⁹⁶

As yet, Japan and South Korea have not announced any plans to extend their territorial sea claims up to twelve nautical miles in the Korea Strait. In summary, by retaining the three nautical mile territorial sea limits in these designated areas, Japan and South Korea would be able to fully exercise their regulatory powers within the three nautical mile limit in the Strait, which both States regard as essential for their security. Hence, their powers to regulate shipping through their waters would not be constrained by the existence of a transit passage regime in these straits.⁹⁷ Foreign vessels would still continue to enjoy freedom of navigation in the high seas corridors within those Straits and would be subjected to the more stringent right of innocent passage if they approach areas that are three nautical miles from the coast.⁹⁸ Based on the legal feasibility of the implementation of this measure in the Korea Strait for the purpose of upholding the security of Japan and South Korea, Malaysia and Indonesia could also consider adopting this State practice as a unilateral measure in enhancing their regulatory powers to regulate shipping under the pretext of the protection of the marine environment of the Strait of Malacca.

9.2.2.3 Political and Legal Implications

The introduction of a twelve nautical mile territorial sea limit in the Strait of Malacca by Malaysia and Indonesia has resulted in some parts of the Strait becoming integrated in totality as a territorial Strait, particularly in areas having breadths of 24 nautical miles or less. Malaysia and Indonesia have full sovereignty over the territorial sea of the Strait, however, as far as regulating

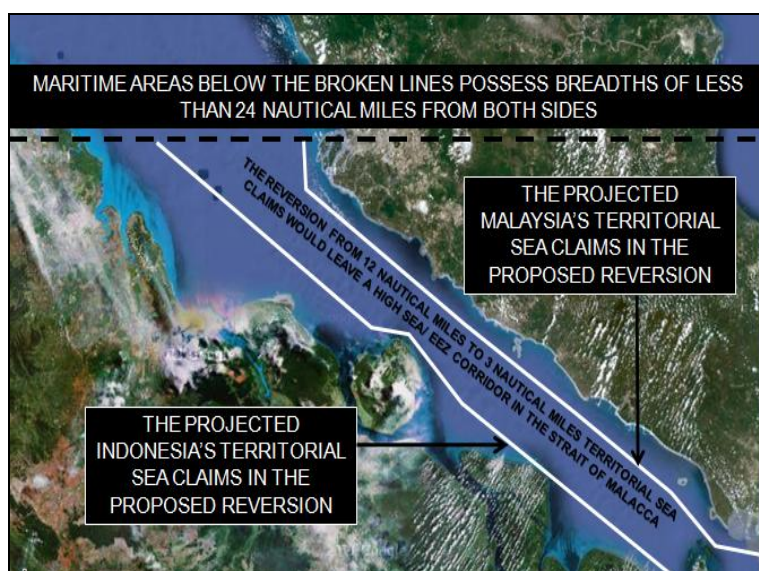
⁹⁵ Chi Young Pak, 'The Korean Straits' in Gerard J. Mangone (ed), *International Straits of the World* (Martinus Nijhoff, 1988), 75-77.

⁹⁶ Japan Times, *Japan Left Key Straits Open for US Nukes* (2009) Japan Times <<http://search.japantimes.co.jp/cgi-bin/nn20090622a1.html>>.

⁹⁷ Park Hee Kwon, *The Law of the Sea and Northeast Asia: A Challenge for Cooperation* (Kluwer, 2000), 31-32.

⁹⁸ Sam Bateman, 'The Regime of Straits Transit Passage in the Asia Pacific: Political and Strategic Issues' in Donald R. Rothwell and Sam Bateman (eds), *Navigational Rights and Freedoms and the New Law of the Sea* (Kluwer, 2000), 106-107.

shipping traffic is concerned, their powers are limited. Should both nations revert to their former territorial sea limits of three nautical miles in the Strait of Malacca, there would be a high-seas/EEZ corridor running through the Strait, as illustrated in Map 9-10. This would nullify the application of transit passage in the Strait of Malacca.⁹⁹



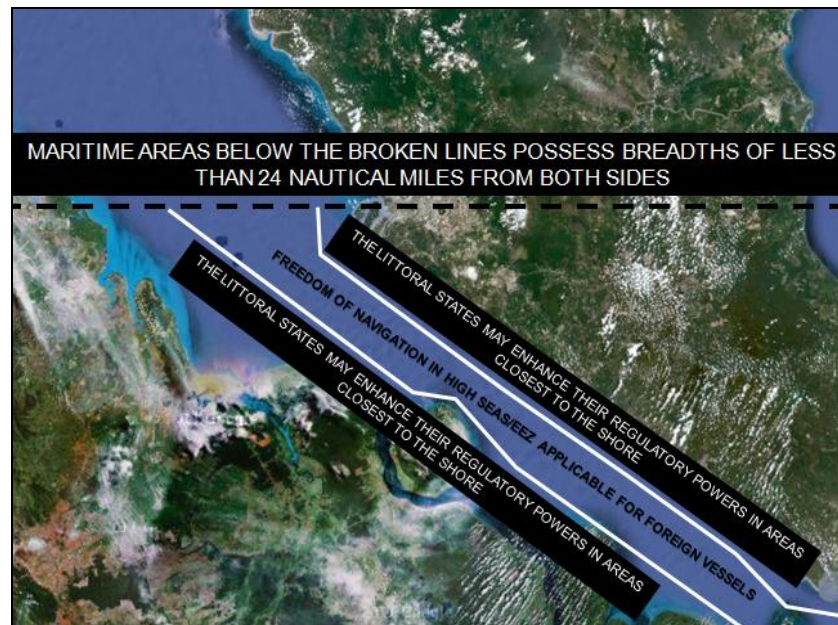
Map 9-10: The Proposed Reversion of Territorial Sea Claims in the Strait of Malacca
(Modified from Google Maps)

With transit passage ceasing to be applied, ships and vessels would have freedom of navigation in the high seas or EEZ corridor within the Strait of Malacca. They would be bound by the more restricted innocent passage regime if they entered areas of the Strait within the three nautical mile limit from the coastlines of the two littoral States.¹⁰⁰ Hence, a ‘marine environmental protection buffer zone’ or ‘pollution free bubble’ could be created within the Strait where the

⁹⁹ Article 36 of the LOSC provides that transit passage would not apply if there exists a navigationally convenient high seas or EEZ corridor within the strait. This provision was derived from the UK proposal during the UNCLOS III negotiation. This provision explains that if the strait is wide enough and is not incorporated into the territorial sea of the coastal State, then it would be unnecessary to provide a special right of transit passage through the strait. See S.N. Nandan and D.H. Anderson, ‘Straits Used for International Navigation’ (1990) 61 *British Yearbook of International Law*, 176-187; Sun Pyo Kim, *Maritime Delimitation and Interim Arrangements in North East Asia* (Martinus Nijhoff, 2004), 225-226; Horace B. Robertson Jr., ‘Passage Through International Straits: A Right Preserved in the Third United Nations Conference on the Law of the Sea’ (1980) 20(4) *Virginia Journal of International Law*, 827-828.

¹⁰⁰ Mohd Hazmi bin Mohd Rusli, ‘Balancing the Tensions between Shipping and Marine Environmental Protection in the Straits of Malacca and Singapore: Have the Straits Reached an Environmental Tipping Point’ (2011) 7(2) *The International Journal of Environmental, Cultural, Economic and Social Sustainability*, 39-38.

littoral States are given more powers by international law to regulate ship movements and traffic.¹⁰¹ This would place the littoral States in a better position to monitor pollution from vessels as well as enhancing security in areas of the Strait which are closest to the shore, as shown in Map 9-11.¹⁰² There are no provisions in the LOSC and customary international law that prevent a State from reverting to its former territorial sea limits.¹⁰³



Map 9-11: The Effect of the Reversion of Territorial Sea Claims
(Modified from Google Maps)

The Strait of Malacca is quite wide at its north-western entrance, where it is approximately 200 nautical miles from one coast to the other.¹⁰⁴ However, the narrowest point of the Strait of Malacca is between Tanjung Piai, located at the south-western tip of Peninsular Malaysia to Pulau Kerimon Kecil in Indonesia, which measures around 8.4 nautical miles. If the littoral States of the Strait of Malacca reverted to a three nautical mile territorial sea limit on the entire length of the Strait, it would leave a high seas/EEZ corridor of approximately 2.4 nautical miles

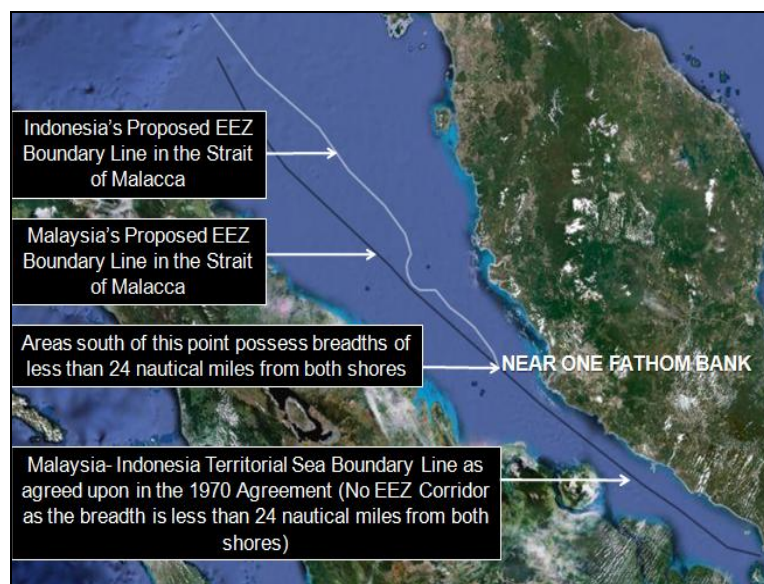
¹⁰¹ Ibid.

¹⁰² Ibid.

¹⁰³ Article 3 of the LOSC allows every State to establish the breadth of its territorial Sea up to a maximum limit of twelve nautical miles, measured from its territorial sea baselines and this provision mentions nothing on the reversion of territorial sea claim by a coastal State.

¹⁰⁴ See Section 2.2 of Chapter 2 of this Thesis.

at the narrowest point. It is true that Malaysia and Indonesia would sustain some significant territorial losses if they applied a three nautical mile territorial sea limit at the northern part of the Strait. These States would lose nine nautical miles of their territorial seas; however, they would still have sovereign rights to exploit the fishery resources in the Strait of Malacca.¹⁰⁵ Nevertheless, to avoid these territorial losses, one solution could be for both Malaysia and Indonesia to adopt both twelve nautical mile and three nautical mile limits in claiming their territorial sea in the Strait.¹⁰⁶ In areas where the breadths of the Strait are wide, the littoral States may apply the twelve nautical mile territorial sea limit.¹⁰⁷



Map 9-12: The Malaysia-Indonesia Territorial Sea and EEZ Boundary Demarcation Line in the Strait of Malacca (Modified from Google Maps)

The EEZ maritime area in the Strait of Malacca diminishes near One Fathom Bank, where the breadth of the Strait narrows down to less than 24 nautical miles, as shown in Map 9-12.

¹⁰⁵ Article 57 of the LOSC States ‘The exclusive economic zone shall not extend beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured’. Therefore, as the breadth of the Strait of Malacca at its widest portion is about 200 nautical miles from one shore to the other, the entire maritime areas in the Strait would be incorporated into the EEZ of both Malaysia and Indonesia.

¹⁰⁶ Mohd Hazmi bin Mohd Rusli, ‘Balancing the Tensions between Shipping and Marine Environmental Protection in the Straits of Malacca and Singapore: Have the Straits Reached an Environmental Tipping Point’ (2011) 7(2) *The International Journal of Environmental, Cultural, Economic and Social Sustainability*, 46-47.

¹⁰⁷ *Ibid.*

Therefore, it is suggested that in maritime areas south of One Fathom Bank, the littoral States may consider beginning to revert their territorial sea claims back to three nautical miles, as illustrated in Map 9-13:



Map 9-13: The Adoption of Both Three Nautical Mile and Twelve Nautical Mile Territorial Sea Claims in the Strait of Malacca.¹⁰⁸
(Modified from Google Maps)

By adopting this approach, the littoral States would not lose out on territorial sea and EEZ limit claims. As the Strait narrows in breadth as it flows south, there would be smaller EEZ areas that could be claimed by the littoral States. In addition, there would be sufficient area within the Strait that to be maintained as a high seas/EEZ corridor in which maritime traffic could exercise freedom of navigation. The littoral States would then possess a three nautical mile territorial sea buffer zone in which they could exercise more power to control marine pollution and maritime security.¹⁰⁹ It is not without precedent to apply both three nautical mile and twelve nautical mile territorial sea limits, as this has already been practiced by South Korea in relation to the Korea

¹⁰⁸ Note: The lines do not represent the exact territorial sea claims of Malaysia and Indonesia in the Strait of Malacca as this is for illustrative purposes only.

¹⁰⁹ Mohd Hazmi bin Mohd Rusli, 'Balancing the Tensions between Shipping and Marine Environmental Protection in the Straits of Malacca and Singapore: Have the Straits Reached an Environmental Tipping Point' (2011) 7(2) *The International Journal of Environmental, Cultural, Economic and Social Sustainability*, 46-47.

Strait as shown in Map 9-9. Given the success of this regime as implemented by Japan and Korea in some parts of their straits, this proposal may be a viable option for the Strait of Malacca.¹¹⁰

The reversion of the territorial sea claims from twelve nautical miles to three nautical miles by the littoral States of the Strait of Malacca obviously would not interrupt freedom of navigation of foreign vessels plying the Strait. Under this new regime, the Strait of Malacca would have a high seas/EEZ corridor running through it. Transit passage would still apply in the Strait of Singapore as it is a strait that connects one part of the high seas/EEZ, the Strait of Malacca, to another part of the high seas/EEZ, the South China Sea. In short, should this proposal be adopted, foreign vessels may exercise freedom of navigation in the Strait of Malacca, unless they enter the three nautical mile buffer zone of the Strait of Malacca, in which the innocent passage regime would apply. Transit passage would be deemed to begin when vessels navigate into the limits of the Strait of Singapore as defined by the IHO.

Notwithstanding the attraction of this approach for the littoral States, the proposal may have some disadvantages. A critical question to be considered is whether the reversion to a three nautical mile territorial sea in the Strait of Malacca would create a navigationally convenient high seas/EEZ corridor within the Strait. Even though it is theoretically correct that there would be 2.4 nautical miles of high seas/EEZ corridor at the narrowest point of the Strait should the three nautical miles territorial sea limit apply, this may not be entirely accurate in reality.

As stated earlier, the narrowest point of the Korea Strait at its Western Channel is approximately 20.16 nautical miles while its Eastern Channel is about 21.72 nautical miles. Unlike the Korea Strait, which is relatively wide at both of its narrowest points, this is not the case for the Strait of Malacca. Leifer comments that although the breadth of the Strait of Malacca at its narrowest point is around 8.4 nautical miles, this figure does not indicate the precise extent of the navigable channel which, for deep draught vessels, is much less.¹¹¹ Therefore, if the 2.4 nautical mile high

¹¹⁰ Mohd Hazmi bin Mohd Rusli, 'The Legal Feasibility of Imposing Shipping Controls in Straits Used for International Navigation: A Study of the Straits of Malacca and Singapore' (2011) 2(9) *OIDA International Journal of Sustainable Development*, 75-77.

¹¹¹ Michael Leifer, 'Malacca, Singapore and Indonesia' in Gerard J. Mangone (ed), *International Straits of the World* (Sijthoff & Noordhoff, 1978), 51-53; Tammy M. Sittnick, 'State Responsibility and Maritime Terrorism in the Strait of Malacca: Persuading Indonesia and Malaysia to take Additional Steps to Secure the Strait' (2005) 14(3)

seas/EEZ corridor is not navigationally viable as it may be dotted with hazards such as sand banks, shoals, reefs and wrecks, then the transit passage regime would still continue to apply under the LOSC even though the breadth of the Strait is more than six nautical miles from either shore. Some States, such as the UK, have also argued that even if a strait is wide enough to have a high seas/EEZ but the corridor is too narrow to transit without accidentally swerving into the territorial sea of the littoral States, the entire strait should be treated as a territorial strait subject to the regime of transit passage.¹¹²

Second, the application of freedom of navigation in the high seas/EEZ in the Strait of Malacca would probably permit vessels to ply the Strait without having to abide by established rules on safety of navigation and the control of vessel-source pollution such as the TSS and the under keel clearance requirements as prescribed by Article 233 and Articles 42(1) (a) and (b) of the LOSC. This is based on the fact that under this new interpretation the Strait of Malacca would no longer be a strait that is governed by the transit passage regime. As such, the littoral States would not have the jurisdiction to impose these rules upon navigating vessels as the strip of high seas/EEZ corridor is not within their territorial sea or straits.¹¹³ Nevertheless, due to the fact that the Strait

Pacific Rim Law & Policy Journal Association, 756-759; Mohd Hazmi bin Mohd Rusli, 'Balancing the Tensions between Shipping and Marine Environmental Protection in the Straits of Malacca and Singapore: Have the Straits Reached an Environmental Tipping Point' (2011) 7(2) *The International Journal of Environmental, Cultural, Economic and Social Sustainability*, 47; J. Ashley Roach and Robert W. Smith, *United States Responses to Excessive Maritime Claims* (Martinus Nijhoff, Second ed, 1996), 319-321.

¹¹² Chi Young Pak, 'The Korean Straits' in Gerard J. Mangone (ed), *International Straits of the World* (Martinus Nijhoff, 1988), 78-79. Article 36 of the LOSC mentions that if the strait is wide enough to have a high seas corridor which will allow 'safe navigation', the need for a transit passage regime would not arise. However, the benchmark of 'safe navigation' is different from one type of ship to the other; what may be safe for a trawler may not be safe for an oil tanker. Therefore, if the high seas corridor is not a safe passageway for the tanker to ply through, even if it swerves into the territorial sea of the coastal State, it would not be subjected to the more stringent innocent passage regime but would still be entitled to exercise the right of transit passage. See J.B.R.L. Langdon, 'The Extent of Transit Passage: Some Practical Anomalies' (1990) 14 *Marine Policy*, 130-136.

¹¹³ In the territorial sea, the coastal State may adopt laws and regulations pertaining to innocent passage as prescribed by Article 21(1) of the LOSC and this has to be complied by ships. Under Article 22(1) of the LOSC, the coastal State may designate TSS and require foreign ships exercising innocent passage to use such TSS. The LOSC also allows States bordering straits to adopt laws on safety of navigation and the control of vessel source pollution as provided for in Article 42(1) (a) and (b). In addition, States bordering straits may also require foreign ships exercising transit passage through its territorial straits to follow the designated TSS, as stipulated in Article 41(1) of the LOSC.

is navigationally difficult and challenging for mariners,¹¹⁴ vessels would probably comply with those rules for safety purposes.

Third, even though this proposed measure may be seen as allowing the users of the Strait to sail freely through the Strait of Malacca, this may not be entirely true. The fact that the littoral States may exercise greater control in maritime areas nearest to the coast would likely generate protests, particularly among the key users of the Strait. They may object to this proposed measure on the basis that it has been customary practice to regard the Strait of Malacca, regardless of its size or width, as a strait that is subject to the application of the transit passage regime and that the littoral States have acquiesced in this position. As is the case for other important straits around the world, including the Dover Strait, the Strait of Gibraltar and the Strait of Hormuz, transit passage is applicable in the Strait of Malacca. Notwithstanding the adoption of a three nautical mile limit in the Strait of Malacca by the littoral States, user States may still view transit passage as being applicable in the Strait under international law.¹¹⁵

The re-adoption of three nautical mile territorial sea limits in some parts of the Strait of Malacca would also enable foreign military powers to station their warships or conduct military exercises in the high seas/EEZ parts of the Strait, as the waters of the Strait would not be totally integrated into the territorial seas of the littoral States.¹¹⁶ This may create a perception on the part of the littoral States that their security is threatened.¹¹⁷ For a considerable period of time Malaysia and Indonesia have reiterated that their sovereignty over the Strait of Malacca must not be eroded, and that any military use of the waterway by foreign States other than continuous and

¹¹⁴ Mohd Hazmi bin Mohd Rusli, 'Straits of Malacca and Singapore: Ensuring Safe Navigation' (2011) (131/2011) *RSIS Commentaries*, 1-2; See Section 5.2.2.1 of Chapter 5 of this Thesis.

¹¹⁵ There are debates on whether or not the transit passage regime has been accepted as customary international law. However, as transit passage was a creation of the Third United Nations Conference on the Law of the Sea (UNCLOS III), it may not likely be considered as customary international law yet. See Section 3.3.1.4 of Chapter 3 of this Thesis.

¹¹⁶ Yann-huei Song, 'Regional Maritime Security Initiative (RMSI) and Enhancing Security in the Straits of Malacca: Littoral States and Regional Responses' in Shicun Wu and Keyuan Zou (eds), *Maritime Security in the South China Sea: Regional Implications and International Cooperation* (Ashgate, 2009), 111-115.

¹¹⁷ Mohd Hazmi bin Mohd Rusli, 'The Legal Feasibility of Imposing Shipping Controls in Straits Used for International Navigation: A Study of the Straits of Malacca and Singapore' (2011) 2(9) *OIDA International Journal of Sustainable Development*, 75-77.

expeditious transit must have the prior sanction of the two littoral States.¹¹⁸ If extra-regional countries were to be involved in activities in the Strait, it was to be strictly limited to capacity building, information exchange and the provisions of training.¹¹⁹

Both Malaysia and Indonesia have been firm on the issue of sovereignty and this can be observed in their efforts towards combating piracy and sea robberies in the Strait.¹²⁰ The Strait of Malacca was declared a war risk area back in July 2005 by the JWC of Lloyd's Market Association due to the active piratical and sea robbery activities threatening safe navigation of mariners in the Strait.¹²¹ At the time, Japan and the US indicated a desire to participate in enhancing security in the Strait. Singapore welcomed this proposed participation by stressing the need for the participation of maritime powers such as Japan, South Korea and the US, which are the main users of the Strait.¹²² Unlike Singapore, Malaysia and Indonesia on the other hand were adamant that the Strait of Malacca is within their territorial sea and EEZ and therefore rejected any proposals to involve extra-regional powers and stressed that the presence of foreign troops in local waters would trigger public anger and intensify acts of terror.¹²³

¹¹⁸ J.N. Mak, 'Unilateralism and Regionalism: Working Together and Alone in the Malacca Straits' in Graham Gerard Ong-Webb (ed), *Piracy, Maritime Terrorism and Securing the Malacca Straits* (Institute of Southeast Asian Studies, 2006), 153-155; Catherine Zara Raymond, 'Piracy and Armed Robbery in the Malacca Strait' (2009) 62(3) *Naval War College Review*, 35-36.

¹¹⁹ Joshua H. Ho, 'Enhancing Safety, Security and Environmental Protection of the Straits of Malacca and Singapore: The Co-operative Mechanism' (2009) 40(2) *Ocean Development and International Law*, 233-235; Mushahid Ali and Jeffrey Chen, 'Maritime Security Cooperation in the Malacca Straits: Prospects and Limits' (2004) 23 *IDSS Commentaries*, 1-3.

¹²⁰ Tammy M. Sittnick, 'State Responsibility and Maritime Terrorism in the Strait of Malacca: Persuading Indonesia and Malaysia to take Additional Steps to Secure the Strait' (2005) 14(3) *Pacific Rim Law & Policy Journal Association*, 743-769; Yun Yun Teo, 'Target Malacca Straits: Maritime Terrorism in Southeast Asia' (2007) 30(6) *Studies in Conflict & Terrorism*, 541-561.

¹²¹ Graham Gerard Ong-Webb, 'Introduction Southeast Asian Piracy: Research and Developments' in Graham Gerard Ong-Webb (ed), *Piracy, Maritime Terrorism and Securing the Malacca Straits* (Institute of Southeast Asian Studies, 2006), xxvii.

¹²² Asian Political News, 'Singapore Seeks Joint Patrols of Malacca Straits, Involving Japan', *Asian Political News* (Singapore), 2004.

¹²³ The Jakarta Post, 'Territory No longer an Issue in Malacca Strait Security', *The Jakarta Post* (Jakarta), 2005; Catherine Zara Raymond, 'Piracy and Armed Robbery in the Malacca Strait' (2009) 62(3) *Naval War College Review*, 35-36; Tammy M. Sittnick, 'State Responsibility and Maritime Terrorism in the Strait of Malacca: Persuading Indonesia and Malaysia to take Additional Steps to Secure the Strait' (2005) 14(3) *Pacific Rim Law & Policy Journal Association*, 743-769; Yun Yun Teo, 'Target Malacca Straits: Maritime Terrorism in Southeast Asia' (2007) 30(6) *Studies in Conflict & Terrorism*, 541-561.

Malaysia's stance on this can also be seen in its declaration upon ratifying the LOSC in 1996 that:

The Malaysian Government also understands that the provisions of the Convention do not authorise other States to carry out military exercises or manoeuvres, in particular those involving the use of weapons or explosives in the exclusive economic zone without the consent of the coastal State.¹²⁴

Like Malaysia, Indonesia has never permitted the presence of any foreign or extra-regional powers within its EEZ. Article 14(1) of Law Number 5 Year 1983 on Indonesian Exclusive Economic Zone charges the Indonesian Navy for the responsibility of law enforcement in the EEZ.¹²⁵ These instances clearly show that Malaysia and Indonesia have always been consistent in matters pertaining to sovereignty. Therefore, even if both States revert their territorial claims from twelve nautical miles to three nautical miles, leaving a strip of high seas/EEZ corridor running within the Strait, foreign troops would possibly not be permitted to carry out military exercises or manoeuvres within that EEZ corridor.

As mentioned in Chapters 2 and 4, as long as Malaysia has yet to finalise its straight baselines in the Strait of Malacca, and while both Malaysia and Indonesia have yet to clearly delimit their EEZ boundary line in the Strait, it will be difficult to determine precisely where in the Strait a high seas or EEZ corridor exists.¹²⁶ In addition, should a three nautical mile territorial sea limit be applied in some parts of the Strait of Malacca, Malaysia and Indonesia would have to re-determine their maritime boundary delimitation in the Strait. They may have to revise or revoke their earlier territorial sea agreement on the Strait of Malacca, concluded in 1970.¹²⁷ The biggest

¹²⁴ United Nations, *Declarations and Statements upon UNCLOS Ratification: Malaysia* (2010) Oceans and Law of the Sea Divisions for Ocean Affairs and the Law of the Sea <http://www.un.org/Depts/los/convention_agreements/convention_declarations.htm#Malaysia%20Upon%20ratification>.

¹²⁵ Hasjim Djalal, 'EEZ and Indonesian Perspective' (2004) <http://bulletin.penataanruang.net/upload/data_artikel/edisi%20g%20pdf.pdf>, 1-4; 'Undang-undang Republik Indonesia Nomor 5 Tahun 1983 Tentang Zona Ekonomi Eksklusif Indonesia' (UU 5/83, Republik Indonesia, 1983).

¹²⁶ See Section 2.3 of Chapter 2 and Section 4.3.2 of Chapter 4 of this Thesis.

¹²⁷ Choon-Ho Park, 'Indonesia-Malaysia (Territorial Sea)' in Jonathan I. Charney and Lewis M. Alexander (eds), *International Maritime Boundaries: The American Society of International Law* (Martinus Nijhoff, 1993) vol 1, 1029-1038; See Section 2.3 of Chapter 2 of this Thesis.

setback of this proposed plan is obviously that of territorial losses. As the two littoral States that have been consistently unyielding in matters pertaining to territorial sovereignty, this proposed measure, to a certain extent, might not even be considered an option. The fact that these States would have to relinquish their sovereignty over some parts of the Strait in order to obtain more regulatory powers to control shipping in the Strait would lessen the attractiveness of this proposal to the littoral States.

9.3 CONCLUSION

This Chapter has discussed the two proposed unilateral measures outside the IMO mechanism for the protection and preservation of the marine environment of the Straits of Malacca and Singapore from vessel-source pollution. The first part of this Chapter has examined the proposed application of the non-suspendable innocent passage regime in the Strait of Malacca as a replacement for the transit passage regime. In geographical terms, without its Singaporean counterpart, the Strait of Malacca could be viewed as a strait that connects one part of the high seas or an EEZ to a territorial sea of a third state. This would fit the definition under Article 45 of the LOSC of a strait in which non-suspendable innocent passage applies. Should Malaysia, alone or collectively with Indonesia, declare that the status of the Strait had changed these States could contend that the stricter navigational regime of non-suspendable innocent passage would apply in the Strait of Malacca. It is submitted that such a declaration would be rejected by the majority of maritime States, who would argue that the regime of transit passage in the Strait of Malacca had achieved the status of customary international law.

The second part of this Chapter analysed the second proposed measure, namely the territorial sea reversion in the Strait of Malacca. In theory, the reversion of territorial sea claims in the Strait of Malacca from twelve nautical miles to three nautical miles would create a high seas or an EEZ corridor. This would nullify the application of the transit passage regime in the Strait of Malacca. The littoral States would then be able to exercise their full regulatory and prescriptive powers within their three nautical mile territorial sea limits without being constrained by the provisions of Part III of the LOSC. These areas of territorial sea could be turned into ‘environmental buffer zones’ to protect the marine environment of the Strait of Malacca from further degradation.

However, this proposed plan would require in-depth research and consideration prior to implementation as it involves the renunciation of sovereignty over some sea areas and may not benefit both States. As the Strait of Malacca is indispensable for global shipping and world trade, this Chapter contends that such a measure would inevitably draw protest from many countries.

This Chapter concludes that any proposed measures that may possibly impede or hamper free passage through the Straits of Malacca and Singapore would spark various reactions from numerous States, particularly the maritime powers. Considering present global economic development, it is an inevitable fact that shipping traffic in the Straits of Malacca and Singapore will experience steady growth in future years. Should maritime traffic incessantly increase and eventually cause unacceptable adverse impacts on the marine environment, the littoral States would be the parties that suffer the most.

However, if there are viable alternative routes to the Straits, the degree of dependency of the international trade on the Straits of Malacca and Singapore would not be as overwhelming and hence lessen the controversy that may arise from the implementation of these proposed measures. The subsequent Chapter discusses the alternative routes to the Straits of Malacca and Singapore.

CHAPTER 10.

ALTERNATIVE ROUTES TO THE STRAITS OF MALACCA AND SINGAPORE

10.1 INTRODUCTION

In view of the inevitable adverse impact of heavy shipping activities on the marine environment of the Straits of Malacca and Singapore, it is worthwhile to examine some options to divert traffic from the busy, constricted and navigationally difficult waters of these Straits. This Chapter will examine the viability of four alternative or future alternative routes to the Straits of Malacca and Singapore. They include routes through the Indonesian archipelago, the Northeast Arctic Passage, the proposed Thai Canal Plan and the proposed Trans-Peninsula Pipeline Project. This Chapter concludes by reiterating that the Straits of Malacca and Singapore will remain the main maritime superhighway in the Asia-Pacific region if viable alternatives are not made available to shippers.

10.2 ROUTES THROUGH THE INDONESIAN ARCHIPELAGO

As the largest archipelagic State in the world, Indonesia has many islands separated by interconnecting waterways. These waterways have been described as international straits in the past, and with the implementation of the LOSC in 1994, these straits are now incorporated as part of Indonesian archipelagic waters. Vessels may sail through the interconnecting waterways of the Indonesian archipelago under the regime of Archipelagic Sea Lanes Passage as these routes have already been designated by Indonesia as archipelagic sea lanes, or *Alur Laut Kepulauan Indonesia* (ALKI).¹ Table 10-1 lists five ALKIs that have been designated through Indonesian archipelagic waters.

* This Chapter has been published (wholly or in part) in the following peer-reviewed journals:

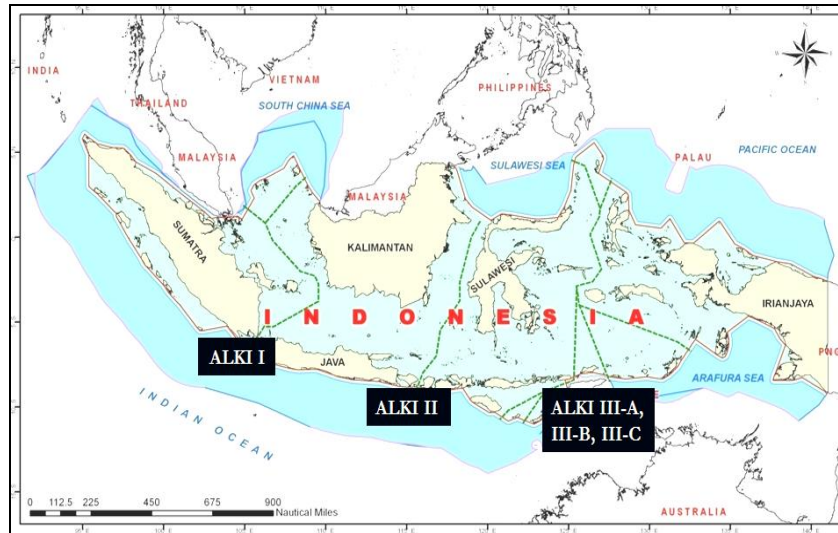
- (a) Mohd Hazmi bin Mohd Rusli, 'Attempts to Seek Alternative Routes to the Straits of Malacca and Singapore' (2010) 1(1) *Journal of Maritime Geopolitics and Culture*, 1-22;
- (b) Mohd Hazmi bin Mohd Rusli, 'Maritime Highways of Southeast Asia: Alternative Straits' (2012) (24/2012) *RSIS Commentaries*, 1-2.

¹ The navigational regime of foreign vessels through archipelagic waters is governed by Part IV of the LOSC. An archipelagic State may designate 'archipelagic sea lanes' within its archipelagic waters. Foreign vessels may exercise the 'archipelagic sea lanes passage' within these archipelagic sea lanes, a navigational regime that allows for an unobstructed passage through archipelagic waters. See Part IV, United Nations (UN), *United Nations Convention on the Law of the Sea* (1982) UN

ALKI	Route
ALKI I	Sunda Strait–Karimata Strait–Natuna Sea–South China Sea
ALKI II	Lombok Strait–Makassar Strait–Sulawesi Sea
ALKI III-A	Sawu Sea–Ombai Strait–Banda Sea (western part of Burn Island)–Seram Sea (eastern part of Monole Island)–Maluku Sea–Pacific Ocean
ALKI III-B	Timor Sea–Leti Strait–Banda Sea (western part of Burn Island)–Seram Sea (eastern part of Mongole Island)–Maluku Sea–Pacific Ocean
ALKI III-C	Arafura Sea–Banda Sea (western part of Buru Island)–Seram Sea (eastern part of Mongole Island)–Maluku Sea–Pacific Ocean

Table 10-1: Indonesian Archipelagic Sea Lanes
(Source: Indonesian Diplomatic Handbook)²

These routes are illustrated in Map 10-1:



Map 10-1: Illustration of the Designated ALKIs within Indonesian Archipelagic Waters
(Source: BAKOSURTANAL)

Among these archipelagic sea lanes, the Sunda, Lombok–Makassar and Ombai–Wetar routes are important alternative sea lines of communication to the Straits of Malacca and Singapore. The Sunda Strait is a passageway located between the Indonesian islands of Sumatra and Java. It has been used as a maritime corridor since the Dutch colonisation of the Indonesian Archipelago.

<http://www.un.org/Depts/los/convention_agreements/texts/unclos/unclos_e.pdf>; B.A. Hamzah, ‘Indonesia’s Archipelagic Regime: Implications for Malaysia’ (1984) 8(1) *Marine Policy*, 30-43.

² International Business Publications, *Indonesian Diplomatic Handbook* (International Business, 2008), 137.

Prior to the opening of the Suez Canal, the Sunda Strait served as the principal corridor for direct access between Europe and East Asia.³

Currently, the Sunda Strait remains an important waterway for ships travelling from the Cape route to East Asia, as well as for vessels sailing from Australian ports to Southeast Asian or East Asian destinations.⁴ The Sunda Strait is quite deep at its western entrance, but its depth decreases towards its eastern exit, with an irregular bottom topography.⁵ Unlike the Straits of Malacca and Singapore, which are approximately 1.296 nautical miles wide at their narrowest point at the Philips Channel,⁶ the Sunda Strait is much wider; it is 12.959 nautical miles wide at its narrowest section.⁷ However, the Sunda Strait is less navigationally convenient than the Straits of Malacca and Singapore as it contains many hazards, including strong tidal flows which vary according to time and season, sandbank formations along the waterway, a live volcano, poor visibility during squalls and the existence of numerous oil drilling platforms and small islands and reefs which may disrupt safe navigation.⁸ Due to these factors, deep draught ships of over 100,000 DWT do not transit the Sunda Strait route and it is not as heavily used as the Straits of Malacca and Singapore.⁹ Yearly, about 1,320 passages were made by 2,278 ships transiting the Sunda Strait, carrying in total 111 million tonnes of cargo valued at US \$5 billion.¹⁰ Ships that transit the

³ Michael Leifer, 'Malacca, Singapore and Indonesia' in Gerard J. Mangone (ed), *International Straits of the World* (Sijthoff & Noordhoff, 1978), 76-78.

⁴ Mohd Hazmi bin Mohd Rusli, 'Maritime Highways of Southeast Asia: Alternative Straits' (2012) (24/2012) *RSIS Commentaries*, 1-2.

⁵ Chia Lin Sien, 'Alternative Routes for Oil Tankers: A Financial, Technical and Economic Analysis' in Hamzah Ahmad (ed), *The Straits of Malacca: International Co-operation in Trade, Funding & Navigational Safety* (Pelanduk, 1998), 103.

⁶ Shigeki Sakamoto, 'Non-State Actors' Role in the Co-operative Mechanism for the Straits of Malacca and Singapore- Seeking to Substantiate UNCLOS Article 43' (Paper presented at the International Symposium on Safety and Protection of the Marine Environment in the Straits of Malacca and Singapore, Kuala Lumpur, 2008), 1.

⁷ Chia Lin Sien, 'Alternative Routes for Oil Tankers: A Financial, Technical and Economic Analysis' in Hamzah Ahmad (ed), *The Straits of Malacca: International Co-operation in Trade, Funding & Navigational Safety* (Pelanduk, 1998), 106.

⁸ Donald B. Freeman, *The Straits of Malacca: Gateway or Gauntlet?* (McGill-Queen's University Press, 2003), 17-18.

⁹ Joshua Ho, *Maritime Security and International Cooperation* (2005) <<http://www.rsis.edu.sg/publications/Perspective/IDSS332005.pdf>>.

¹⁰ Sam Bateman, Joshua Ho and Jane Chan, 'Good Order at Sea in Southeast Asia' (S. Rajaratnam School of International Studies, Nanyang Technological Studies, 2009), 11-14.

Sunda Strait must travel from the Indian Ocean through the Java Sea, which is linked with the South China Sea via the Bangka Strait.¹¹

Currently, there is a plan being contemplated by the Indonesian government to build a bridge across the Sunda Strait to connect the islands of Java and Sumatra. A pre-feasibility study conducted by construction firm PT Bangungraha Sejahtera Mulia, a subsidiary of the Artha Graha Network, found that the 29 kilometre bridge would cost up to Rp 100 trillion, which translates into US \$10.75 billion.¹² Once operational in 2025, the bridge would stretch from Anyer in Banten to Bakauheni in Lampung and pass over the Sanghiyang, Prajurit and Ular Islands in the Sunda Strait.¹³ This plan resembles the proposed Strait of Malacca Bridge discussed in Chapter 5.¹⁴ In terms of international shipping, if this project does proceed, it will directly or indirectly affect maritime traffic in the already navigationally difficult Sunda Strait.

The other important sea lines of communication that are alternatives to the Straits of Malacca and Singapore are the Lombok and Makassar Straits. The Lombok Strait is located between the islands of Bali and Lombok in Indonesia.¹⁵ An islet named Nusa Penida sits between the islands of Bali and Lombok within the Lombok Strait, creating the Badung Strait, which separates Nusa Penida and the island of Bali.¹⁶ The Lombok Strait is wider and deeper than the Straits of Malacca and Singapore. As its depths are greater than 150 metres, it is not draught-limited, and its minimum passage width is 11.5 miles. It is therefore used by the largest ships of over 100,000 DWT.¹⁷ Tankers over 230,000 DWT must use the deeper Lombok–Makassar route due to the

¹¹ Michael Leifer, 'Malacca, Singapore and Indonesia' in Gerard J. Mangone (ed), *International Straits of the World* (Sijthoff & Noordhoff, 1978), 76-79.

¹² The Jakarta Post, *Govt Steams Ahead with Sunda Bridge Railway Plans* (2010) The Jakarta Post <<http://www.thejakartapost.com/news/2010/02/16/govt-steams-ahead-with-sunda-strait-bridge-railway-plans.html>>.

¹³ Jimmy Hitipeuw, *Indonesia to Prioritize Sunda Strait Bridge* (2011) Kompas.com <<http://english.kompas.com/read/2010/12/21/14305586/Indonesia.to.Prioritize.Sunda.Strait.Bridge-5>>.

¹⁴ See Section 5.2.2.1.3 of Chapter 5 of this Thesis.

¹⁵ Michael Leifer, 'Malacca, Singapore and Indonesia' in Gerard J. Mangone (ed), *International Straits of the World* (Sijthoff & Noordhoff, 1978), 79-80.

¹⁶ Mohd Hazmi bin Mohd Rusli, 'Maritime Highways of Southeast Asia: Alternative Straits' (2012) (24/2012) *RSIS Commentaries*, 1-2.

¹⁷ Ji Guoxing, *SLOC Security in the Asia Pacific* (2000) Asia-Pacific Center for Security Studies <<http://www.southchinasea.org/docs/Ji%20Guoxing-SLOC%20Security%20in%20the%20Asia%20Pacific.htm>>.

under keel clearance limit of 3.5 metres, since the minimum depth of the Straits of Malacca and Singapore is 23 metres.¹⁸

The Lombok Strait provides a shipping route connecting the Indian Ocean to the Makassar Strait via the western part of the Flores Sea, and to East Asia via the Celebes Sea.¹⁹ The Makassar Strait stretches about 400 nautical miles from its northern gateway to its southern access.²⁰ While little east-west traffic transits Lombok–Makassar, it is still an important route for Australian north-south trade.²¹ Annually, some 604 passages are made via the Lombok–Makassar Strait by 418 ships, carrying a total of 36 million tonnes of cargo worth US \$40 billion in resources.²²

Even though the Lombok–Makassar route is much safer, since it is relatively wide and deep and does not possess significant navigational hazards,²³ it is not as navigationally convenient as the Straits of Malacca and Singapore because passage along this route takes longer;²⁴ a typical voyage from an Arabian Gulf port, Rastanurah, to Yokohama, Japan, is 6,590 nautical miles via the Malacca–Singapore route. However the journey would be 7,580 nautical miles if the Lombok–Makassar Straits passage is followed instead.²⁵ The route through the Lombok–Makassar Straits would incur an additional shipping cost between US \$84 billion and US \$250

¹⁸ Lee Jae-hyung, *China and the Asia-Pacific Region* (iUniverse, 2003), 115-117.

¹⁹ Joshua Ho, 'The Importance and Security of Regional Sea Lanes' in Chong Guan Kwa and John Kristen Skogan (eds), *Maritime Security in Southeast Asia* (Routledge, 2007), 21-33.

²⁰ Chia Lin Sien, 'Alternative Routes for Oil Tankers: A Financial, Technical and Economic Analysis' in Hamzah Ahmad (ed), *The Straits of Malacca: International Co-operation in Trade, Funding & Navigational Safety* (Pelanduk, 1998), 110.

²¹ John H. Noer and David Gregory, 'Chokepoints: Maritime Economic Concerns in Southeast Asia' (National Defense University & Institute for National Strategic Studies, 1996), 1-30.

²² Joshua Ho, *Maritime Security and International Cooperation* (2005) <<http://www.rsis.edu.sg/publications/Perspective/IDSS332005.pdf>>; Sam Bateman, Joshua Ho and Jane Chan, 'Good Order at Sea in Southeast Asia' (S. Rajaratnam School of International Studies, Nanyang Technological Studies, 2009), 11-14.

²³ Jon M. Van Dyke, 'Legal and Practical Problems Governing International Straits' in Hamzah Ahmad (ed), *The Straits of Malacca: International Co-operation in Trade, Funding and Navigational Safety* (Pelanduk, 1997), 321-324.

²⁴ MEH Demonstration Project, *The Maritime Importance of the Straits* (2009) MEH Demonstration Project Website <<http://www.meh-project.com/setting/maritime-importance>>.

²⁵ Chia Lin Sien, 'Alternative Routes for Oil Tankers: A Financial, Technical and Economic Analysis' in Hamzah Ahmad (ed), *The Straits of Malacca: International Co-operation in Trade, Funding & Navigational Safety* (Pelanduk, 1998), 114-115.

billion per year, a cost that can be avoided if shippers choose to take the Straits of Malacca and Singapore route.²⁶ As a result, in comparison to the Straits of Malacca and Singapore route, both the Sunda and Lombok–Makassar passageways are not widely used by international traffic.²⁷

In the past, the Indonesian authorities have closed their archipelagic straits to international shipping activities several times: in 1958, 1964, 1978 and 1988.²⁸ Indonesia justified the 48-hour closure of the Sunda and Lombok Straits in 1988 by stating that it was exercising its sovereign right to conduct naval gunnery drills and exercises within its own waters.²⁹ The closure of these straits in 1988 provoked protests from maritime nations including West Germany, the US and Australia.³⁰ These protests demonstrated that despite not being as navigationally strategic as the Straits of Malacca and Singapore, these straits are still important maritime chokepoints for shipping traffic. Any disruption in traffic flow through these chokepoints would badly affect the global trade and the economy, especially in this part of the world.³¹ It is unlikely, however, that this kind of incident would occur now as Indonesia has ratified the LOSC and is obliged under international law to keep its designated archipelagic sea lanes and other routes normally used for international navigation open to international shipping.³² Table 10-2 summarises details of the navigational traffic in three different important sea lines of communications in South East Asia:

²⁶ Lee Jae-hyung, *China and the Asia-Pacific Region* (iUniverse, 2003), 115-117.

²⁷ John H. Noer and David Gregory, 'Chokepoints: Maritime Economic Concerns in Southeast Asia' (National Defense University & Institute for National Strategic Studies, 1996), 1-30.

²⁸ Euan Graham, *Japan's Sea Lane Security, 1940-2004: A Matter of Life and Death* (Nissan Institute, Routledge Japanese Studies Series, 2006), 168-169.

²⁹ Ivan Shearer, 'Navigation Issues in the Asian Pacific Region' in James Crawford and Donald Rothwell (eds), *The Law of the Sea in the Asian Pacific Region: Developments and Prospects* (Martinus Nijhoff, 1995), 217-219.

³⁰ Euan Graham, *Japan's Sea Lane Security, 1940-2004: A Matter of Life and Death* (Nissan Institute, Routledge Japanese Studies Series, 2006), 168-169.

³¹ Cdr. P. K. Ghosh, 'Maritime Security Challenges in South Asia and the Indian Ocean: Response Strategies' (Paper presented at the American-Pacific Sealand Security Institute Conference on Maritime Security in Asia, Honolulu, 2004), 1-13.

³² Article 53(1) of the LOSC states 'An archipelagic State may designate sea lanes...suitable for the continuous and expeditious passage of foreign ships...over its archipelagic waters'. Article 53(3) of the LOSC defines the application of an archipelagic sea lanes passage as 'the rights of navigation...solely for the purpose of continuous, expeditious and unobstructed transit...'. If the archipelagic State has yet to designate archipelagic sea lanes, the right of archipelagic sea lanes passage may be exercised through routes normally used for international navigation as stipulated in Article 53(12) of the LOSC.

the Straits of Malacca and Singapore, the Sunda Strait and the Straits of Lombok and Makassar, based on data gathered in 2009.

Straits/Descriptions	Straits of Malacca and Singapore	Sunda Strait	Straits of Lombok and Makassar
Tonnage carried (yearly)	3,000,000,000	111,000,000	36,000,000
No. of approximate shipping passages (yearly)	75,510	1,320	604
Under Keel Clearance (m)	3.5	Unlimited	Unlimited
Annual Total Value of Cargo (USD)	390 billion	5 billion	40 billion

Table 10-2: Brief Description of Important Sea Lines of Communications in South East Asia (Source: RSIS)³³

The Ombai–Wetar Straits route is another alternative shipping route situated within Indonesian archipelagic waters. This route is used generally by local shipping, including vessels travelling between Australia and the Java Sea.³⁴ The Ombai Strait is located between the islands of Alor and Timor, and its counterpart, the Wetar Strait, is located between the northern coast of Timor and the southern coast of Wetar.³⁵ Ombai–Wetar is not a preferred route as an alternative for the Straits of Malacca and Singapore, as this route is longer for vessels to sail from west to east and vice versa.³⁶ Nevertheless, the extremely deep channels of the Ombai–Wetar Straits provide undetected access routes for submarines between the Pacific Ocean and the Indian Ocean, making them the second-most important straits route after the Gibraltar Strait in the world for American defense interests.³⁷

Based on their geographical inconvenience, it is reasonable to conclude that these routes through the Indonesian archipelago, though vital for international shipping, can only be considered as

³³ Sam Bateman, Joshua Ho and Jane Chan, ‘Good Order at Sea in Southeast Asia’ (S. Rajaratnam School of International Studies, Nanyang Technological Studies, 2009), 11-14.

³⁴ Lee Jae-hyung, *China and the Asia-Pacific Region* (iUniverse, 2003), 116-117.

³⁵ Michael Leifer, ‘Malacca, Singapore and Indonesia’ in Gerard J. Mangone (ed), *International Straits of the World* (Sijthoff & Noordhoff, 1978), 83-85.

³⁶ Mohd Hazmi bin Mohd Rusli, ‘Maritime Highways of Southeast Asia: Alternative Straits’ (2012) (24/2012) *RSIS Commentaries*, 1-2.

³⁷ Jerry K. Sweeney, ‘A Matter of Small Consequence: US Foreign Policy and the Tragedy of East Timor’ (2002) 7(1) *Independent Review*, 95-97; Robert E. Osgood, ‘US Security Interests in Ocean Law’ (1974) 2(1) *Ocean Development and International Law*, 1-36.

secondary routes to the primary marine highway of the Straits of Malacca and Singapore.³⁸ However, these archipelagic straits nevertheless play a critical role in the flow of the world's shipping. Any disruption of shipping traffic through these straits would compromise sea-borne global trade and the world economy.³⁹ If the Straits of Malacca and Singapore and the Indonesian straits were to be closed to international shipping, the impact on the flow of international trade would be disastrous; the short distance of 6,755 nautical miles for shipping travelling via the Straits of Malacca and Singapore between Kuwait and Yokohama would increase to 11,800 nautical miles as ships would be left with no other choice but to travel around Australia.⁴⁰

10.3 THE NORTHEAST ARCTIC PASSAGE

The second potential alternative for the Straits of Malacca and Singapore is the route through Northeast Arctic Passage (NAP). The Eurasian continental landmass sprawls from Europe in the west to Asia in the east. For centuries, trade has flowed from Europe to India and the East Asian nations. After the opening of the Suez Canal in 1869, ships from Europe travelled to the Indian Ocean through the Strait of Gibraltar and the Suez Canal and linked with the East Asian ports via the Straits of Malacca and Singapore as well as through the Indonesian archipelagic straits.⁴¹ Like the Suez–Malacca route, the NAP, or as it is popularly known in Russia, the Northern Sea Route, is also a passage that connects Europe and East Asia using the route on the Arctic coast of Russia.⁴² From as early as the 18th century, ships plying this route would travel from St. Petersburg in Russia through the Barents, Kara, Laptev, Chukchi and East Siberian Seas,

³⁸ Mohd Hazmi bin Mohd Rusli, 'Attempts to Seek Alternative Routes to the Straits of Malacca and Singapore' (2010) 1(1) *Journal of Maritime Geopolitics and Culture*, 2-3; Mohd Hazmi bin Mohd Rusli, 'Maritime Highways of Southeast Asia: Alternative Straits' (2012) (24/2012) *RSIS Commentaries*, 1-2.

³⁹ Milan N. Vego, *Naval Strategy and Operations in Narrow Seas* (Frank Cass, 2003), 88-90.

⁴⁰ Joshua Ho, 'The Importance and Security of Regional Sea Lanes' in Chong Guan Kwa and John Kristen Skogan (eds), *Maritime Security in Southeast Asia* (Routledge, 2007), 120-25.

⁴¹ Rakish Suppiah, 'The Northeast Arctic Passage: Possibilities and Economic Considerations' (2006) 151 *Maritime Studies*, 12-13.

⁴² Claes Lykke Ragner, 'The Northern Sea Route' (2008) *Norden Association's Yearbook*, 114.

ultimately making their way to the Bering Strait on the eastern side of the Eurasian mainland, connecting Europe to the ports of East Asia.⁴³ Map 10-2 shows the seas within the NAP.



Map 10-2: The Seas within the NAP
(Modified from Google Maps)

The NAP is not thought of as a clearly defined linear route, but is instead perceived as the whole sea area north of Russia.⁴⁴ The environmental condition of waters in the NAP is invariably hostile, with extreme winters, icy waters and unpredictable weather.⁴⁵ The English and Dutch explorers also contributed towards the discovery of the NAP⁴⁶ in their attempts to find alternative routes to the east to escape the Spanish and Portuguese dominion over the southern seas.⁴⁷ Russian vessels have used this route for hundreds of years, establishing a shipping route from

⁴³ William E. Butler, 'Northeast Arctic Passage' in Gerard J. Mangone (ed), *International Straits of the World* (Sitjhoff & Noordhoff, 1978), 1-4.

⁴⁴ Claes Lykke Ragner, 'The Northern Sea Route' (2008) *Norden Association's Yearbook*, 114.

⁴⁵ William E. Butler, 'Northeast Arctic Passage' in Gerard J. Mangone (ed), *International Straits of the World* (Sitjhoff & Noordhoff, 1978), 5-8.

⁴⁶ *Ibid.*, 42-45.

⁴⁷ *Ibid.*

Vladivostok on the Asian side of the country to the counterpart port of St. Petersburg on the European side of Russia.⁴⁸ For a considerable period of time, Russia has used its northern coast for shipping oil and gas, ores, processed materials, building materials, foodstuffs and other goods to its remote Arctic settlements,⁴⁹ though funding for such shipments dwindled after the collapse of the Soviet regime.⁵⁰ As Ragner comments:

At its peak in 1987, almost 7 million tonnes of cargo was moved along the northern sea route, most of it goods transported to or from Russian Arctic ports. After the Soviet Union's disintegration, volumes gradually fell, before having come to a relatively stable level of 1.5–2.0 million tonnes per year since 1996.⁵¹

The Arctic region is managed by a high level intergovernmental regional co-operation forum called the Arctic Council (the Council), established by the Declaration on the Establishment of the Council, otherwise known as the Ottawa Declaration of 1996.⁵² The member States of the Council are Canada, Denmark (including Greenland and the Faroe Islands), Finland, Iceland, Norway, Russian Federation, Sweden and the US⁵³ There are six Working Groups that are attached to the Council. Each of these has a specific mandate with that related to shipping being the Working Group on the Protection of the Arctic Marine Environment (PAME).⁵⁴ Established in 1991 and incorporated into the Arctic Council in 1996, the focal point of PAME is on the protection and sustainable use of the Arctic marine environment.⁵⁵ Under the patronage of the Council, PAME has conducted an assessment to evaluate the future of shipping in the Arctic

⁴⁸ Ibid., 42-43.

⁴⁹ Claes Lykke Ragner, 'The Northern Sea Route' (2008) *Norden Association's Yearbook*, 117.

⁵⁰ MSNBC News, *Ships Cross Arctic Passage in Milestone: Scientists Say Global Warming Opens Ice-choked Passages* (2009) MSNBC News <http://www.msnbc.msn.com/id/32800658/ns/us_news-environment/>.

⁵¹ Claes Lykke Ragner, 'The Northern Sea Route' (2008) *Norden Association's Yearbook*, 117.

⁵² The Arctic Council, *About Arctic Council* (2007) The Arctic Council <<http://arctic-council.org/article/about>>.

⁵³ Ibid.

⁵⁴ Ibid.

⁵⁵ The Arctic Council, *The Protection of the Arctic Marine Environment* (2010) The Arctic Council <<http://www.pame.is/>>.

region.⁵⁶ The focal points of the Arctic Marine Shipping Assessment 2009 (AMSA 2009) are the potential effect of shipping on humans and the Arctic marine environment, and marine infrastructure requirements for shipping in the Arctic region.⁵⁷ As reported in the 2009 AMSA Report, the volume of shipping traffic going through the NAP in 2004 was as shown in Table 10-3:

Sea	Average Shipping Traffic (per day)
Barents Sea	21–50
Kara Sea	51–100
Laptev Sea	11–20
East Siberian Sea	1–10
Bering Strait	11–20

Table 10-3: Average Shipping Traffic in Sea Areas within the NAP in 2004
(Source: AMSA 2009)⁵⁸

In 1991, the Russian government (then the Union of Soviet Socialist Republics [USSR]) formally opened the passage for international shipping to vessels of all nationalities without discrimination when it issued the 1991 Regulations for Navigation on the Seaways of the Northern Sea Route (1991 Regulations),⁵⁹ based on the provisions of Article 234 of the LOSC on navigation through ice-covered areas. Article 234 of the LOSC provides:

⁵⁶ The Protection of Arctic Marine Environment Working Group of the Arctic Council, ‘Scenarios on the Future of Arctic Marine Navigation in 2050’ (The Arctic Council, Arctic Maritime Shipping Assessment, Protection of the Arctic Marine Environment, Institute of the North, 2004), 1-4.

⁵⁷ The Arctic Council, ‘Arctic Council: Arctic Marine Shipping Assessment’ (The Arctic Council, Protection of the Arctic Marine Environment, 2009), 4-5.

⁵⁸ There are differences in the average volume of shipping traffic in different areas of seas within the NAP. This is because not all vessels that sail the NAP from European ports are bound for Asia-Pacific destinations. Some are bound for destinations within Russia and/or Scandinavia. This explains the higher shipping traffic in the Kara and Barents Seas as compared with the Laptev Sea, East Siberian Sea and the Bering Strait. See *Ibid.*, 189.

⁵⁹ Sergey O. Frank, ‘Opening Speech: International Shipping on the northern Sea Route - Russia’s Perspective’ in Claes Lykke Ragner (ed), *The 21st Century- Turning Point for the Northern Sea Route* (Kluwer, 1999), 11. For further information on the 1991 Regulations for Navigation on the Seaways of the Northern Sea Route, see The Russian Government, ‘Rules of Navigation: Regulations for Navigation on the Seaways of the Northern Sea Route’ (Decision No 565 of 1 June 1990, The Russian Ministry of Merchant Marine, 1990), 1-8.

Coastal States have the right to adopt and enforce non-discriminatory laws and regulations for the prevention, reduction and control of marine pollution from vessels in ice-covered areas within the limits of the EEZ...Such laws and regulations shall have due regard to navigation and the protection and preservation of the marine environment based on the best available scientific evidence.

The 1991 Regulations established certain requirements for vessels seeking passage through the NAP, including:

- (a) A vessel navigating the NAP shall satisfy special technical and operational requirements, while the Master or the person that performs his duties shall be experienced in operating the vessel in ice-stricken waters. In cases where those persons have no such experience, a pilot must be engaged to assist in manoeuvring the vessel;⁶⁰
- (b) A vessel intending to navigate the NAP must produce a certificate of due financial security with respect to the civil liability of the owner for damage inflicted by polluting the marine environment;⁶¹
- (c) Shipping traffic through the Passage is monitored by the Marine Operations Headquarters (MOHs) and all vessels are subject to its constant control;⁶²
- (d) Vessels wishing to sail the NAP must notify their intention to MOHs and apply for an icebreaker escort.⁶³

In view of the increasing importance of the NAP to the international shipping industry, Russia, or the then USSR, took affirmative measures to improve the environmental protection of its marine Arctic areas through the promulgation of the 1990 Decree of the Council of Ministers of

⁶⁰ Article 4 of the 1991 Regulations. See The Russian Government, 'Rules of Navigation: Regulations for Navigation on the Seaways of the Northern Sea Route' (Decision No 565 of 1 June 1990, The Russian Ministry of Merchant Marine, 1990), 1-8.

⁶¹ Article 5 of the 1991 Regulations. See *Ibid.*

⁶² Article 8.1 of the 1991 Regulations. See *Ibid.*

⁶³ This is mentioned in Regulations 2.1, 2.6 and 2.7 of the Regulation for Icebreaker and Pilot Guiding of Vessels Through the Northern Sea Route. See *Ibid.*

the USSR.⁶⁴ This Decree proclaimed Russia's initiative to protect the sensitive marine environment of its waters within the NAP route.⁶⁵ Following this, Article 9 of the 1991 Regulations allowed MOHs to suspend the navigation of vessels that either caused damage or that posed a threat to the marine environment of the NAP and its surrounding areas. Article 9 of the 1991 Regulations stipulates:

In cases where an obvious necessity of environment protection or safe navigation dictates so, the Administration, or Marine Operations Headquarters, can suspend navigation of vessels on specific parts of the Northern Sea Route for the period during which there exist the circumstances that have caused such a measure.⁶⁶

On this issue, the IMO has recently adopted Resolution A.1024 (26) on Guidelines for Ships Operating in Polar Waters (IMO Polar Waters Guidelines) on 2 December 2009.⁶⁷ The IMO Polar Water Guidelines are recommendatory and their wording should be interpreted as providing recommendations rather than mandatory directions for ensuring safety of navigation and preventing pollution from shipping operations in polar waters.⁶⁸ Due to the increasing importance of the polar regions to international shipping activity, there have been calls to make the IMO Polar Waters Guidelines mandatory for all ships and mariners plying these waters.⁶⁹

⁶⁴ Donald R. Rothwell, *The Polar Regions and the Development of International Law* (Press Syndicate of the University of Cambridge, 1996), 370-374.

⁶⁵ *Ibid.*

⁶⁶ The Russian Government, 'Rules of Navigation: Regulations for Navigation on the Seaways of the Northern Sea Route' (Decision No 565 of 1 June 1990, The Russian Ministry of Merchant Marine, 1990), 1-8.

⁶⁷ International Maritime Organization (IMO), 'Resolution A.1024(26): Guidelines for Ships Operating in Polar Waters' (A 26/Res. 1024, IMO, 2010), 1-33.

⁶⁸ Section P-1.3 of the Preamble of Resolution A.1024(26) states that 'The Guidelines for ships operating in polar waters...are intended to address those additional provisions deemed necessary for consideration beyond existing requirements of the SOLAS and MARPOL Conventions, in order to take into account the climatic conditions of polar waters and to meet appropriate standards of maritime safety and pollution prevention'. See International Maritime Organization (IMO), 'Resolution A.1024(26): Guidelines for Ships Operating in Polar Waters' (A 26/Res. 1024, IMO, 2010), 4.

⁶⁹ Øystein Jensen, 'The IMO Guidelines for Ships Operating in Arctic Ice-covered Waters: From Voluntary to Mandatory Tool for Navigation Safety and Environmental Protection' (FNI Report 2/2007, Fridtjof Nansen Institute, 2007), 19-24.

Despite being the shortest route connecting Europe and the East Asia, the NAP is a perilous route as the waters within the passage are ice-stricken.⁷⁰ Global warming may be seen as a threat by many, but, as far as the shipping industry is concerned, it is viewed as an advantage. The rapid melting of the Arctic ice cap due to global warming means that within the next 15 years, the NAP, which is now open only two months of the year may eventually be accessible for navigation throughout the year.⁷¹ In other words, international shipping traffic in the NAP will increase as the floating icebergs in these waters begin to disintegrate.⁷² In September 2009, German ships transited the NAP from the South Korean port of Ulsan to Yamburg in Siberia.⁷³ A year later, in July 2010, two Russian oil tankers, the Varzuga and Indiga, plied the NAP sailing from Murmansk to Chukotka in Russia's far eastern corner.⁷⁴ In August 2010, Russia's largest independent gas producer, Novatek, completed its tanker delivery to the Asia-Pacific region via the NAP.⁷⁵ These navigational successes reveal that navigation through this passage is far from impossible. Utilising the NAP would cut the navigational distance from Europe to East Asia significantly as compared to a similar voyage via the Suez Canal and the Straits of Malacca and Singapore.⁷⁶

⁷⁰ Mohd Hazmi bin Mohd Rusli, 'Attempts to Seek Alternative Routes to the Straits of Malacca and Singapore' (2010) 1(1) *Journal of Maritime Geopolitics and Culture*, 3-5.

⁷¹ Rakish Suppiah, 'North East Arctic Passage: It's Viability for Shipping Transit' (2009) 16(4) *MIMA Bulletin*, 8-9; Svend Aage Christensen, 'Are the Northern Sea Routes Really the Shortest: Maybe a too Rose-coloured Picture of the Blue Arctic Ocean' (DIIS Brief March 2009, Danish Institute of International Studies, 2009), 1-7.

⁷² Rob Huebert, in Alex G. Oude Elferink and Donald R. Rothwell (eds), *The Law of the Sea and Polar Maritime Delimitation and Jurisdiction* (Kluwer, 2001), 266-267; Svend Aage Christensen, 'Are the Northern Sea Routes Really the Shortest: Maybe a too Rose-coloured Picture of the Blue Arctic Ocean' (DIIS Brief March 2009, Danish Institute of International Studies, 2009), 1-7.

⁷³ Matt Moore and Seth Borenstein, *Two German Merchant Ships Conquer Famed Arctic Passage: Climate Change is Blamed for Opening of Path* (2009) Globe Newspaper Company <http://www.boston.com/news/world/europe/articles/2009/09/12/two_german_merchant_ships_conquer_famed_arctic_passage/>.

⁷⁴ Barents Observer, *Oil tankers through North East Passage* (2010) Barents Observer <<http://www.barentsobserver.com/oil-tankers-through-north-east-passage.4800813.html>>.

⁷⁵ Dmitriy Korobeinikov, *Novatek Sends First Fuel Consignment to Asia via Northern Sea Route* (2010) RIANOVOSTI <<http://en.rian.ru/business/20100817/160232307.html>>.

⁷⁶ Matt Moore and Seth Borenstein, *Two German Merchant Ships Conquer Famed Arctic Passage: Climate Change is Blamed for Opening of Path* (2009) Globe Newspaper Company <http://www.boston.com/news/world/europe/articles/2009/09/12/two_german_merchant_ships_conquer_famed_arctic_passage/>.

Ports	Suez–Malacca (nautical miles)	NAP (nautical miles)	Distance saved (per cent)
Rotterdam–Yokohama	11,205	7,345	34.45
Rotterdam–Shanghai	10,521	8,079	23.2

Table 10-4: The Length of a Voyage to Rotterdam from Different Ports by the Routes of Malacca–Singapore and the NAP⁷⁷

Based on Table 10-4, the voyage from Rotterdam to Yokohama via the Suez–Malacca route is around 11,205 nautical miles. By travelling northward and using the NAP, the distance between these two ports would be approximately 3,345 nautical miles, cutting approximately 34.45 per cent the distance off the conventional Suez–Malacca route, which would translate into lower fuel costs.⁷⁸

Research has discovered that the Arctic is rich in oil and gas reserves, with the US Geological Survey estimating that up to 25 per cent of the world’s remaining oil and gas lie beneath the icy seabed of the Arctic Ocean.⁷⁹ This survey also reported that the Arctic may contain as much as one-fifth of the world’s unexplored oil and natural gas, potentially containing 90 billion barrels of undiscovered oil and 1,670 trillion cubic feet of undiscovered gas.⁸⁰ These resources are primarily located in three areas within the Arctic; namely, the West Siberian Basin, the East Barents Basin and the Alaska Arctic,⁸¹ also believed to contain significant mineral resources.⁸² With the depletion of oil reserves in the Middle East, the developed economies of East Asia, including Japan, China and South Korea, may seek to import oil from the Arctic region if this

⁷⁷ Svetlana Chernova and Anton Volkov, *Economic Feasibility of the Northern Sea Route Container Shipping Development* (Master of Science in Business Thesis, Bodø Graduate School of Business, 2010), 14.

⁷⁸ Matt Moore and Seth Borenstein, *Two German Merchant Ships Conquer Famed Arctic Passage: Climate Change is Blamed for Opening of Path* (2009) Globe Newspaper Company <http://www.boston.com/news/world/europe/articles/2009/09/12/two_german_merchant_ships_conquer_famed_arctic_passage/>.

⁷⁹ Richard A. Lovett, *Arctic Oil Rush Sparks Battles Over Seafloor* (2007) National Geographic <<http://news.nationalgeographic.com/news/2007/08/070823-arctic-oil.html>>.

⁸⁰ The Arctic Council, ‘Arctic Council: Arctic Marine Shipping Assessment’ (The Arctic Council, Protection of the Arctic Marine Environment, 2009), 97-98.

⁸¹ Ibid.

⁸² Richard A. Lovett, *Arctic Oil Rush Sparks Battles Over Seafloor* (2007) National Geographic <<http://news.nationalgeographic.com/news/2007/08/070823-arctic-oil.html>>; Øystein Jensen, ‘The IMO Guidelines for Ships Operating in Arctic Ice-covered Waters: From Voluntary to Mandatory Tool for Navigation Safety and Environmental Protection’ (FNI Report 2/2007, Fridtjof Nansen Institute, 2007), 1-3.

research by the US Geological Survey is validated.⁸³ Japan has been looking for alternatives for its sources of oil supply in view of the ongoing turmoil in the Middle East.⁸⁴ It fears that its industries will be affected if there are changes in production policies by Middle East oil producers, or embargoes and unpredictable events such as wars, coups and revolutions.⁸⁵

All these factors show that the NAP and the Arctic Region may in the future become maritime superhighways as well as being the location of significant global oil and gas reserves. As shipping activity in the Arctic region is expected to grow, the Arctic is likely to experience an extraordinary transformation; natural resource development, governance challenges, climate change and marine infrastructure issues will continue to influence the future marine uses of the Arctic.⁸⁶ The increasing shipping volume that plies the NAP will have a significant impact on the marine environment of that region of the Arctic.⁸⁷ AMSA 2009 also reported that there is a lack of Arctic marine infrastructure, such as adequate aids to navigation, limitations to radio and satellite communications and proper vessel traffic systems in the Arctic.⁸⁸ Therefore, there is much to be done to improve navigational facilities along the NAP in order to make it safer and more viable for future shipping activity.⁸⁹

10.3.1 The NAP Versus the Straits of Malacca and Singapore

There are a variety of advantages and disadvantages for ships travelling via the NAP and the Straits of Malacca and Singapore. The Straits of Malacca and Singapore are considered as

⁸³ Rakish Suppiah, 'North East Arctic Passage: It's Viability for Shipping Transit' (2009) 16(4) *MIMA Bulletin*, 12-13; Mohd Hazmi bin Mohd Rusli, 'Attempts to Seek Alternative Routes to the Straits of Malacca and Singapore' (2010) 1(1) *Journal of Maritime Geopolitics and Culture*, 3-5.

⁸⁴ Valerie Yorke, 'Oil, the Middle East and Japan's Search for Security' (1981) 57(3) *International Affairs (Royal Institute of International Affairs 1944-)*, 428-429.

⁸⁵ *Ibid.*

⁸⁶ The Arctic Council, 'Arctic Council: Arctic Marine Shipping Assessment' (The Arctic Council, Protection of the Arctic Marine Environment, 2009), 8.

⁸⁷ The noise from the icebreakers will cause disturbance to both wildlife and the local community that live along that area of the Arctic. Furthermore, vessel collisions, resulting in death or serious injury of marine mammals and other marine organisms pose threats to the marine environment of that area. See *Ibid.*, 146.

⁸⁸ *Ibid.*, 97.

⁸⁹ *Ibid.*, 186.

important Asia-Pacific maritime shipping highways. They are equipped with numerous aids to navigation and considerable marine infrastructure and are reasonably safe for international shipping.⁹⁰ There are many ports along the Straits for vessels to call at, such as Dumai, Port Klang, Penang, Tanjung Pelepas and the Port of Singapore. Piracy and other maritime crimes have posed a threat in the past, but these incidents have been dramatically reduced in recent years due to the improved security measures introduced by the littoral States to safeguard the Straits.⁹¹ The shortcomings of navigation through the Straits of Malacca and Singapore include that they are constricted and shallow, forcing ships to slow down, especially in the TSS areas and the eastern exit of the Strait of Singapore to the South China Sea.⁹² The Straits are also exposed to harsh weather during the monsoon season⁹³ and voyages from Europe to East Asia take a longer time using the Straits of Malacca and Singapore route than compared to the NAP,⁹⁴ and longer journeys mean more expensive shipping costs.

Voyages through the NAP has also have advantages and disadvantages to be considered by shipping companies. Ships may save on operational costs if they choose to use this route.⁹⁵ Another advantage is that the Russian government consistently monitors the passage of ships and provides adequate navigational aids such as pilotage and icebreakers for transiting vessels.⁹⁶ Due to its harsh conditions and sparse population, especially in the Siberian region, piracy is not a threat for ships traversing the NAP.⁹⁷

⁹⁰ David Tharp, *Nippon Maritime Center: Keeping the Malacca Straits Safe* (2010) The Nippon Foundation <<http://www.nippon-foundation.or.jp/eng/current/20100204NipponMaritimeCenter.html>>.

⁹¹ Ramli Hj Nik and Sumathy Permal, 'Security Threats in the Straits of Malacca' in H.M. Ibrahim and Hairil Anuar Husin (eds), *Profile of the Straits of Malacca: Malaysia's Perspective* (Maritime Institute of Malaysia, 2008), 195-198; See Section 5.2.2.1.2 of Chapter 5 of this Thesis.

⁹² Naoya Okuwaki, 'Improving Navigational Safety Governance in Straits of Malacca and Singapore' (Paper presented at the International Symposium on Safety and Protection of the Marine Environment of the Straits of Malacca and Singapore, Kuala Lumpur, 2007), 21-22.

⁹³ H. M. Ibrahim, Hairil Anuar Husin and Deneswari Sivaguru, 'The Straits of Malacca: Setting The Scene' in H.M. Ibrahim and Hairil Anuar Husin (eds), *Profile of the Straits of Malacca: Malaysia's Perspective* (Maritime Institute of Malaysia, 2008), 40.

⁹⁴ Rakish Suppiah, 'North East Arctic Passage: It's Viability for Shipping Transit' (2009) 16(4) *MIMA Bulletin*, 14.

⁹⁵ Ibid.

⁹⁶ Ibid.

⁹⁷ Ibid.

Despite the shorter duration of passage through the NAP, ships are likely to incur additional costs such as dues payable to MOHs and payments for services such as pilotage and escort icebreakers.⁹⁸ Sea ice and water depths are the two main impediments to navigation in the NAP,⁹⁹ and voyages through the NAP may be frustrated should the route be closed due to ice accumulation during winter.¹⁰⁰ Even though the NAP has calmer waters, ships using this route would have to reduce speed to ensure their propellers are not damaged by the layers of ice.¹⁰¹ There are serious limitations to radio and satellite communications in certain areas of the NAP, making it difficult to mount an effective emergency response should a maritime casualty or other emergency occur on this route.¹⁰² In addition, the sensitive marine environment of the Arctic could also be threatened should a maritime accident takes place, causing serious environmental damage in this part of the world.¹⁰³

10.3.2 The Future of the NAP

The NAP is seen as a potential new global maritime highway of the future.¹⁰⁴ Some commentators anticipate that the importance of NAP as an important shipping route will continue to grow when oil and gas industries begin to develop extensively in the Russian Arctic region.¹⁰⁵ In fact, research has revealed that by the year 2020, 70 per cent of the overall cargo

⁹⁸ Ibid.

⁹⁹ Jan Drent, 'Commercial Shipping On The Northern Sea Route' (1993) III(2) *The Northern Mariner/Le Marin du nord*, 1-3.

¹⁰⁰ Ibid.

¹⁰¹ Rakish Suppiah, 'North East Arctic Passage: It's Viability for Shipping Transit' (2009) 16(4) *MIMA Bulletin*, 14; International Maritime Organization (IMO), 'Resolution A.1024(26): Guidelines for Ships Operating in Polar Waters' (A 26/Res. 1024, IMO, 2010), 4-5.

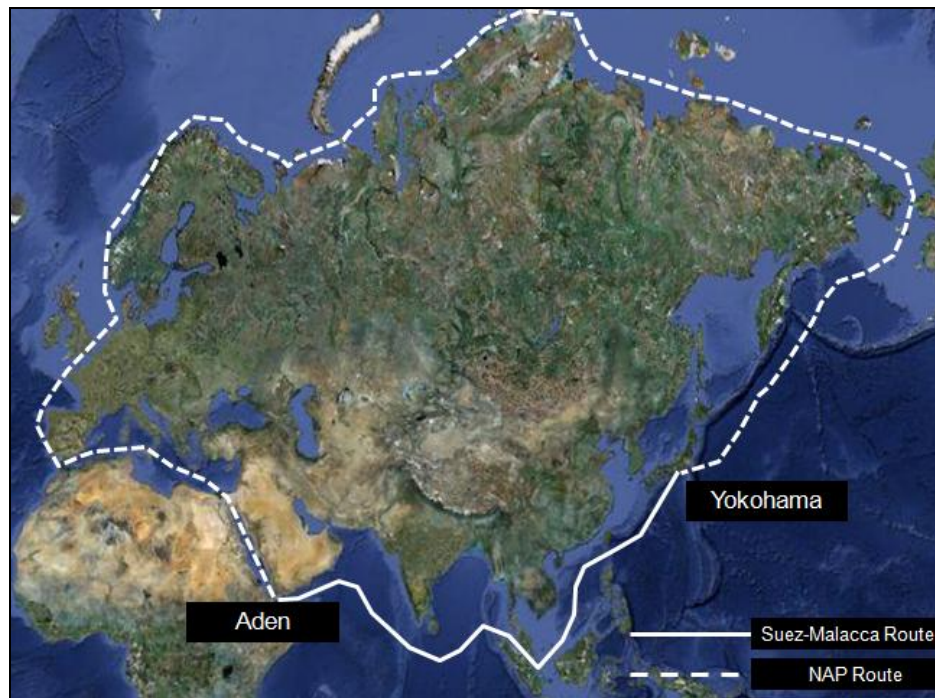
¹⁰² The Arctic Council, 'Arctic Council: Arctic Marine Shipping Assessment' (The Arctic Council, Protection of the Arctic Marine Environment, 2009), 187; International Maritime Organization (IMO), 'Resolution A.1024(26): Guidelines for Ships Operating in Polar Waters' (A 26/Res. 1024, IMO, 2010), 4-5.

¹⁰³ Ayesha Rascoe, *US Must Weigh Arctic Oil Spill Response Challenges-Report* (2012) Reuters <<http://www.reuters.com/article/2012/03/30/usa-oil-drilling-idUSL2E8EUEAU20120330>>

¹⁰⁴ Øystein Jensen, 'The IMO Guidelines for Ships Operating in Arctic Ice-covered Waters: From Voluntary to Mandatory Tool for Navigation Safety and Environmental Protection' (FNI Report 2/2007, Fridtjof Nansen Institute, 2007), 1-3.

¹⁰⁵ Richard A. Lovett, *Arctic Oil Rush Sparks Battles Over Seafloor* (2007) National Geographic <<http://news.nationalgeographic.com/news/2007/08/070823-arctic-oil.html>>; Rakish Suppiah, 'North East Arctic Passage: It's Viability for Shipping Transit' (2009) 16(4) *MIMA Bulletin*, 8-15; Claes Lykke Ragner, 'The Northern Sea Route' (2008) *Norden Association's Yearbook*, 114-117.

transported via the NAP will be oil and gas.¹⁰⁶ Nevertheless, so long as the East Asian nations continue to turn to the Middle East for their supplies of oil and gas, the Straits of Malacca and Singapore will remain as busy as they are today.¹⁰⁷ Maritime voyages from the Middle East to East Asian nations would obviously take longer via the NAP route, hence it may not be a viable option for many shipping owners, as shown in Map 10-3.



Map 10-3: Routes via the Suez–Malacca and NAP (Aden-Yokohama)
(Modified from Google Maps)

In the long term, the Straits of Malacca and Singapore may ultimately be preferred and the NAP may only ever be a secondary, but less navigationally convenient, alternative route to the more important Straits of Malacca and Singapore.

¹⁰⁶ Svetlana Chernova and Anton Volkov, *Economic feasibility of the Northern Sea Route Container Shipping Development* (Master of Science in Business Thesis, Bodø Graduate School of Business, 2010), 83.

¹⁰⁷ Mohd Hazmi bin Mohd Rusli, 'Attempts to Seek Alternative Routes to the Straits of Malacca and Singapore' (2010) 1(1) *Journal of Maritime Geopolitics and Culture*, 3-5.

10.4 THE THAI CANAL PLAN

Since ancient times, the Malay Peninsula has been perceived as a barrier by traders wishing to gain direct access from the Indian Ocean to the Chinese Seas or vice versa.¹⁰⁸ Early traders would opt to use the Strait of Malacca (then known as the Sea of Melayu) or travel via the Transpeninsular route located within the territory of the old Malay Kingdom of Kedah.¹⁰⁹ Traders would have to sail the Indian Ocean to Ko Kho Khao, located on the west coast of the Malay Peninsula and travel inland towards Laem Pho in the east to gain access to the Gulf of Siam.¹¹⁰ Both these settlements are now within the modern day territory of Thailand. This fact shows that the effort to discover the easiest route linking the east and the west without having to sail down the Straits of Malacca and Singapore has a very long history. In recent decades, there have been two proposals in South Thailand to divert traffic from the Straits of Malacca and Singapore.

Initially, in 1993 the Thai government approved a project to construct a land bridge consisting of a highway, railway and oil pipeline from Krabi to Khanom.¹¹¹ In contrast to the proposed Thai Canal plan, this proposed land bridge would not require any physical land division.¹¹² Once in operation, the proposed land bridge was to link the Andaman Sea with the Gulf of Thailand, shortening the journey from the Middle East to the East Asian nations.¹¹³ Although this project was planned for, it has now been completely suspended for environmental reasons.¹¹⁴ A further project is the Isthmus of Kra Canal Plan, now known as the Thai Canal Plan, an unfulfilled legacy that goes back to the time of ancient Siam.

¹⁰⁸ Leonard Y. Andaya, *Leaves of the Same Tree: Trade and Ethnicity in the Straits of Melaka* (University of Hawai'i Press, 2008), 39-40.

¹⁰⁹ Ibid.

¹¹⁰ Ibid.

¹¹¹ Rajesh B. Thapa et al, 'Sea Navigation, Challenges and Potentials in South East Asia: An Assessment of Suitable Sites for a Shipping Canal in the South Thai Isthmus' (2007) 70 *Geojournal*, 161-164.

¹¹² Jose L. Tongzon, 'Whither the Malacca Straits: The Rise of New Hub Ports in Asia' in Graham Gerard Ong-Webb (ed), *Piracy, Maritime Terrorism and Securing the Malacca Straits* (Institute of Southeast Asian Studies, 2006), 206.

¹¹³ Ibid.

¹¹⁴ Rajesh B. Thapa et al, 'Sea Navigation, Challenges and Potentials in South East Asia: An Assessment of Suitable Sites for a Shipping Canal in the South Thai Isthmus' (2007) 70 *Geojournal*, 161-164.

The Thai Canal Plan has been contemplated for hundreds of years, from as early as 1677.¹¹⁵ This plan has an ambitious vision: to shorten the travelling distance from the east to the west. It was first proposed during the reign of King Narai the Great in the 17th century when Siam, or Ayutthaya as it was then known, initially opened its doors to European trade.¹¹⁶ The plan was abandoned and subsequently reactivated several times for numerous reasons. The rulers of Siam understood that this plan would bring prosperity to the nation but at the same time feared that it would affect the security of their kingdom.¹¹⁷ The plan was also too expensive and not economically viable.¹¹⁸ The British were not in favour of the plan, fearing that their maritime base in Singapore would ultimately suffer adverse economic consequences as a result of the plan. Following the end of the Second World War in 1945, Siam, which at that time was in a state of war with the UK, signed an agreement to terminate the war between the two nations.¹¹⁹ Article 7 of the agreement prohibited Siam from digging a canal through its territory to link the Andaman Sea to the Gulf of Siam.¹²⁰ This agreement was aimed, among other things, at securing Britain's interests in Singapore; however, this treaty was cancelled in 1954.

The Canal Plan has been mooted several times in modern day Thailand: in the early 1970s, 1990s and 2000s.¹²¹ It has been reactivated and then abandoned several times for various

¹¹⁵ Florence Chong, *After Three Centuries, a Kra Canal?* (2003) Asia Today Online <http://www.asiatoday.com.au/feature_reports.php?id=34>; Kompasiana, *Terusan Kra di Thailand dan Dampak ke Atas Ekonomi Asean?* (2011) Kompasiana <<http://luar-negeri.kompasiana.com/2011/02/03/terusan-kra-di-thailand-dan-dampak-ke-atas-ekonomi-asean/>>.

¹¹⁶ Nipaporn Pasertsri, *Kra Isthmus History (The Thai-Canal)* (Thai Canal Project <<http://www.thai-canal.com/hist%20E.htm>>; Amonthep Thongsin, *The Kra Canal and Thai Security* (Master's Thesis, Naval Postgraduate School, 2002), 5-10.

¹¹⁷ Nipaporn Pasertsri, *Kra Isthmus History (The Thai-Canal)* (Thai Canal Project <<http://www.thai-canal.com/hist%20E.htm>>.

¹¹⁸ Amonthep Thongsin, *The Kra Canal and Thai Security* (Master's Thesis, Naval Postgraduate School, 2002), 5-10.

¹¹⁹ United Nations, 'Agreement Between the United Kingdom of Great Britain and Northern Ireland, India and Siam for the Termination of the State of War' (No. 1375, United Nations, 1951), 131-146.

¹²⁰ Article 7 of the Agreement reads 'The Siamese Government undertake that no canal linking the Indian Ocean and the Gulf of Siam shall be cut across Siamese territory without the prior concurrence of the Government of the United Kingdom'. See Ibid.

¹²¹ Rajesh B. Thapa et al, 'Sea Navigation, Challenges and Potentials in South East Asia: An Assessment of Suitable Sites for a Shipping Canal in the South Thai Isthmus' (2007) 70 *Geojournal*, 165.

political, economic and security reasons.¹²² Bangkok feared that the canal would physically isolate the five Southern Muslim majority districts and thus fuel secessionism, an unacceptable situation for the Thai authorities.¹²³ If Thailand is eventually physically divided by the Thai Canal, it may have adverse effects on the political situation between the separatists and the central government in Bangkok. Thai hesitation to construct the Thai Canal finally came to an end when the Thai House of Senators reached a consensus to move ahead with the Canal Plan in 2005.¹²⁴

The proposed canal, measuring approximately 120 kilometres from one end to the other through the Kra Isthmus would cost US \$23 billion.¹²⁵ The proposed canal would be about 25 metres deep and 400 metres wide.¹²⁶ The funding for this project is intended to come from maritime nations such as Japan, China, the US and other interested States, including Malaysia and Indonesia.¹²⁷ However, the main financial contributor would be the government of Thailand itself. The position of the canal line has been proposed and modified a number of times. There are 12 potential canal lines that appear to be feasible, with the final selection to be based on factors such as environmental and societal impacts, engineering feasibility as well as economic and security considerations.¹²⁸ Among the 12 options, the 120 kilometre A9 route is regarded as the most feasible, cutting through the provinces of Krabi, Phatthalung, Nakhon Si Thammarat,

¹²² Amonthep Thongsin, *The Kra Canal and Thai Security* (Master's Thesis, Naval Postgraduate School, 2002), 5-10.

¹²³ Julien Levesque, *Bypassing the Malacca Straits* (2008) Institute of Peace and Conflict Studies <<http://ipcs.org/article/southeast-asia/bypassing-the-malacca-straits-2561.html>>.

¹²⁴ Satapon Keovimol, *Learning from the Thai Canal Project: Construction of the Thai Canal Can Resolve Economic Crisis* (2006) thai-canal.org <<http://www.thai-canal.org/enclletterE01.htm>>.

¹²⁵ Connie Levett, *Thai Canal Plan to Save Millions* (2005) The Age <<http://www.theage.com.au/news/World/Thai-canal-plan-to-save-millions/2005/03/28/1111862317996.html>>.

¹²⁶ Euan Graham, *Japan's Sea Lane Security, 1940-2004: A Matter of Life and Death* (Nissan Institute, Routledge Japanese Studies Series, 2006), 164-166.

¹²⁷ Thai-canal.org, *Thai Canal Frequently Asked Questions* (2009) Thai-canal.org <<http://www.thai-canal.com/answer01E.htm#ans3E>>.

¹²⁸ Rajesh B. Thapa et al, 'Sea Navigation, Challenges and Potentials in South East Asia: An Assessment of Suitable Sites for a Shipping Canal in the South Thai Isthmus' (2007) 70 *Geojournal*, 167.

Songkhla and Trang.¹²⁹ These areas of Thailand are sparsely populated and far from the Malaysian and Burmese borders.¹³⁰

The proposed canal is wide enough to accommodate two ships and will require a construction period of around 5–10 years.¹³¹ It will allow ships to move between Europe, the Middle East, India and China without passing through the already busy and constricted Straits of Malacca and Singapore.¹³² The project is anticipated to employ a work force of 30,000 people if it proceeds.¹³³ There are several advantages of the canal for shipping. These can be summarised as follows:

- (a) It will generate an annual trade turnover of some US \$280 billion, and provide better access to about 1.2 billion consumers that straddle the region within a radius of 2,400 kilometres;¹³⁴
- (b) It will trim 593.592 nautical miles from the conventional route from the Indian to the Pacific Oceans via the Straits of Malacca and Singapore, saving approximately US \$300,000 in transportation costs per tanker, and reducing the voyage by 2–5 days.¹³⁵ This is illustrated in Map 10-4. It has been argued that the financial savings, relative to the cost of passage through the Malacca and Lombok Straits, will range from US \$37,000 to US \$120,000 per voyage.¹³⁶

¹²⁹ Kavi Chongkittavorn, *Regional Perspective: Thai Sea Power and the Kra Isthmus Canal Project* (2006) The Nation <http://www.nationmultimedia.com/2006/08/14/opinion/opinion_30011008.php>.

¹³⁰ Ibid.

¹³¹ Thai-canal.org, *Thai Canal Frequently Asked Questions* (2009) Thai-canal.org <<http://www.thai-canal.com/answer01E.htm#ans3E>>.

¹³² Mohd Hazmi bin Mohd Rusli, 'Attempts to Seek Alternative Routes to the Straits of Malacca and Singapore' (Paper presented at the 3rd International Seminar on Maritime Culture and Geopolitics, Kuala Lumpur, 2010).

¹³³ Franz Schurmann, *China's Demand for Oil May Make Thailand Canal a Reality* (2003) News America Media <http://news.pacificnews.org/news/view_article.html?article_id=101ae63ff6a8d30bad62a31cf1624d27>.

¹³⁴ 2point6billion.com, *Region Calls on Thailand to Reactivate Kra Canal Project* (2009) Asia Briefing Ltd. <<http://www.2point6billion.com/news/2009/06/18/region-calls-on-thailand-to-reactivate-kra-canal-project-1441.html>>.

¹³⁵ Julien Levesque, *Bypassing the Malacca Straits* (2008) Institute of Peace and Conflict Studies <<http://ipcs.org/article/southeast-asia/bypassing-the-malacca-straits-2561.html>>; Mohd Hazmi bin Mohd Rusli, 'Attempts to Seek Alternative Routes to the Straits of Malacca and Singapore' (Paper presented at the 3rd International Seminar on Maritime Culture and Geopolitics, Kuala Lumpur, 2010).

¹³⁶ Euan Graham, *Japan's Sea Lane Security, 1940-2004: A Matter of Life and Death* (Nissan Institute, Routledge Japanese Studies Series, 2006), 164-166; Mohd Hazmi bin Mohd Rusli, 'Attempts to Seek Alternative Routes to the

- (c) Shipping traffic that goes through the Straits of Malacca and Singapore could be diverted and reduced, hence alleviating their current accommodation of unlimited shipping traffic. Less shipping traffic would reduce the current spending of the littoral States on maintaining navigational aids and infrastructure along the Straits;¹³⁷
- (d) The health of the marine environment of the Straits of Malacca and Singapore could be better managed as the existence of the Thai Canal is likely to make the Straits less significant for international shipping. Maritime States and user nations may divert their interests to the Canal instead of the Straits of Malacca and Singapore. If the Straits become less important shipping lanes, the littoral States may find it more acceptable to propose additional environmental protective measures in the Straits, such as Special Areas under MARPOL and/or designating them as PSSAs in the IMO, conceivably with fewer objections from the user States;¹³⁸
- (e) With fewer transiting ships, the Straits of Malacca and Singapore could be further developed as a fishing hub for the region;¹³⁹
- (f) With shorter shipping voyages via the Canal, atmospheric pollution from ships would be reduced, thus helping the shipping industry to lessen the adverse impacts of greenhouse gas emissions;¹⁴⁰
- (g) Remote and less developed areas of northern Sumatra, the northern states of Peninsular Malaysia and the southern provinces of Thailand located close to the Canal could be developed as shipping ports and hubs of the region;¹⁴¹
- (h) The reduced number of ships may also result in a reduction of the risks of piracy and other maritime crime in the Straits of Malacca and Singapore.¹⁴²

Straits of Malacca and Singapore' (Paper presented at the 3rd International Seminar on Maritime Culture and Geopolitics, Kuala Lumpur, 2010).

¹³⁷ Mohd Hazmi bin Mohd Rusli, 'Attempts to Seek Alternative Routes to the Straits of Malacca and Singapore' (2010) 1(1) *Journal of Maritime Geopolitics and Culture*, 6-8.

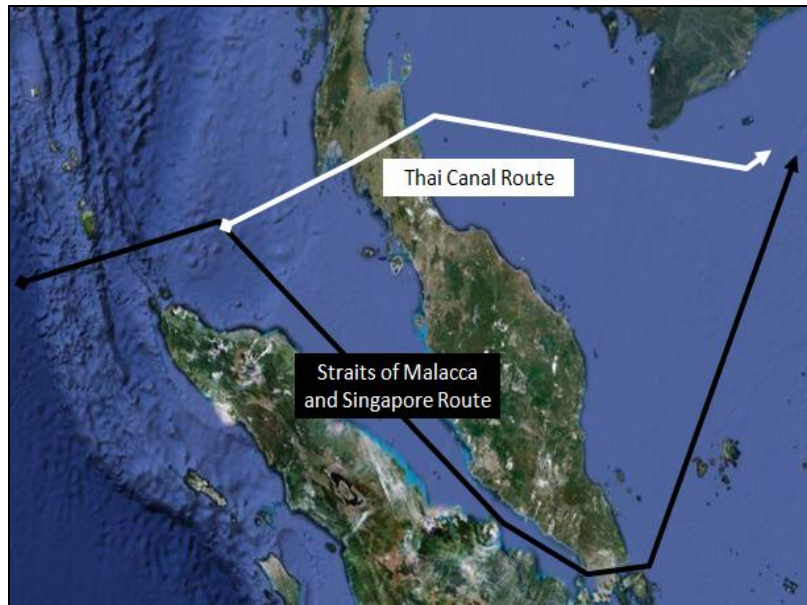
¹³⁸ Ibid.

¹³⁹ Ibid.

¹⁴⁰ Ibid.

¹⁴¹ Ibid.

¹⁴² Ibid.



Map 10-4: Route through the Straits of Malacca and Singapore versus the Thai Canal (Modified from GoogleMaps).

Potential negative consequences from the usage of the Thai Canal include:

- (a) The numbers of ships calling at ports along the Straits of Malacca and Singapore region such as Dumai, Port Klang, the Port of Singapore and the Port of Tanjung Priok would decrease.¹⁴³ The Straits would diminish as critical global chokepoints for shipping transport. However, certain commentators have speculated that the Canal would only attract large oil tankers and not container ships. Speedy container ships may opt to use the Straits instead.¹⁴⁴
- (b) Vessels sailing from Europe to East Asia would have to pay double transit dues if they chose not to transit the Straits of Malacca and Singapore. Indeed, navigation via both the Suez and Thai Canals would attract transit fees;¹⁴⁵

¹⁴³ Djoko Pramono, *Budaya Bahari* (PT Gramedia Pustaka Utama, 2005), 14-16; Kompasiana, *Terusan Kra di Thailand dan Dampak ke Atas Ekonomi Asean?* (2011) Kompasiana <<http://luar-negeri.kompasiana.com/2011/02/03/terusan-kra-di-thailand-dan-dampak-ke-atas-ekonomi-asean/>>; Hardoyo Rajiyowiryo, 'Memosisikan Kedudukan Geografi Indonesia' in Eddy Mulyadi (ed), *Warta Geologi* (Badan Geologi - Kementerian Energi dan Sumber Daya Mineral, 2008) vol 3, 6-15.

¹⁴⁴ Connie Levett, *Thai Canal Plan to Save Millions* (2005) *The Age* <<http://www.theage.com.au/news/World/Thai-canal-plan-to-save-millions/2005/03/28/1111862317996.html>>.

¹⁴⁵ Mohd Hazmi bin Mohd Rusli, 'Attempts to Seek Alternative Routes to the Straits of Malacca and Singapore' (2010) 1(1) *Journal of Maritime Geopolitics and Culture*, 6-8.

- (c) The guaranteed access provided by the transit passage regime does not apply to shipping traffic using the Thai Canal. As canals are not subject to the provisions of the LOSC transit through the canal could be suspended;¹⁴⁶
- (d) Ships would have to considerably reduce their speed while navigating the Canal;¹⁴⁷
- (e) Unlike passage through the Straits of Malacca and Singapore where the regulatory powers of the littoral States are limited, navigation through the Canal would be subject to the laws of Thailand;¹⁴⁸
- (f) The well-being of the physical environment of the areas where the Canal is constructed is likely to be adversely affected;¹⁴⁹
- (g) With more ships using the Canal, the security of vessels navigating the Canal would become more contentious, as the risks of the occurrence of piracy and other maritime crime may increase;¹⁵⁰
- (h) A 1973 survey report, based on a 12-year construction time frame for this canal, estimated that the project would take more than 50 years to recoup its start-up costs;¹⁵¹
- (i) User States and many stakeholders may be less attracted to investing in co-operative mechanisms to protect and preserve the marine environment of the Straits of Malacca and Singapore if the Straits are no longer vital to their economic needs.¹⁵²

Putting all these shortcomings aside, once open for navigation, the Thai Canal would represent a quantum leap for the shipping industry, as did its counterparts, the Suez and Panama Canals when they were constructed. The Suez Canal was envisioned by the Egyptians and the Romans

¹⁴⁶ Ibid.

¹⁴⁷ Ibid.

¹⁴⁸ Ibid.

¹⁴⁹ Anthony C. LoBaido, *New Canal for a New Century: Thailand Proposes Bold Plan for World's Next Great Waterway* (2000) WorldNetDaily <<http://www.wnd.com/index.php?fa=PAGE.printable&pageId=3959>>.

¹⁵⁰ Ibid.

¹⁵¹ Euan Graham, *Japan's Sea Lane Security, 1940-2004: A Matter of Life and Death* (Nissan Institute, Routledge Japanese Studies Series, 2006), 164-166.

¹⁵² Mohd Hazmi bin Mohd Rusli, 'Attempts to Seek Alternative Routes to the Straits of Malacca and Singapore' (2010) 1(1) *Journal of Maritime Geopolitics and Culture*, 6-8.

but was only completed in the 18th century, centuries after the fall of both Empires.¹⁵³ It shortened the navigational distance between Europe and Asia by linking the Red and Mediterranean Seas. As a result, ships could avoid sailing around the Cape of Good Hope at the bottom of the African continent.¹⁵⁴

The 80 kilometre Panama Canal is a crucial waterway that links the Atlantic to the Pacific Ocean, meaning that ships no longer have to sail to Cape Horn at the bottom tip of the South American Continent to sail between these oceans.¹⁵⁵ Opened for traffic in 1914, the project was regarded at the time as one of man's greatest engineering achievements.¹⁵⁶ The dream of digging a water passage across the tiny strip of land of the Isthmus of Panama can be traced to the 1513 Isthmian crossing of Vasco Nunez de Balboa.¹⁵⁷ In 1848, gold was discovered in California and this led to an increasing volume of trans-isthmian business.¹⁵⁸ The US involvement in the construction of Panama Canal began in 1899 when the US Isthmian Canal Commission of 1899–1901, otherwise known as the second Walker Commission, was set up to study all routes feasible for the construction of a water route between the Atlantic and the Pacific Oceans.¹⁵⁹

Many routes were chosen and among them were Nicaraguan and Panamanian routes. Ultimately, the Isthmus of Panama, despite being characterised by mountains, lush tropical rainforest and possessing some of the most geologically complex land formations in the world, was chosen as a site for the Canal.¹⁶⁰ The Isthmus of Panama is only about 50 miles wide at its narrowest point. The construction of the Panama Canal employed a work force of 40,000 and it took slightly more

¹⁵³ Suez Canal Authority, *Canal History* (1975) Suez Canal Authority <<http://www.suezcanal.gov.eg/sc.aspx?show=8>>.

¹⁵⁴ Suez Canal Authority, *Importance and Advantages of the Canal* (2008) Suez Canal Authority <<http://www.suezcanal.gov.eg/sc.aspx?show=10>>.

¹⁵⁵ Panama Canal Authority, *This is the Canal* (2009) Panama Canal Authority <<http://www.pancanal.com/eng/general/asi-es-el-canal.html>>.

¹⁵⁶ Panama Canal, *A History of the Panama Canal: End of Construction* (2011) Panama Canal Authority <<http://www.pancanal.com/eng/history/history/index.html>>.

¹⁵⁷ Ibid.

¹⁵⁸ Ibid.

¹⁵⁹ Ibid.

¹⁶⁰ Ibid.

than 10 years to complete. The Panama Canal was the single most expensive construction project in the history of the US at that time, amounting to a cost of US \$42.5 million.¹⁶¹

The accomplishment of these two Canals demonstrates the potential of the Thai Canal as a viable alternative route to the Straits of Malacca and Singapore, at least for some shipping.¹⁶² Such a project could ease the continuous burden that the Straits must bear in accommodating unlimited shipping traffic.¹⁶³ However, due to environmental reasons and the effects of the recent global economic crisis, the Thai Canal plan does not appear to be close to materialising, and is still at its preliminary stage of planning.

10.5 THE TRANS PENINSULAR PIPELINE PROJECT

The other potential alternative route is the Trans Peninsular Pipeline Project, which was designed to transport oil via Peninsular Malaysia without having to pass the Straits of Malacca and Singapore. The Malaysian Trans Peninsular Pipeline Project (TPP) or the Yan-Bachok Pipeline Plan was initially proposed in 1994 when the economic viability of the project was announced by the Malaysian Business Times.¹⁶⁴ The main driving force of this project is the rapid growth in demand for crude oil from East Asian nations, which is expected to double from its current level by the year 2020.¹⁶⁵ The Malaysian government has made a plan to build pipelines across the peninsula, cutting through the Titiwangsa Range, with a distance of 310 kilometres (190 miles) from the west coast station of Yan, in Kedah, to the South China Sea station of Bachok in Kelantan, at a cost of approximately US \$23 million, as illustrated in Map 10-5.¹⁶⁶

¹⁶¹ Ibid.

¹⁶² Mohd Hazmi bin Mohd Rusli, 'Attempts to Seek Alternative Routes to the Straits of Malacca and Singapore' (2010) 1(1) *Journal of Maritime Geopolitics and Culture*, 6-8.

¹⁶³ Hardoyo Rajiyowiryono, 'Memposisikan Kedudukan Geografi Indonesia' in Eddy Mulyadi (ed), *Warta Geologi* (Badan Geologi - Kementerian Energi dan Sumber Daya Mineral, 2008) vol 3, 6-15.

¹⁶⁴ Jon Azman, 'The Malaysian Trans Peninsular Pipeline Project: Something Is Not Quite Right, Let's Go Back to Basic Arithmetic' (2007) 14(2) *MIMA Bulletin*, 27-31.

¹⁶⁵ Ibid.

¹⁶⁶ Syed Azman, *Malaysia Defies Doubts, History with Pipeline Plan*. (2007) Reuters <<http://www.reuters.com/article/idUSSP412620070809>>; Ainul Asniera Ahsan, 'Projek Transpipe Bangunkan Koridor Utara-Koridor Timur', *Utusan Malaysia* (Kuala Lumpur), 1 June 2007.



Map 10-5: Illustration of the Transpeninsula Pipeline Project
(Modified from GoogleMaps)

When this project is complete, vessels that sail from the Middle East will be able to unload their oil cargoes at the Yan Station. There, the oil would be refined and subsequently transported through the Malaysian hinterland to the other side of the peninsula.¹⁶⁷ When the cargoes reach the east coast station of Bachok, they would then be loaded into another vessel or Aframax waiting there.¹⁶⁸

This plan is expected to divert about 20 per cent of shipping traffic and eventually reduce the burden of accommodating increasing shipping traffic upon the Straits of Malacca and Singapore.¹⁶⁹ Hence, shipping volumes in the Straits could be better monitored and controlled. Port Klang VTS reported that between the years of 2005-2010, oil tankers and VLCC collectively make up an average of 27.7 per cent of the total shipping transits in the Straits of

¹⁶⁷ The New York Times, *Malaysian Government Backs Pipeline Project* (2007) The New York Times <http://www.nytimes.com/2007/05/07/business/worldbusiness/07iht-pipe.1.5596043.html?_r=1>.

¹⁶⁸ Jon Azman, 'The Malaysian Trans Peninsular Pipeline Project: Something Is Not Quite Right, Let's Go Back to Basic Arithmetic' (2007) 14(2) *MIMA Bulletin*, 27-31.

¹⁶⁹ Maryam Jahanshahi, *Asia's energy highways continue to develop at rapid rate* (2007) The Australian Pipeliner <http://pipeliner.com.au/news/asias_energy_highways_continue_to_develop_at_rapid_rate/012292/>.

Malacca and Singapore.¹⁷⁰ With fewer oil tankers and VLCC navigating the Straits of Malacca and Singapore, congestion in the Straits could be reduced and commodities such as crude oil that pose a threat to the pristine marine environment of these waterways would no longer be ferried in large amounts through the Straits.¹⁷¹

It has also been contended that using the TPP would reduce the time needed to transport oil compared to the normal voyage of a vessel through the Strait of Malacca.¹⁷² Once fully operational, this project is expected to be able to save up to three days transit time and is anticipated to lessen the cost of shipments of crude oil by US \$1.50 per barrel.¹⁷³ Ships would also escape the risk of piracy and other maritime crime present in the Straits.¹⁷⁴ The TPP project is also expected to boost economic development and create employment for Malaysia's less developed northern states of Kedah, Perak and Kelantan, the three states crossed by the pipeline.¹⁷⁵ For example, it is projected to generate an annual revenue of US \$80 million for the state of Kedah alone.¹⁷⁶

Transportation of oil via pipelines is not unusual in the petroleum industry. The concept of the TPP is similar to the SUMED Pipeline in Egypt that transports oil from the Gulf of Suez to the Mediterranean Sea. The construction of these 320 kilometre parallel twin pipelines began in 1974 and was completed in December 1976.¹⁷⁷ Since the first shipment of oil in 1977, over 18.6 billion barrels of oil have been transported by the SUMED Pipeline.¹⁷⁸ Oil from the Gulf of Suez

¹⁷⁰ See Table 2-5 and of Chapter 2 of this Thesis.

¹⁷¹ Utusan Malaysia, *Loji RM10b Diteruskan* (2009) Utusan Malaysia Online <http://www.utusan.com.my/utusan/info.asp?y=2009&dt=0714&pub=Utusan_Malaysia&sec=Korporat&pg=ko_01.htm>.

¹⁷² BERNAMA, 'Saluran Paip Transpen Bernilai AS\$7 Bilion Kurangkan Masa Angkut Minyak', *Bername* (Kuala Lumpur), 28 May 2007.

¹⁷³ Rasheed Khan, 'Trans-Peninsular Pipeline: A Pipe Dream or Reality' (Azmi & Associates, 2008), 1-2.

¹⁷⁴ *Ibid.*

¹⁷⁵ *Ibid.*

¹⁷⁶ Alexander's Gas & Oil Connections Company News, 'Malaysia Moves Forward With Kedah Refinery Plans' (2009) 14(5) *Alexander's Gas & Oil Connections Company News: E & SE Asia* <<http://www.gasandoil.com/goc/company/cns91401.htm>>.

¹⁷⁷ SUMED, *SUMED Quick Facts* (2006) SUMED <<http://www.sumed.org/Docs/about.aspx>>.

¹⁷⁸ *Ibid.*

is loaded at the Ain Sukhna Terminal, then transported inland to the Dahshour Boosting Terminal, and finally channelled to the Mediterranean Terminal of Sidi Kerir near the city of Alexandria.¹⁷⁹ These terminals have state-of-the-art oil storage facilities. Transportation of oil through the SUMED pipeline allows shipping companies to save time and costs, as they do not need to travel around the Cape of Good Hope from Europe to obtain their fossil fuel supplies from the Middle East.¹⁸⁰

Pipelines have also been built to transport oil in the Persian Gulf. The Hormuz Strait, major parts of which are within Iranian territory, is also an important seaway for oil transportation.¹⁸¹ Iran shares the Hormuz Strait with Oman and the United Arab Emirates (UAE). Like the Straits of Malacca and Singapore, the Hormuz Strait has been subject to threats of piracy.¹⁸² Iran has long engaged in disputes with its neighbours over control of islands in the Persian Gulf and offshore oil and natural gas resources. As a result, maritime user States of the Gulf and the Gulf Co-operation Council nations¹⁸³ fear that their petroleum industries may be compromised should Iran, for reasons associated with security or war, close the Hormuz Strait to international shipping.¹⁸⁴ In view of this, the Gulf Co-operation Council nations are considering a series of

¹⁷⁹ Reem Nafie, *SUMED Set to Become Center of International Crude Oil Exchange, Says Petroleum Minister* (2007) Daily News Egypt <<http://www.dailystaregypt.com/article.aspx?ArticleID=8296>>.

¹⁸⁰ SUMED Arab Petroleum Pipelines Company, *Benefits of the Pipeline* (2006) SUMED <<http://www.sumed.org/Docs/benefits.aspx>>.

¹⁸¹ US Energy Information Administration, 'World Oil Transit Chokepoints: Background' (US Energy Information Administration, 2011).

¹⁸² US Energy Information Administration, *World Oil Transit Chokepoints: Background* (2008) US Energy Information Administration <http://www.eia.doe.gov/cabs/World_Oil_Transit_Chokepoints/Background.html>.

¹⁸³ The member States of Gulf Co-operation Council are the United Arab Emirates, Bahrain, Saudi Arabia, Oman, Qatar and Kuwait. See Gulf Co-operation Council, *The Cooperation Council for the Arab States of the Gulf - Secretariat General* (2011) Gulf Co-operation Council <<http://www.gcc-sg.org/eng/indexfc7a.html?action=Sec-Show&ID=1>>.

¹⁸⁴ In history, the only State that has closed and will likely to attempt to close the Hormuz Strait to international shipping is Iran. During the Tanker War phase of the 1980-88 Iran-Iraq War, Iran installed a number of naval mines in the Persian Gulf which ultimately struck a US patrol naval vessel, USS Samuel B. Roberts, killing over 30 crewmembers. Speculations have also been made that Iran might take advantage of the closure of Hormuz Strait as its ultimate tool of negotiation, particularly for its nuclear programme. Indeed, a disruption of free navigation through the Hormuz Strait would most likely result in price hikes for oil and LNG worldwide. See Anthony H. Cordesman, 'Iran, Oil and the Strait of Hormuz' (Center for Strategic and International Studies, 2007), 1-7; Leighton G. Luke, 'Closing the Strait of Hormuz - An Ace up the Sleeve or an Own Goal' (Future Directions International-Strategic Analysis Paper, Independent Strategic Analysis of Australia's Global Interest, 10 February 2010), 1-5; Sabahat Khan, 'Iranian Mining of the Strait of Hormuz- Plausibility and Key Considerations' (Institute for Near East & Gulf Military Analysis (INEGMA), 2009), 1-11.

options for oil pipelines to bypass the Iranian-dominated Strait of Hormuz.¹⁸⁵ A report by the Dubai-based Gulf Research Center said that these pipelines could extend from Iraq through several Gulf Co-operation Council States to the Arabian Sea. One option called for a 2,500 kilometre pipeline that would cross Kuwait, Saudi Arabia and the United Arab Emirates (UAE) to the Omani capital of Muscat on the Arabian Sea.¹⁸⁶

Currently, the UAE is also constructing another pipeline to avoid transportation of crude oil via the Strait of Hormuz.¹⁸⁷ The 370 kilometre Abu Dhabi Crude Oil Pipeline will provide the UAE with its first direct outlet for oil exports outside the Gulf and is expected to be operational by January 2011.¹⁸⁸ Nevertheless, this project is now facing a six-month delay due to design changes and is expected to be up and running by the second or third quarter of 2011.¹⁸⁹ By connecting Abu Dhabi's biggest onshore oilfields at Habshan to oil storage and export facilities on Fujairah's coast, the pipeline will allow up to 1.5 million barrels per day (bpd) of UAE crude exports, more than half the nation's 2.8 million bpd production capacity, to detour the Strait of Hormuz.¹⁹⁰

An existing and operational pipeline in the Gulf region is the 745 mile long Petroline, also known as the East-West Pipeline.¹⁹¹ It was built across Saudi Arabia from Abqaiq to the Red Sea port of Yanbu to divert oil transportation from the Hormuz Strait and has the capacity to ship five million bpd.¹⁹² Other alternative routes could include the deactivated 1.65 million bpd Iraqi

¹⁸⁵ World Tribune, *Gulf State Pipelines Would Bypass Iran's Straits of Hormuz* (2007) World Tribune.com <<http://www.worldtribune.com/worldtribune/07/front2454181.002083333.html>>.

¹⁸⁶ Ibid.

¹⁸⁷ Tamsin Carlisle, *Abu Dhabi to Fujairah Pipeline to be Completed Next Year* (2009) The National <<http://www.thenational.ae/article/20090505/BUSINESS/705059789/1050/rss>>.

¹⁸⁸ Ibid.

¹⁸⁹ Stanley Carvalho and Amena Bakr, *UAE's Habshan-Fujairah Pipeline Faces Delay-sources* (2011) Reuters <<http://www.reuters.com/article/2010/10/07/ipic-emirates-pipeline-idUSLDE6961HK20101007>>.

¹⁹⁰ Tamsin Carlisle, *Abu Dhabi to Fujairah Pipeline to be Completed Next Year* (2009) The National <<http://www.thenational.ae/article/20090505/BUSINESS/705059789/1050/rss>>.

¹⁹¹ Anthony H. Cordesman, 'Iran, Oil and the Strait of Hormuz' (Center for Strategic and International Studies, 2007), 1-7; US Energy Information Administration, *Saudi Arabia: Oil Exports and Shipping* (2009) US Energy Information Administration <http://www.eia.doe.gov/emeu/cabs/Saudi_Arabia/OilExports.html>.

¹⁹² Anthony H. Cordesman, 'Iran, Oil and the Strait of Hormuz' (Center for Strategic and International Studies, 2007), 1-7.

Pipeline across Saudi Arabia and the 0.5 million bpd tapline to Lebanon.¹⁹³ Oil could also be pumped north to Ceyhan in Turkey from Iraq.¹⁹⁴ Nevertheless, despite these pipeline alternatives, the bulk of oil from the Persian Gulf is still being transported through the Hormuz Strait.

These current practices of transporting oil via pipelines show that this method is economically and technologically feasible.¹⁹⁵ Although the TPP is viewed as a viable option, it has been criticised by some commentators. Firstly, it has been pointed out that coastal waters are generally shallow near Peninsular Malaysia, making it difficult for large tankers to dock.¹⁹⁶ Even worse, monsoon rains degrade the sea conditions along the Kelantan coast where Bachok is located. Secondly, unlike the terrain in the Middle East which mostly consists of desert lowlands, the northern parts of Peninsular Malaysia that the pipelines will cross are covered with thick jungle in the midst of highlands.¹⁹⁷ Therefore, the construction of the pipeline would be more intricate. Oil would have to be pumped up the 2,000 metre high Titiwangsa Mountains using a part of the transported oil to supply the necessary power for pumping.¹⁹⁸ Thirdly, the TPP project could have an adverse environmental impact should there be a leakage of oil at any part of the line. This would then affect Malaysian groundwater and worse, fire could occur along the length of the pipeline should such leakages occur.¹⁹⁹ Fourthly, the TPP could directly and indirectly pose a threat to the security of the nation should there be sabotage or a terrorist attack on the pipeline.²⁰⁰

Other challenges in realising the TPP include:

¹⁹³ US Energy Information Administration, *World Oil Transit Chokepoints* (2008) US Energy Information Administration <http://www.eia.gov/cabs/world_oil_transit_chokepoints/Full.html>.

¹⁹⁴ Ibid.

¹⁹⁵ Mohd Hazmi bin Mohd Rusli, 'Attempts to Seek Alternative Routes to the Straits of Malacca and Singapore' (2010) 1(1) *Journal of Maritime Geopolitics and Culture*, 8-13.

¹⁹⁶ Julien Levesque, *Bypassing the Malacca Straits* (2008) Institute of Peace and Conflict Studies <<http://ipcs.org/article/southeast-asia/bypassing-the-malacca-straits-2561.html>>.

¹⁹⁷ Ibid.

¹⁹⁸ Ibid.

¹⁹⁹ Jon Azman, 'The Malaysian Trans Peninsular Pipeline Project: Something Is Not Quite Right, Let's Go Back to Basic Arithmetic' (2007) 14(2) *MIMA Bulletin*, 27-31.

²⁰⁰ Nazery Khalid, 'The Trans-Peninsula Pipeline Project: Prospects and Potential Effects on the Straits of Malacca' (Paper presented at the 6th MIMA Conference on the Straits of Malacca: Charting the Future, Kuala Lumpur, 2009), 78-91.

- (a) *Difficulties in attracting investment for the project.* With the ongoing fluctuations in global oil prices, it may be difficult to attract investors, such as the shippers and oil companies, to participate in financing the project.²⁰¹ Nevertheless, the interest of China is especially noteworthy. China's emergence as an economic giant has made it a keen supporter of this project.²⁰² The creation of an alternative east-west energy route to the Straits of Malacca and Singapore would be in China's economic and strategic interest as a nation which is dependent on imported oil.²⁰³ Similarly, Japan and South Korea's support of the project would be in keeping with their strategic interest in securing the passage of their oil imports.²⁰⁴
- (b) *Uncertainties in the current global oil prices.* The current uncertainty over global oil prices is likely to affect the demand for oil from East Asian nations.²⁰⁵ The price of oil dropped from US \$147.27 per barrel on 11 July 2008 to US \$30 per barrel in early 2009,²⁰⁶ and is predicted to rebound to US \$100.00 per barrel by the end of 2011.²⁰⁷ Demand has declined in major export-driven East Asian economies such as Japan, China, Korea and Taiwan, where manufacturers are scaling back production as global demand for their products slumps, and consumers are suffering a recession.²⁰⁸ With less demand coming from East Asia, the TPP would likely no longer be a viable project.
- (c) *Lack of an economic justification to bypass the Straits of Malacca and Singapore to ship oil to the east.* While logic would dictate that the TPP could reduce the volume of

²⁰¹ Ibid., 82-87.

²⁰² Ibid.

²⁰³ Ibid.

²⁰⁴ Ibid.

²⁰⁵ Ibid.

²⁰⁶ Ibid.

²⁰⁷ Rowena Mason, *Oil Hits Two Year High as Analysts Predict \$100 a Barrel in 2011* (2011) The Telegraph <<http://www.telegraph.co.uk/finance/oilprices/8113846/Oil-hits-two-year-high-as-analysts-predict-100-a-barrel-in-2011.html>>.

²⁰⁸ Nazery Khalid, 'The Trans-Peninsula Pipeline Project: Prospects and Potential Effects on the Straits of Malacca' (Paper presented at the 6th MIMA Conference on the Straits of Malacca: Charting the Future, Kuala Lumpur, 2009), 82-87.

shipping traffic in the Straits of Malacca and Singapore, there are still a number of factors that demonstrate that there is actually no need to bypass the Straits. Firstly, in the event of a blockade of the Straits of Malacca and Singapore, either due to accidents involving tankers or other reasons, the Sunda and Lombok–Makassar Straits routes would be available as more expensive, but reliable, alternatives.²⁰⁹ Secondly, although traffic congestion in the Straits of Malacca and Singapore is increasing, the existence of state-of-the-art navigational safety facilities along the Straits would ensure the safe passage of vessels plying the waterways. Thirdly, recent records have shown that piracy activities have dropped significantly in the Straits of Malacca and Singapore. Therefore, there would be no need to transport oil via the pipeline to avoid pirate attacks. Fourthly, it is not entirely clear whether oil shipment using the TPP would be cheaper than shipping via the Straits of Malacca and Singapore.²¹⁰ Certain commentators argue that voyage times and shipping costs could be reduced if oil companies opted to use the TPP once it is ready.²¹¹ Nevertheless, it should be kept in mind that plying the Straits of Malacca and Singapore does not incur transit fees for mariners, while shipment fees will be imposed should they choose to use the TPP. Until the costs and benefits of using the TPP are completely evaluated, the economic justification to bypass the Straits of Malacca and Singapore to ship oil via the TPP cannot be finally established.

Nevertheless, a preliminary cost-benefit analysis has predicted that the TPP would certainly reduce oil transportation costs from the Middle East to China.²¹² Chinese oil tankers need 21 days to travel from China to the Middle Eastern oil terminals.²¹³ When the pipeline is fully operational, these vessels will only need to sail to Kelantan in Malaysia to collect their crude oil needs,²¹⁴ a journey of approximately 7 days as compared to 21 days to the Middle East.²¹⁵ The

²⁰⁹ Ibid.

²¹⁰ Ibid.

²¹¹ Ibid.; Jon Azman, 'The Malaysian Trans Peninsular Pipeline Project: Something Is Not Quite Right, Let's Go Back to Basic Arithmetic' (2007) 14(2) *MIMA Bulletin*, 27-31.

²¹² Ainul Asniera Ahsan, 'Malaysia bakal jadi 'Serambi OPEC Asia Timur'.' *Utusan Malaysia* (Kuala Lumpur), 2007 <<http://library.kdn.gov.my/documents/OPEC%20Asia%20Timur.pdf>>.

²¹³ Ibid.

²¹⁴ Ibid.

cost of using the TPP would therefore be much cheaper, and this could reduce shipping costs up to US \$1.35 per barrel.²¹⁶

Putting all these criticisms aside, if the TPP does become a reality, the littoral States, particularly those of the Strait of Malacca, may have strong reasons to limit the traffic that goes through this waterway as there is now an alternative route. The littoral States of the Strait of Malacca, Malaysia and Indonesia, could discuss the issue of traffic limitation with relevant stakeholders and interested users of the Strait of Malacca and reach agreements with them that should they opt to use the TTP, the Strait would be off-limits to their vessels, particularly oil tankers and VLCC.²¹⁷ One argument might be that this would not be against the spirit and intent of the LOSC as Article 311(3) allows two or more State parties to modify or suspend the operation of provisions of the LOSC, solely between themselves. Article 311(3) provides:

Two or more State Parties may conclude agreements modifying or suspending the operation of provisions of the Convention, applicable solely to the relations between them, provided that such agreements do not relate to a provision derogation from which is incompatible with the effective execution of the object and purpose of this Convention, and provided that such agreements shall not affect the application of the basic principles embodied herein, and that the provisions of such agreements do not affect the enjoyment by other parties of their rights or the performance of their obligations under this Convention.

Therefore, the littoral States and the interested States and stakeholders could enter into an agreement or agreements to suspend the application of Part III of the LOSC to their oil tankers and VLCC as far as the Strait of Malacca is concerned, should they opt to use the pipeline.²¹⁸ However, it is anticipated that such agreements would be criticised by States that champion the concept of free transit in straits used for international navigation. They may contend that this

²¹⁵ Ibid.

²¹⁶ Ibid.

²¹⁷ Mohd Hazmi bin Mohd Rusli, 'Attempts to Seek Alternative Routes to the Straits of Malacca and Singapore' (2010) 1(1) *Journal of Maritime Geopolitics and Culture*, 8-13.

²¹⁸ Mohd Hazmi bin Mohd Rusli, 'Shipping Controls in the Malacca Strait: Has the Strait Reached an Environmental Tipping Point' (Paper presented at the 7th Asian Law Institute Conference, Kuala Lumpur, Malaysia, 2010).

would be against the spirit of the LOSC that prescribes the application of transit passage regime in almost all straits in the world. They may also assert that arrangements of this nature are likely to violate the basic principle embodied in the LOSC relating to the right of unimpeded passage through straits used for international navigation.

Launched in 2007, the TPP project was initially expected to be fully operational by the end of 2012.²¹⁹ Nevertheless, it has experienced many challenges and difficulties in realisation owing to the recent global economic crisis and internal conflicts within the promoter company, the Trans-Peninsula Petroleum Sdn. Bhd.²²⁰ In 2010, the Malaysian government cancelled the approval in principle that it had awarded to Trans-Peninsula Petroleum Sdn. Bhd. due to the internal conflicts within the company that had delayed the development of the project.²²¹ Currently, Trans-Peninsula Petroleum Sdn. Bhd. is no longer heading the TPP project.²²² The contractors of the TPP, Ranhill Engineers and Constructors Sdn. Bhd. are waiting for further development of the proposed project given that the Master Alliance Agreement between the contractors of the project has lapsed.²²³ Following these difficulties, the Malaysian government is reviewing the TPP²²⁴ but has not declared any intention to cancel the project.²²⁵

In relation to the TPP project, China has also planned to build an oil pipeline from Maday Island in Myanmar to Rulli in Yunnan, China, to reduce its vulnerability due to imported oil shipped via

²¹⁹ Maryam Jahanshahi, *Asia's Energy Highways Continue to Develop at Rapid Rate* (2007) The Australian Pipeliner <http://pipeliner.com.au/news/asias_energy_highways_continue_to_develop_at_rapid_rate/012292/>.

²²⁰ KL Security Review, *Government Cancelled Trans-peninsula Oil Pipeline Project* (2010) KL Security Review <http://www.klsreview.com/HTML/2010Jan_Jun/20100430_03.html>.

²²¹ Ibid.

²²² Ibid.

²²³ Reuters, *Ranhill Berhad Updates on Master Alliance Agreement* (2010) Reuters.com <<http://www.reuters.com/finance/stocks/keyDevelopments?symbol=RANHs.KL>>.

²²⁴ Kamarul Yunus, *Government Reviewing US\$7b Pipeline Project: MB* (2009) The Straits Times <http://findarticles.com/p/news-articles/new-straits-times/mi_8016/is_20090716/govt-reviewing-us7b-pipeline-project/ai_n44447878/>; Kamarul Yunus, 'Petronas' Rapid will generate spin-off opportunities', *The New Straits Times* (Kuala Lumpur), 2011.

²²⁵ Due to the difficulties in carrying out the TPP project, plans have been mooted for this project to be taken over by a new project, which is described as the Trans Nusantara Pipeline Project. This proposed project plans to build an oil pipeline from Bagan Datoh, Perak to Bachok, Kelantan instead of Yan in Kedah. This project is still at the early stage of implementation. See Majlis Perancang Fizikal Negara, 'Agenda Mesyuarat Jawatankuasa Kawal Selia MPFN Bil. 2/2010' (MPFN Bil. 2/2010, Majlis Perancang Fizikal Negara, Malaysia, 2010).

the Straits of Malacca and Singapore.²²⁶ The project is constructed and managed by the China National Petroleum Company.²²⁷ The cost of the construction of the 793 kilometre pipeline is estimated to be around US \$2 billion, and once in operation, it is expected to carry 12 million tonnes of oil per annum.²²⁸ Like the TPP, this project is still in the early stages of construction and is scheduled for completion by March 2013.²²⁹ As long as these projects have yet to be realised, the Straits of Malacca and Singapore will continue to be indispensable oil arteries for East Asian economic giants.

10.6 CONCLUSION

This Chapter has analysed the viability of the current and future alternatives to the Straits of Malacca and Singapore. The Indonesian archipelagic routes of the Straits of Sunda, Lombok and Makassar have been identified as viable alternatives to that of the Straits of Malacca and Singapore. However, the Sunda Strait is not preferred by huge tankers because of its uneven depths, while the Lombok and Makassar route, despite being relatively easy to navigate, requires longer voyage times. Another potential route has been revealed by the likely impact of global warming, which could transform the NAP from an ice-covered and perilous waterway to a lucrative shipping route of the future. The NAP is seen as the shortest route linking Europe and East Asia. However, as far as transporting oil from the Middle East to the East Asian nations is concerned, the NAP is unlikely to be a viable route for shipments compared to the existing Straits of Malacca and Singapore route.

The proposed Thai Canal is considered to be one of the best solutions to reduce the heavy maritime traffic in the Straits of Malacca and Singapore. The Canal, which will cut through the

²²⁶ China Daily, *CNPC to Build, Run China-Myanmar Oil Pipeline* (2009) China Daily <http://www.chinadaily.com.cn/china/2009-12/21/content_9209811.htm>; Earthrights International, 'The Burma-China Pipelines: Human Rights Violations, Applicable Law, and Revenue Secrecy' (Situation Briefer No. 1, Earthrights International, 2011), 1-4.

²²⁷ China Daily, *CNPC to Build, Run China-Myanmar Oil Pipeline* (2009) China Daily <http://www.chinadaily.com.cn/china/2009-12/21/content_9209811.htm>.

²²⁸ Earthrights International, 'The Burma-China Pipelines: Human Rights Violations, Applicable Law, and Revenue Secrecy' (Situation Briefer No. 1, Earthrights International, 2011), 3.

²²⁹ Ibid.

Malay Peninsula, could provide the shortest route from the Andaman Sea to the Gulf of Thailand. However, this project is still in its initial stages of implementation. Furthermore, the Malaysian government has its own plan to divert traffic from the Straits of Malacca and Singapore. The TPP project, which was approved in 2007, requires oil pipelines to be constructed across the jungles of Kedah, Perak and Kelantan in northern Malaysia. Although it is thought to be economically feasible, this project has been criticised for its impracticalities and is currently at a standstill. Both the Thai Canal and the TPP, if realised, appear to be the best alternatives for diverting shipping traffic away from the Straits of Malacca and Singapore.

This Chapter submits that at the moment, among the alternatives discussed, only the Indonesian archipelagic straits are available for ships sailing from the west to the east and vice versa. However, shipping companies may still favour the Straits of Malacca and Singapore over the Indonesian archipelagic straits due to the shorter navigation time required via this route. In conclusion, as long as the other alternatives are pending, the Straits of Malacca and Singapore will continue to be navigated by a steadily increasing volume of shipping traffic in the years to come. Without viable alternatives, the proposed implementation of the future environmental measures elucidated in Chapters 8 and 9 will remain contentious.

CHAPTER 11. CONCLUSION

11.1 INTRODUCTION

This Thesis has the primary objective of showing that the current international legal framework on marine environmental protection of the Straits of Malacca and Singapore has placed the littoral States in a disadvantaged position as far as enforcement jurisdiction is concerned. The second objective of this research is to propose potential legal and policy measures to improve the protection of the marine environment of the Straits of Malacca and Singapore. Structured into eleven chapters, this Thesis has attempted to fulfil these objectives, as elaborated in the following sections of this chapter.

11.2 NAVIGATIONAL REGIMES IN THE STRAITS OF MALACCA AND SINGAPORE

Chapter 2 of this Thesis began its discussion with a brief historical, demographic and economic profile of the Straits of Malacca and Singapore. Besides being rich in biodiversity, the importance of the Straits of Malacca and Singapore to the well-being of the economies of the littoral States is overwhelming, particularly for their fishing, marine tourism and shipping industries. The Straits of Malacca and Singapore have served as two of the most important shipping routes in the world for at least a millennium and they continue to enjoy this reputation until the present day. With the developing economies of Southeast and East Asian nations, shipping traffic in the Straits of Malacca and Singapore is anticipated to steadily increase in future years.

Chapters 3 and 4 of this Thesis dealt with issues pertaining to the legal status of straits used for international navigation. Chapter 3 focused on historical developments in defining the legal status of straits used for international navigation, while Chapter 4 described the application of the transit passage regime. Chapter 4 established that the transit passage regime ensures that foreign vessels enjoy the right to unimpeded transit passage and not freedom of navigation when sailing via Straits of Malacca and Singapore.

11.3 POLLUTION ISSUES

The key issue examined in Chapter 5 is the pollution problem faced by the Straits of Malacca and Singapore. Currently, the Straits are pressured by pollution problems primarily caused by land-based sources of pollution as well as vessel-source discharges of oil and wastes. As two of the busiest shipping chokepoints world-wide, the issue of vessel-source pollution is endemic in the Straits of Malacca and Singapore. The presence of many navigational hazards has made it difficult for mariners to navigate through these waterways, hence increasing the risks of accidents.

The high population density in areas situated along the coasts bordering the Straits of Malacca and Singapore further aggravates this situation. The intense human activity in these areas has an adverse impact on the well-being of the marine environment of the Straits. Section 5.2.1 of Chapter 5 elucidated that certain rivers feeding into the Strait of Malacca, especially those that originate from the Malaysian states and Indonesian provinces that border the Straits, are badly polluted. Research has proven that the effect of land-based pollution on the marine environment is much greater than that of vessel-source pollution. As mentioned in Chapter 5, the World Wildlife Fund (WWF) stipulated that 80 per cent of global marine pollution comes from land-based activities. Therefore, it is arguable that shipping activities cannot be totally blamed for the deterioration in the marine environment of the Straits of Malacca and Singapore. However, this assertion may not be entirely true when viewed from an enforcement standpoint.

The littoral States of Malaysia, Indonesia and Singapore have full powers to regulate land-based sources of marine pollution as they possess full sovereignty over their respective land territories. The littoral States may pass laws and regulations and introduce measures to deal with land-based sources of marine pollution without having to adhere to generally accepted laws and regulations prescribed by international law. For example, Singapore has successfully managed to develop a modern waste management and disposal system that is effective in decreasing the discharge of land-based sources of pollution into the sea within that city-State. Malaysia and Indonesia are following in Singapore's footsteps by developing modern and effective waste disposal systems in order to tackle the land-based pollution problems in their respective countries. Unlike the

management of land-based sources of marine pollution, the littoral States have no absolute powers when it comes to regulating vessel-source pollution, especially in their respective territorial seas within the Straits of Malacca and Singapore. Their legislative powers in this regard are constrained by the application of Parts III and XII of the LOSC, which provide that they may only pass laws and regulations that are consistent with generally accepted international laws and regulations. Therefore, Chapter 5 of this Thesis has established the fact that vessel-source pollution cannot be strictly regulated and continues to be an issue of concern, along with land-based sources of marine pollution.

11.4 THE INTERNATIONAL LEGAL FRAMEWORK

Due to the pressures of pollution, it is important to examine the international legal framework on the protection of the marine environment of straits used for international navigation from vessel-source pollution. Chapter 6 focused on this matter. The LOSC is the main body of law constituting the international legal framework for safety of navigation and the control of vessel-source pollution in the Straits of Malacca and Singapore. The LOSC is supplemented by a variety of IMO-sponsored conventions.

Part III of the LOSC describes the application of transit passage, whilst Article 233 of Part XII of the LOSC provides safeguards concerning the marine environment applicable to straits used for international navigation. The already limited regulatory powers conferred by Article 42(1) (a) & (b) of the LOSC are made even more limited by the application of Article 233 of the LOSC. Article 233 not only leaves States bordering straits without any precise procedural and enforcement measures to be followed in cases of marine pollution, but most importantly, is silent on the question of whether or not States bordering straits may detain and institute proceedings against foreign non-sovereign immune vessels suspected causing major pollution in their territorial straits. As a result, the application of the provisions of the LOSC and the related IMO-sponsored conventions can only be effective through the port or flag States' jurisdiction as the regulatory powers of States bordering straits have been restricted. The littoral States of the Straits of Malacca and Singapore have limited powers in regulating shipping through their territorial Straits since more than half of transiting traffic does not even call at local ports.

In ensuring that their maritime-related laws are compatible with global standards, the littoral States of the Straits of Malacca and Singapore have largely signed and ratified these IMO-sponsored conventions. Section 6.4 explained that even if the littoral States had properly incorporated these international regulations into their domestic applications, the powers of the littoral States would still remain limited as these States could only formulate laws by giving effect to accepted international regulations as provided for by Part III of the LOSC. The restriction stipulated under international law would affect the operations of the domestic legislation which are devised based on accepted international standards. Unlike the innocent passage regime, which is subject to suspension, the main restriction imposed by international law is that the littoral States have no powers to suspend or impede the passage of ships navigating through the Straits of Malacca and Singapore. Based on these arguments, Chapter 6 concluded that the current international legal framework on the protection of the marine environment of the Straits of Malacca and Singapore has placed the littoral States in a disadvantaged position as far as enforcement jurisdiction is concerned.

11.5 THE CO-OPERATION MECHANISM

Due to the limitations imposed by international law, Article 43 of the LOSC has provided a certain amount of latitude for States bordering straits in compensating their disadvantaged positions. Among the provisions of the LOSC, Article 43 is unique in the way that it encourages States bordering straits to co-operate with user States in working towards ensuring safety of navigation and the protection of the marine environment. As discussed in Chapter 7, Article 43 has also been responsible for the establishment of co-operation mechanisms between the littoral States and user States to ensure that the Straits of Malacca and Singapore are safer for international shipping activities.

Chapter 7 explains that the littoral States have worked closely through the TTEG, the IMO and Japan to promote a safer shipping environment in the Straits of Malacca and Singapore. In 2007, the Co-operative Mechanism was officially established, comprising three bodies, the Co-operation Forum, the PCC and the Aids to Navigation Fund. This framework for co-operation

was a historic advance on the regime for the management of the Straits which, for the first time, put Article 43 of the LOSC into practical application.

Since 2009, other user States including China, South Korea, Australia, the US, the United Arab Emirates (UAE), Saudi Arabia and India have indicated their intention to participate in the Co-operative Mechanism. Other relevant organisations and stakeholders, such as RTisa, INTERTANKO and MENAS have also indicated their interest in participating in the Co-operation Mechanism. This is a positive development towards realising a sustainable burden sharing mechanism between the user States and the littoral States. Nevertheless, as pointed in Section 7.3.2.1.3, contributions to the Aids to Navigation Fund have been somewhat disappointing, with the amounts collected in 2009, 2010 and 2011 being insufficient to cover the expenses incurred for the maintenance and replacement of aids to navigation in the Straits.

Almost all projects under the Co-operation Mechanism are aimed at providing safe navigation rather than focusing on the protection and preservation of the marine environment of the Straits. The general perception is that accidents can be avoided if there is a regime to promote safer shipping in the Straits. If accidents can be avoided, the marine environment of the Straits can be spared from unwarranted oil and other noxious substances spills. This perception may have been accurate one or two decades ago when the volume of shipping traffic was not as high. With the projected steady increase in maritime traffic in the Straits over the next decade, the importance of environmental protection and preservation schemes, beyond the perspective of the enhancement of safety of navigation in the Straits, will become apparent to the littoral States. Chapter 7 concluded by stipulating that there may be a need at some point in the future for the littoral States to impose or implement other protective measures beyond the scope of the international legal framework as established in Parts III and XII of the LOSC, either through IMO-endorsed measures or other potential unilateral measures.

11.6 POTENTIAL FUTURE MEASURES UNDER THE IMO MECHANISM

As discussed in Chapter 8 of this Thesis (Sections 8.2 and 8.3), two options that could be examined are the submission of applications for the Straits of Malacca and Singapore to be

designated as a Special Area under MARPOL and/or as a PSSA. The Straits of Malacca and Singapore potentially fit the requirements for the designation of a Special Area or a PSSA, since they fulfil the criteria needed for such a designation.

Given the fact that the Straits of Malacca and Singapore are waterways that are predominantly used to ferry oil, it has been proposed that the Straits be designated as a Special Area under Annex I of MARPOL. Such a designation would further protect the marine environment of the Straits from operational discharges of oil and oily wastes without having to control or put a cap on the number of vessels sailing these waterways. Opposition to such a proposal could be anticipated on the basis that ports along the Straits of Malacca and Singapore do not have sufficient reception facilities to qualify them for such a designation. Nevertheless, this is not entirely true as most ports along the Straits, particularly the Port of Singapore and ports along the western coast of Peninsular Malaysia, have improved considerably in terms of the availability of port reception facilities. Furthermore, given the fact that more than half of the vessels that sail the Straits do not even call at local ports, it is contended that the existing port reception facilities in the Straits of Malacca and Singapore are adequate to support their designation as a Special Area under MARPOL.

The Torres Strait was the first strait used for international navigation to be assigned the status of a PSSA. This provides a precedent for designating straits that are important maritime chokepoints, such as the Straits of Malacca and Singapore, as a PSSA. As discussed in the second part of Chapter 8, the fact that certain marine and coastal areas along the Straits of Malacca and Singapore have been designated as either UNESCO GEOPARKs, RAMSAR Sites or UNESCO World Heritage Areas would be a positive aspect in any proposal made by the littoral States to the IMO for designation of the Straits as a PSSA. Nevertheless, such a proposal may face opposition from States including the US, the UK, France, Japan and China who are heavy users of the Straits of Malacca and other straits used for international navigation. Some of these States have been, and are likely to continue to be, keen supporters of liberal navigation rights. In view of this, the littoral States would need to prepare a solid proposal incorporating cogent reasons for proposing the Straits of Malacca and Singapore as a PSSA and introducing practical APMs. Assuming that the littoral States are successful in establishing their case, there

are a number of potential APMs that they could contemplate proposing to the IMO, including a cost-recovery mechanism, a traffic limitation scheme and the imposition of compulsory pilotage in the Straits of Malacca and Singapore.

The Revised PSSA Guidelines stipulate that the proposed APMs to be imposed in a PSSA are limited to actions that either are to be, or have been approved or adopted by the IMO, and ‘any development and adoption of other measures aimed at protecting specific sea areas against environmental damage from ships, provided that they have an identified legal basis’. The APMs must also be within the competence of IMO to prevent, reduce or eliminate risks from these shipping activities. APMs may also include any measures that are yet to exist but could become available through the amendment of an IMO instrument or by the adoption of a new IMO instrument. Among these APMs, the compulsory pilotage regime is the only one that has previously been adopted by the IMO in a strait used for international navigation; the Torres Strait. As with its implementation in the Torres Strait, any proposed imposition of compulsory pilotage in the Straits of Malacca and Singapore would be aimed at promoting safer navigation in these narrow, congested shipping routes.

The two other proposed APMs, a cost-recovery mechanism and limitations on shipping numbers, have never been endorsed by the IMO for a PSSA; however, Resolution A.982 (24) provides that proposed APMs may include any measures that have yet to exist as long as they are aimed at protecting specific areas against environmental damage from ships.

The proposed cost-recovery mechanism could be promoted on the basis that a more effective co-operation scheme between the littoral States and the user States is needed as the present scheme under the Co-operative Mechanism seems to be developing slowly, particularly in relation to contributions made to the Fund. The funds collected via the cost-recovery mechanism could be used to improve navigational safety by installing state-of-the-art aids to navigation as well as undertaking projects proposed by the PCC. They could also be used to finance the Marine Electronic Highway Project, where progress has been delayed due to the global economic slowdown. These projects are aimed at promoting a safer navigational environment for ships,

which in turn helps to prevent casualties that could compromise the well-being of the marine environment of the Straits of Malacca and Singapore.

It has been predicted that shipping traffic in the Straits of Malacca and Singapore will double by 2020. Increased shipping activities will not only cause further congestion in the Straits but may also increase the risks of maritime casualties and their associated pollution. The rationale behind the proposed traffic limitation scheme as an APM is to overcome the anticipated problem of over-congestion which may further degrade the marine environment of these waterways. The safety of navigation of vessels transiting the Straits may be jeopardised if the narrow Straits must accommodate shipping traffic beyond their maximum carrying capacity. Indeed, the aims of the proposed traffic limitation scheme as an APM are two-fold; in that this would provide a safer shipping environment for mariners as well as protecting and preserving the marine environment of the Straits of Malacca and Singapore from vessel-source pollution. As this APM may be seen by some States as impeding the free navigation of vessels through the Straits, it may be seen as a measure that is more focused towards the protection of the marine environment of the Straits rather than a measure that relates specifically to improving the safe navigation of transiting vessels.

Chapter 8 of this Thesis also discussed the possible legal and political ramifications should these APMs be introduced in the Straits of Malacca and Singapore. In view of protests from maritime States such as the US and Singapore relating to Australia's imposition of compulsory pilotage in the Torres Strait, the same reaction may occur should these proposed APMs be introduced in the Straits of Malacca and Singapore. States opposed to these APMs in the Straits of Malacca and Singapore are also likely to allege that the littoral States have violated their duties under the LOSC and that the proposed APMs would unwarrantedly increase the costs of shipping.

Given the fact that it may be difficult for the littoral States to convince the IMO to designate the Straits of Malacca and Singapore as a PSSA, the littoral States could also propose that the IMO endorse these APMs as measures in a ship routing system outside the scope of a PSSA, as allowed under the LOSC through Articles 42(1) (a) and 233. However, this would also invite legal and political criticism, as the only environmental protection measures in the Straits of

Malacca and Singapore that currently fall within the scope of Articles 42(1) (a) and 233 are the TSS and the minimum under keel clearance requirements, already implemented in the Straits. In order to ensure the effective implementation of these proposed APMs, Malaysia, Indonesia and Singapore would have to develop strategies to convince the IMO and the maritime States that these new APMs should be endorsed within the scope of Articles 42(1) (a) and 233 of the LOSC as well. They would need to justify their assertions that heavy shipping activities have undermined the well-being of the marine environment of the Straits of Malacca and Singapore with established fact and scientific evidence.

11.7 POTENTIAL UNILATERAL MEASURES

Chapter 9 of this Thesis has evaluated the potential unilateral measures that the littoral States could consider should the littoral States find it difficult to obtain operate through the IMO. The reason why transit passage is exercised in the Straits of Malacca and Singapore is because the Straits are considered as one waterway. If they were to be considered as separate waterways, the Strait of Malacca would no longer be a Strait that connects one part of the high seas or an EEZ to another part of the high seas or an EEZ. Instead, it would be considered a Strait that connects one part of the high seas or EEZ to a territorial sea of a third State; that is, the territorial sea of Singapore. In legal terms, this would automatically deny the application of transit passage regime in the Strait of Malacca. As discussed in Chapter 3 of this Thesis, before the introduction of the LOSC, Singapore had consistently supported the concept of free navigation of foreign vessels through the Straits, while Malaysia and Indonesia were concerned with the issue of sovereignty and not as favourable as Singapore in supporting freedom of navigation. Hence, if Malaysia and Indonesia jointly made a declaration that the Strait of Malacca was separate from the Strait of Singapore, from their point of view the regime of non-suspendable passage would replace the transit passage regime in the Strait of Malacca. This is a stricter regime than that of transit passage, and gives the littoral States more power to regulate shipping traffic transiting the Straits.

In addition to this measure, Malaysia and Indonesia could also consider re-adopting the three nautical mile limit for their territorial seas in the Strait of Malacca. Some parts of the Strait of

Malacca are as wide as 200 nautical miles, although it narrows to 8 nautical miles towards its southern end. In legal terms, the re-adoption of the three nautical mile limit in the Strait of Malacca would leave an EEZ or a high sea corridor in the centre of this waterway. As such, transit passage regime would not be applicable for foreign vessels in the Strait since they have the right to exercise freedom of navigation within the EEZ or high sea corridor of this waterway. Within the three nautical mile limits of each side of the Strait of Malacca, the Malaysian and Indonesian authorities could then exercise greater power in the regulation of shipping under the regime of innocent passage and thus create an environmental buffer zone within these limits. These two possible unilateral measures could be imposed by the littoral States of the Strait of Malacca; however, both potential measures have certain shortcomings.

With respect to the first measure, the declaration of the Strait of Malacca and the Strait of Singapore as separate waterways, it is highly likely that this declaration would be opposed and not observed by most maritime States as the Straits of Malacca and Singapore have for many years been accepted by both their littoral States and maritime States as straits used for international navigation where the transit passage regime applies. Furthermore, this fact is reiterated by the agreement made via the Joint Statement of 1971 by the three littoral States that the Straits of Malacca and Singapore are to be considered as one as far as maritime navigation is concerned. Hence, this can be seen as the basis of the acceptance of the littoral States to be bound by the provisions of Part III of the LOSC.

On the second measure, the re-adoption of the three nautical mile territorial sea limit, the governments of both Malaysia and Indonesia would not necessarily be in favour of this option since it involves renunciation of their sovereignty over a considerable area within the Straits; which may be seen as too excessive a measure to undertake in order to obtain greater regulatory power over ships sailing the Strait of Malacca. This potential measure may also be strongly condemned by maritime State, which may accuse Malaysia and Indonesia of attempting to impede the right of transit passage of foreign vessels via both the Strait of Malacca and the Strait of Singapore. Chapter 9 concluded by reiterating that unless and until viable alternative shipping routes to the Straits of Malacca and Singapore can be determined, the proposed implementation of the future measures discussed in Chapters 8 and 9 will face considerable controversy.

11.8 CONCLUSION

It is an indisputable fact that the Straits of Malacca and Singapore are important waterways for shipping activities as well as many other industries. However, despite their importance, there are many weaknesses in the current legal framework for regulating the safety of navigation and the control of vessel-source pollution in these crucial waterways. Part III and Part XII of the LOSC have put their littoral States in a disadvantaged position, by favouring shipping over the protection of the marine environment of the Straits. As far as straits used for international navigation are concerned, the implementation of international IMO conventions on the control of vessel-source pollution can only be effectively regulated through port or flag State jurisdiction.

This Thesis, through Chapters 8 and 9, has attained its second objective by proposing several solutions to this problem, particularly in terms of enhancing the enforcement powers of the littoral States to enable them to protect and preserve the marine environment of the Straits of Malacca and Singapore from vessel-source pollution. These solutions include the proposals to designate the Straits of Malacca and Singapore as a Special Area under MARPOL 73/78 and a PSSA, as well two unilateral measures that the littoral States could consider adopting. In further protecting the marine environment of the Straits from vessel-source pollution, the littoral States should seriously consider proposing the Straits as a Special Area.

Furthermore, this Thesis submits that the traffic limitation scheme under the proposed PSSA regime would be the most appropriate measure to govern the current and future traffic situations in the Straits. The littoral States may need to undertake in-depth research into this matter, as this measure could directly or indirectly impede the right of free transit of foreign vessels in the Straits. As far as the unilateral measures are concerned, it is submitted that the re-interpretation of the Straits as two separate straits is more legally and practically feasible over the re-adoption of the three nautical mile limit. The latter would involve the renunciation of territorial sea limits, which would not be seen as an ideal measure. The proposed application of the non-suspendable innocent passage regime will not only guarantee non-suspendable passage for foreign vessels, but at the same time will strengthen the regulatory powers of the littoral States to regulate shipping transit within the Strait of Malacca.

In order to lessen traffic pressure on the Straits of Malacca and Singapore, mariners and shippers should be provided with viable alternatives to these critical waterways. Among the most viable alternatives are routes through the Indonesian archipelagic straits, namely the Sunda, Lombok-Makassar and Ombai-Wetar Straits. Nevertheless, due to their unfavourable geographic locations, sailing via these Indonesian straits would translate into large increases in the costs of shipping and hence, this is a less preferred option.

As discussed in Chapter 10 of this Thesis, there are also future alternative routes such as the Northeast Arctic Passage (NAP), the proposed Thai Canal Project and the proposed Transpeninsula Pipeline Project (TPP). Even though the NAP may be a viable future maritime highway linking Europe and East Asia, it is however, not an economically viable route for the transport of oil between the Middle East and East Asia. The Thai Canal and the TPP, on the other hand, are among the projects aiming towards diverting traffic away from the Straits of Malacca and Singapore.

Once these projects are operative, the shipping scenario in the Straits will inevitably change; ships will continue to navigate the Straits but their numbers are expected to decrease from the current high volume of traffic. The proposed implementation of the future environmental protection measures discussed in Chapters 8 and 9 would likely be less contentious if these alternative routes were available. Until then, the most practical way to balance the interests of shipping and the protection of the marine environment of the Straits of Malacca and Singapore is by promoting support of the existing Co-operative Mechanism. Undeniably, if equitable balance between the needs of shipping and those of environmental protection could be attained, it would ultimately be more feasible to realise the vision of promoting sustainable development in the Straits of Malacca and Singapore; two of the most significant global shipping arteries, priceless maritime heritage of the world.

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