NEW SECURITY CHALLENGES
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Maritime Security Risks, Vulnerabilities and Cooperation

Uncertainty in the Indian Ocean

Lee Cordner

New Security Challenges

Series editor
George Christou
Dept. of Int. Relations
University of Warwick
Coventry, UK

I commend Lee Cordner for this project. The Indian Ocean region is crucial to our security and prosperity. This book provides unique and useful insights into maritime security and policy challenges in a region that lacks established security architectures that we deal with in other parts of the world.

—Ray Griggs, *Vice Chief of the Defence Force (VCDF), Australia*

The last decade has demonstrated that threats to security vary greatly in their causes and manifestations and that they invite interest and demand responses from the social sciences, civil society, and a very broad policy community. In the past, the avoidance of war was the primary objective, but with the end of the Cold War the retention of military defence as the centrepiece of international security agenda became untenable. There has been, therefore, a significant shift in emphasis away from traditional approaches to security to a new agenda that talks of the softer side of security, in terms of human security, economic security, and environmental security. The topical New Security Challenges series reflects this pressing political and research agenda.

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Maritime Security Risks, Vulnerabilities and Cooperation

Uncertainty in the Indian Ocean

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Lee Cordner
University of Adelaide
Kiama, New South Wales, Australia

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Foreword

The book that you hold in your hands could not have been written by just anyone. Combining a naval officer's grasp of maritime power with a mariner's fund of nautical expertise and the analytical rigour of a scholar, the author, Dr. Lee Cordner, formerly a Commodore in the Royal Australian Navy, has brought to bear a lifetime's accumulation of expertise on a vexed but topical issue—Indian Ocean maritime security.

While doing so, he has also taken a giant leap of faith and attempted a new, and path-breaking, approach to an old problem. Having evolved a 'risk, vulnerability and security' analytical framework, he has ventured to develop fresh maritime security policy options for the Indian Ocean region (IOR). The author's unique 'tool-kit' includes, among much else, ISO Standard 31000:2009, which provides guidelines on risk management, and German sociologist Ulrich Beck's 'risk society' theory, which is a systematic way of dealing with "hazards and insecurities induced and introduced in society by modernization". He also uses a painstakingly derived definition of 'vulnerability', as "the state of susceptibility to harm from exposure to risks posing unquantifiable uncertainty combined with insufficient capacities to prevent, prepare, respond or adapt".

As the author admits, applying risk management processes to a complicated international scenario presents daunting challenges—especially in the diverse and largely incoherent Indian Ocean context. Since the IOR has no clearly identified regional organization, he reasons that a workable basis for defining the risk context and conducting risk assessments would involve viewing the IOR as a 'virtual organization'. In such an open system, the participants would, presumably, have mutually shared objectives,

as well as common risks and vulnerabilities, which, he hopes, will accentuate the need for collective risk treatment and vulnerability reduction efforts.

The author examines the IOR maritime risk context, across a 30-year time horizon, seeking to evolve integrated approaches to attainment of common objectives. In the process, he derives 15 generic 'strategic objectives' for the IOR, spanning the full spectrum of maritime security—starting from relatively mundane objectives such as 'maintaining maritime territorial sovereignty' and 'assuring freedom of navigation' to more ambitious ones, such as 'addressing the uneven effects of globalization', 'establishing a nuclear weapons free zone' and 'encouraging political order in IOR states'.

As one follows the author's persuasive arguments about the shared destiny of Indian Ocean nations, and the "need to put aside traditional enmities to deal with existential risks to humanity", one has to pause and ask why the IOR has no regional organization, and why has it remained 'diverse and incoherent'? Perhaps no one is better placed to address these questions than an Indian.

The discovery of sea routes across the Indian Ocean in the late fifteenth century made the region, for the next 500 years, virtually a European monopoly, where trading nations, paying scant heed to Asian civilizations, cultures and races, engaged in a relentless quest for spice and specie. It is an Asian belief that, despite an ancient maritime tradition, they became laggards at sea—for want of technology as well as for the lack of enterprising princes, merchants and sailors.

Historically, the spread of Hinduism and Buddhism, from their birthplace in India, across Southeast and East Asia was facilitated by an Indian seafaring tradition going back to the pre-Christian era. The coming of Islam, in the seventh century, further enhanced maritime interaction, because, in the words of historian Robert Kaplan, it "encouraged intermingling and co-existence, communal prayer and haj pilgrimages". Having carried trade, religions, cultures and people, for centuries, the waters of the Indian Ocean had thus been a strong unifying factor for this region. This osmotic process was disrupted because the exploitative and mercantilist interests of the colonialists, focused on the prosperity of their own people, required the suppression of native industry as well as of trade. The strategic importance of this region was, therefore, downplayed, and most in the West saw the Indian Ocean simply as an economic thoroughfare, criss-crossed by sea lanes, carrying their vital commerce.

The United States, which succeeded Britain as the predominant Indian Ocean power, remained focused on the security of Middle East oil and the containment of Communism, and confirmed the IOR's status as a strategic backwater by splitting this part of the world between three geographical US Combatant Commands, whose tri-junction pierces the heart of the Indian Ocean.

In the post-colonial era, however, a major share of blame for the IOR not acquiring its own identity must be accepted by those who live on its shores. Not only has the level of intra-regional trade and political interaction remained low, but IOR nations have invariably gone beyond the region to seek partners. As the largest IOR nation and economy, India must accept its part of the responsibility. This calls for a brief look at India's own stance towards the IOR, post independence.

In the mid-1960s, the impending withdrawal of the Royal Navy from East of Suez aroused fears, in New Delhi, of an IOR 'power vacuum' that the United States and the USSR would rush to fill, and prompted the mooting of a proposal for an Indian Ocean Zone of Peace (IOZOP). Formalized by a UN resolution of December 1971, the IOZOP was, largely, ignored by the 'Big Two'. India's earnest endeavours to keep extra-regional powers out of the IOR were, however, seen by some of its smaller neighbours as a stratagem to buttress its own position as the sole regional hegemon.

The IOZOP died a natural death but left India wary of taking any further regional initiatives. India's ill-conceived military intervention in Sri Lanka's civil war, between 1987 and 1990, prompted accusations of 'big-brotherly' behaviour and the secret existence of an Indian Monroe Doctrine, further reinforcing India's chariness about regional enterprises.

With the end of the Cold War and the globalization of India's economy, its foreign policy has undergone a pragmatic reorientation. The 1998 nuclear tests and the 2005 Indo–US nuclear deal resulted in a fundamental transformation of India's relationships with America, Russia and the West. The detritus of the non-alignment era has been swept away, with the only remnant being the elusive holy grail of 'strategic autonomy'. However, the political indecisiveness and diplomatic lassitude that continue to prevent India from taking bold initiatives to coalesce and galvanize the IOR are of concern, especially in the face of major politico-economic and military inroads being made by China.

Here, we need to note that, unlike most other regions of the world, Asia has, historically, lacked forums and institutions which could facilitate

dialogue, or help create a cooperative response to developments affecting the whole region. At this moment, there is no security architecture in the IOR because regional diversity, combined with chauvinistic self-interest, has prevented formation of pan-Asian institutions which could facilitate dialogue, or help create cooperative responses. While Asia-Pacific groupings and organs such as ASEAN, APEC, ARF and ADMM+ have been success stories, IOR endeavours such as SAARC, IORA, IONS and BIMSTEC have, for various reasons, languished.

There is, however, no denying that most challenges in the IOR demand a collective response. To take just two examples, even as the shipping world was breathing a sigh of relief at the subsidence of IOR piracy, this scourge has reared its ugly head, once again, off Somalia. The commendable international anti-piracy response remained suboptimal, because much of the initiative was extra-regional, and given the huge challenges of time and space, it was also deficient in platforms as well as in coordination. One is also painfully aware of how prone the IOR is to natural disasters. Given the scale of effort and level of expertise required, most nations cannot hope to cope with the sheer magnitude of natural catastrophes on their own. But pooling of resources for a multinational effort could save lives and limits damage.

It is this Indian Ocean stasis and impasse that Dr. Cordner boldly attempts to resolve through the risk–vulnerability paradigm, which offers "non-threatening and non-confrontational means for considering common security concerns, and for developing cooperative ends". Having listed out 15 objectives, Cordner goes on to tabulate 19 IOR maritime strategic security risks. He then draws up a composite 'risk matrix' that combines the strategic objectives with the strategic risks, providing an illuminating overview that highlights discontinuities and areas of convergence, as well as opportunities for collective risk mitigation efforts.

Risk-based approaches to developing strategic-level organizational solutions have long been successfully employed, but only in the worlds of finance and industry. Therefore, one cannot help admiring the audacity of thought that impelled Dr. Cordner to attempt this approach in the maritime security domain. Ploughing a lonely furrow, he has pursued this unique project with dedication, bringing new tools and techniques to bear on what has, so far, seemed an intractable issue. Rather than simply analysing the problems, he provides tabular matrices, as well as detailed and calculative reasoning for the policy approaches and solutions he recommends.

This book provides rich food for thought for policy advisers, security professionals and academic researchers alike, and is bound to make a significant contribution to Indian Ocean regional maritime security. Most importantly, it lays out the logic and the framework for an action plan for regional decision-makers to adopt. One fervently hopes that they will find the time and capacity to note Dr. Cordner's sage advice and fulfil his belief that "[t]he idea of a shared destiny in the Indian Ocean and the need to put aside traditional enmities to deal with existential risks to humanity should compel decision makers to act".

Dabolim, Goa, India, May 2017

Admiral Arun Prakash (Retd),
Indian Navy

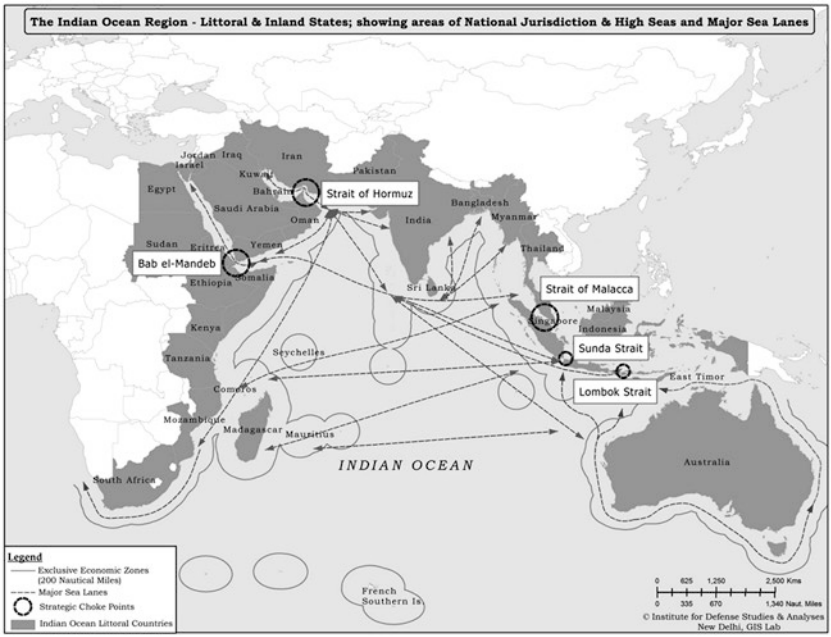

Fig. 1 The Indian Ocean region—littoral and inland states: areas within national jurisdiction and the high seas, and major sea lanes. (Map prepared by GIS Lab, Institute for Defence Studies and Analyses, New Delhi, India. Published with permission.)

Preface

The Indian Ocean went largely unnoticed in the global geopolitical discourse until recently. The region was mainly seen as a strategic backwater, a thoroughfare for maritime trade in transit elsewhere—primarily East Asia or Europe. In the 'Asian Century', the Indian Ocean has grown in strategic importance to become an arena for competition between the Asian great powers. The interests of regional and extra-regional actors significantly converge at sea. The regional sea lines of communication have emerged as the world's most important, vital to global and regional energy and economic security. Environmental security in the Indian Ocean, profoundly impacted by climate change, is forecast to inflict the greatest human and ecological tragedies of the modern era—and the region is poorly prepared to respond. Although maritime domain security in the Indian Ocean is rising in importance, regional cooperative and collective security arrangements are at a nascent stage. Associated with this is an acute lack of region-wide policy-level research, particularly with a maritime security focus. This book is intended to contribute to filling the lacunae.

The book is written for decision-makers, policy advisers, professionals and academic researchers. It comes from my perspective as a strategic policy analyst, seafarer, naval commander and academic researcher deeply immersed in the Indian Ocean maritime security context. During many years at sea, I sailed the length and breadth of the Indian Ocean. I also benefited from time ashore working with regional navies, policy advisers and academics. This included significant operational experience in West Asia (the Middle East) and Southeast Asia, plus opportunities to undertake

research and build networks in India, Pakistan, Singapore, South Africa, the United States and elsewhere in the Indo-Pacific. An informed understanding of strategic outlooks concerning the Indian Ocean rim can only be achieved by spending time there. I have also had the privilege of gaining insights into the viewpoints of major industry players in my work as a political risk analyst, mainly with the resources sector, and while working on offshore oil and gas safety and security.

A pragmatic line is taken in the book that recognizes the difficulties the incoherent regional and subregional political environment poses in advocating practical solutions that can enhance regional maritime security. The analysis is from a whole of Indian Ocean regional standpoint. It seeks to identify mutual maritime security issues and outcomes for regional and extra-regional actors, rather than focusing upon individual states such as the United States, China or India, as is often the case.

In my earlier academic research, I was struck by the intellectual divisions between the worlds of international studies, defence strategy and security, environment and business. Each academic and conceptual area had largely evolved in separate silos, yet they have much in common. There is a pressing need for better understanding and closer collaboration, particularly in a globalized context. There needs to be greater cooperation between the various communities operating in the international maritime policy domain; the communities can learn much from each other—false conceptual partitions are unhelpful.

For collaboration to improve, communication needs to be enhanced. This requires a lexicon of acceptable definitions, and common policies and processes, underpinned by mutually understood theories where appropriate. In particular, I have drawn from concepts of risk, vulnerability, security, systems theory, contingency theory, strategic studies and international studies to develop and propose an analytical framework. An essentially risk-based approach aligns conceptually with much of the theory. It offers opportunities for promoting non-confrontational dialogue between diverse actors, building shared understandings of mutually concerning problems and, importantly, developing cooperative strategies for action.

A primary intent of the book is to advocate practical policy approaches and solutions, rather than simply analysing the problems. The aim is to make a significant contribution to Indian Ocean regional maritime security and, concomitantly, inform international security policy research. Hopefully, all who read this book will be given serious food for thought about how to enhance cooperative discourse in complex international contexts.

I wish to acknowledge the many individuals and institutions that have provided information, experiences, advice, friendship and direct assistance with the research behind this book over many years. Professors Timothy Doyle and Dennis Rumley gave me much encouragement and practical advice. Colleagues in India have been most helpful, particularly Admiral Arun Prakash, and also staff at the Institute for Defence Studies and Analyses, New Delhi. Mr. Kwa Chong Guan and Ms. Jane Chan at the S. Rajaratnam School of International Studies in Singapore gave me opportunities, and Professors Andrew Winner and Peter Dombrowski, plus the excellent library staff at the Naval War College, USA, were most helpful. Sincere and special thanks to my wife, Ann Farrell, who has travelled every inch of this journey with me. In addition to her unstinting support and understanding, her contribution as an experienced legal editor in proofreading and indexing has been invaluable.

Kiama, Australia Lee Cordner
May 2017

Contents

List of Abbreviations

AADMER	ASEAN Agreement on Disaster Management and Emergency Response
ABNJ	Areas Beyond National Jurisdiction
ADF	Australian Defence Force
ADMM+	ASEAN-Plus Defence Ministers' Meeting
AHA Centre	ASEAN Coordinating Centre for Humanitarian Assistance on Disaster Management
AMF	ASEAN Maritime Forum
ANZUS	Australia, New Zealand, United States Security Treaty
APEC	Asia-Pacific Economic Cooperation
ARF ISM on MS	ASEAN Regional Forum Inter-Sessional Meetings on Maritime Security
ARF	ASEAN Regional Forum
ASEAN	Association for Southeast Asian Nations
BIMSTEC	Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation
CCP	Chinese Communist Party
CLCS	Commission on the Limits of the Continental Shelf
CoC	Code of Conduct in the South China Sea
CSCAP	Council for Security Cooperation in the Asia Pacific
DCoC	Djibouti Code of Conduct concerning the Repression of Piracy and Armed Robbery against Ships in the Western Indian Ocean and the Gulf of Aden

DoC	2002 ASEAN–China Declaration on the Conduct of Parties in the South China Sea
DPRK	Democratic People's Republic of Korea
EAC	East African Community
EAMF	Expanded ASEAN Maritime Forum
EAS	East Asian Summit
EEZ	Exclusive Economic Zone
ENSO	El Niño–Southern Oscillation
ERM	Enterprise Risk Management
FAO	Food and Agriculture Organization of the United Nations
FPSO	Floating Production, Storage and Offloading Vessel
FSO	Floating Storage and Offloading Unit
FSP	Floating Production Systems
GCC	Gulf Cooperation Council (Full Title: Cooperation Council for the Arab States of the Gulf)
GFC	Global Financial Crisis
HADR	Humanitarian Assistance and Disaster Relief
IDPs	Internally Displaced Persons
IMO	International Maritime Organization
IN	Indian Navy
IO	Indian Ocean
IOD	Indian Ocean Dipole
IOGOOS	Indian Ocean Global Observing System
IOMAC	Indian Ocean Marine Affairs Cooperation
IONS	Indian Ocean Naval Symposium
IOR	Indian Ocean Region
IORA	Indian Ocean Rim Association (Formerly IOR-ARC: Indian Ocean Rim Association for Regional Cooperation)
IORAG	Indian Ocean Rim Academic Group
IORG	Indian Ocean Research Group
IPCC	Intergovernmental Panel on Climate Change
ISC	Information Sharing Centre
ISIL	Islamic State of Iraq and the Levant
ISIS	Islamic State of Iraq and the Greater Syria
ISO	International Organization for Standardization
IUU Fishing	Illegal, Unreported and Unregulated Fishing
LDCs	Least Developed Countries

MSP	Malacca Strait Patrols
NATO	North Atlantic Treaty Organization
NGO	Non-Government Organization
OECD	Organisation for Economic Cooperation and Development
PLAN	People's Liberation Army Navy
PNG	Papua New Guinea
PSI	Proliferation Security Initiative
ReCAAP	Regional Cooperation Agreement on Combating Piracy and Armed Robbery against Ships in Asia
RoK	Republic of Korea
SAARC	South Asian Association for Regional Cooperation
SADC	Southern African Development Community
SAR	Search and Rescue
SCS	South China Sea
SLOCs	Sea Lines of Communication
SST	Sea Surface Temperature
SWIOFC	Southwest Indian Ocean Fisheries Commission
TAC	Treaty of Amity and Cooperation in Southeast Asia
UN	United Nations
UNCLOS	United Nations Convention on the Law of the Sea (1982)
UNCTAD	United Nations Conference on Trade and Development
UNEP	United Nations Environment Program
UNGA	United Nations General Assembly
UNHCR	United Nations High Commissioner for Refugees
UNICPOLOS	United Nations Informal Consultative Process on Oceans and the Law of the Sea
UNISDR	United Nations International Strategy for Disaster Reduction
UNSC	United Nations Security Council
US	United States of America
WMDs	Weapons of Mass Destruction
WPNS	Western Pacific Naval Symposium

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CHAPTER 1

Security of the Indian Ocean Maritime System

The Indian Ocean region (IOR) has emerged as an important geopolitical arena in the Asian Century. The primary coalescing factor in the IOR is the *systemic* nature of the maritime context where global, regional and national strategic objectives come together. The strategic interests of multiple actors involved in the IOR overlap and converge at sea. Freedom of navigation has to be protected because it is essential to world trade and critical to global energy security. The Indian Ocean marine environment impacted by climate change, pollution and resource exploitation needs to be husbanded; it is vital to global environmental security and regional food security. Maritime territorial sovereignty is crucial to regional stability and nation-state integrity. Law and order at sea must be effectively applied across the entire maritime expanse. Multifaceted and interactive security in the Indian Ocean maritime domain presents a rising concern for multiple actors. There is a strong case for enhanced IOR *regionalism*, with a focus upon *collective and cooperative security* across the maritime domain presenting a paramount requirement for the future.

Maritime security cooperation in the Indian Ocean is clearly necessary. No single nation-state or other entity has the mandate or capability to provide security for the entire regional maritime domain. Further, many IOR states lack the capacity to effectively police their individually claimed oceanic areas. Regional and extra-regional nation-states and other actors

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who have interests in the IOR and the capacity to assist need to be involved.

The IOR geopolitical environment is complex, diverse, dynamic and fragmented. Currently, there are no region-wide, national-level arrangements or architectures in place specifically designed to facilitate security dialogue and address security issues. This presents perplexing challenges: how to develop realistic and workable collective and cooperative security strategies? There are no easy answers, no 'silver bullets'.

A promising methodology entails assisting key actors to understand the *common risks* and *shared vulnerabilities* that impact achieving *mutual strategic objectives* in the Indian Ocean maritime domain. Credible strategic risk assessments offer prospects for persuading key decision-makers of the need to work together towards mutually beneficial outcomes. Such an approach is presented and advocated here as a worthwhile way of progressing *collective* and *cooperative regional maritime security* in the IOR. Risk-based approaches can be useful in highlighting opportunities towards progressing compelling cases for action. Authoritative risk and vulnerability analyses require sound knowledge, multifaceted skills and deep experience.

The Changing Indian Ocean Geostrategic Context

The importance of the Indian Ocean as a geopolitical focal area is increasingly being recognized. However, the IOR is difficult to deal with as an integrated entity. Geography, combined with historical, cultural, racial, ethnic, economic, political and ideological factors, makes conceptualizing the IOR as a unified entity highly problematic. In modern times and until recently, the Indian Ocean has been viewed by external powers as primarily a maritime trade route, an extensive waterway that connects west with east. In geopolitical terms, the IOR is perceived to be a largely disaggregated oceanic and littoral region, more a collection of subregions than a single region (Bouchard and Crumplin 2010, 41–44). However, there is a developing consensus that the Indian Ocean, as a vital component of the Indo-Pacific confluence, will play a much more important role in shaping the contemporary and future international context than it has done for centuries (Bratton and Till 2012, 243).

The notion of a merged and continuous 'Indo-Pacific' has gained currency, particularly in western policy pronouncements. The term is not precisely defined; however, it is taken to refer to a wider Indo-Pacific maritime

strategic system. This system encompasses the trade routes and sea lanes that cross the Indian Ocean and extend past the Straits of Malacca and the Sunda and Lombok Straits into the South China Sea, the western Pacific Ocean to North Asia, and across the Pacific to North America. This oceanic geography embraces the most important trade routes in the world today. The Indo-Pacific idea can be played out at a high political level. It includes several of the most economically and militarily powerful nations in the world, the United States, China and India, and many important middle and smaller nations (Rumley 2013, 11). The US government (2010, 60–61), for example, declared: "The Indian Ocean region as a whole … will play an ever more important role in the global economy … (it) provides vital sea lines of communication that are essential to global commerce, international energy security, and regional stability." The IOR is now perceived as representing the "geographic nexus of vital economic and security issues that have global consequences" (Garofano and Dew 2013, ix).

There are past notions of the Indian Ocean as a peaceful, largely unclaimed maritime thoroughfare. The water body has been described as presenting a "well-integrated interregional arena of economic and cultural interaction and exchange" (Bose 2006, 15) where Arab and Asian traders plied their wares. Along with subsequent depictions of the Indian Ocean as a pre–Second World War "British Lake" (Panikkar 1944, 1, 1945; Alpers 2014, 97–99), these perceptions have mostly faded into history. And they may not have been entirely accurate.

There are other historical views of an earlier region or collection of subregions woven together by economic and cultural networks and interdependencies. For centuries, the waters of the Indian Ocean have carried religions, languages, traditions and people across thousands of nautical miles and bound them together in a 'cultural brotherhood'. It has been asserted that it was the failure of the inhabitants to record the maritime history of the region that has impacted perceptions of earlier cohesive regional entities (Cordner 2011, 70). In reality, the constant Indian Ocean 'churn' was accompanied by significant conflicts and, at times, massive and brutal bloodletting as various groups in parts of the IOR sought to gain the ascendancy (Sanyal 2016). Bose (2006, 6–7, 31, and 282) somewhat optimistically characterized the past Indian Ocean as a quiescent and peaceful "interregional arena". He argued that the peoples living along the vast Indian Ocean rim shared an "extraterritorial identity and universalist aspiration … bound in a strong symbiotic embrace" where the sea

provided the common medium. This historical identity, according to Bose, offers hope for "a new cosmopolitanism in a postcolonial setting". Developing a common sense of identity and purpose in the contemporary IOR, drawing upon ancient connections despite often divisive historical baggage, presents daunting challenges.

The extensive and uneven impact of colonization, combined with ancient cultures and traditions, has resulted in Indian Ocean states demonstrating a disparate mix of pre-modern and postmodern influences exacerbated by globalization. In considering prospects for future strategic cooperation building upon the pre-colonial past, key questions arise: is the nature of the IOR continuing to change? In terms of regional engagement, is the Indian Ocean a virtual 'blank canvas' open to new regional cooperative initiatives, relatively unencumbered by past associations? One factor is clear: external and internal geopolitical perceptions of the strategic importance of the IOR are rapidly changing (Bouchard and Crumplin 2010). As Kaplan (2009) put it: "More than just a geographic feature, the Indian Ocean is also an idea. It combines the centrality of Islam with global energy politics and the rise of India and China to reveal a multilayered, multipolar world."

Geopolitical Parameters

The Indian Ocean is the third largest ocean in the world (after the Pacific and Atlantic Oceans), with an oceanic area of approximately 73,556,000 km^2, including the Red Sea and the Persian Gulf. The combined land/sea area is approximately 102 million km^2, which amounts to 20.7 per cent of the earth's surface (Bouchard and Crumplin 2010, 26–32). The western extremity of the Indian Ocean is the 20° East meridian of longitude that passes through Cape Agulhas, South Africa; the eastern boundary is defined as 146°55′ East at South East Cape, the southern point of Tasmania, Australia (IHO 1953). The northern boundaries are defined by the African and Asian landmasses, and the southern boundary lies nominally where the Indian Ocean meets the Southern Ocean at latitude 60° South, which coincides with the Antarctic Treaty (1959) limits, although this boundary remains contested and is not agreed internationally[1] (Kaye and Rothwell 2002). The Indian Ocean is approximately 10,000 km wide between the southern tips of Africa and Australia.

Physical geographical dimensions tell only part of the emerging Indian Ocean story. The United Nations Convention on the Law of the Sea

(UNCLOS) 1982 irrevocably altered the way the international community deals with the oceans, and the Indian Ocean is no exception. The vast majority of IOR littoral states have claimed 200 nautical mile long exclusive economic zones. Some states interpret the Law of the Sea other than intended by the drafters and seek to impose restrictions on activities in areas of national jurisdiction that go beyond those provided under international regimes (Kraska 2012; US DoD 2014). In the Indian Ocean, there are also vast areas of high seas that need to be husbanded and the full range of jurisdictional issues exist, including archipelagic waters and international straits. In addition, numerous littoral states have lodged applications with the Commission on the Limits of the Continental Shelf (United Nations 1983, Article 76) seeking to have alleged natural prolongations of continental shelves recognized (Kaye 2010).

The IOR is home to an estimated 2.65 billion people, more than 39 per cent of the world's population and growing rapidly (Gupta 2010). The region, including the ocean itself, harbours enormous natural resources and therefore presents major opportunities for exploitable wealth, although the IOR currently represents only approximately 10 per cent of the world's economy (Llewellyn et al. 2016, 53; Bouchard and Crumplin 2010, 26; Michel and Sticklor 2012, 10). The IOR contains some of the world's wealthiest nations, such as the Persian Gulf States and Australia, and many of the poorest, such as Bangladesh, East Timor and Myanmar (Burma), plus emerging nations, such as India and Indonesia.

The Indian Ocean sea lines of communication (SLOCs) have become the world's most important as the highest tonnage of goods globally are transported, including more than two thirds of the world's crude oil, more than half of the container trade and one third of bulk cargo. The integrity of the Indian Ocean SLOCs is a strategic priority; the unfettered flow of maritime trade is a shared economic necessity for regional and extra-regional states, and other actors. The extensive Indian Ocean SLOCs present significant strategic vulnerabilities for regional states, such as India and Australia, and extra-regional states, such as China and Japan. This factor alone is generating renewed focus upon maritime security that underpins the changing and rising balance of power dynamics.

Keeping shipping flowing through the international straits at the northwest and northeast corners of the Indian Ocean is of vital strategic importance, with more than 80 per cent of the world's seaborne trade in oil passing through them. Bab-el-Mendeb provides access through the Suez Canal to the Mediterranean Sea and Europe; the Straits of Hormuz is the

gateway to globally vital oil and gas supplies in the Persian (Arabian) Gulf, where approximately 36 per cent of global oil imports are generated (Rumley 2013, 21). The Malacca, Sunda and Lombok Straits that connect the Indian and Pacific Oceans are essential to the global economy, particularly the economic viability of Northeast and Southeast Asia, and Australia. The maritime aspects of IOR energy and economic security present regional and global risks.

The Indian Ocean can be considered a crucial part of a tightly interconnected global economic, environmental and geostrategic *system*; an essential and important component of a globalized world yet separate, with unique local features and identities. The 51 littoral and hinterland IOR states (28 rim states, plus Red Sea and Persian Gulf coastal states, and 13 landlocked states) (Rumley 2013, 28–29) are notable for their diversity and lack of homogeneity. There are 23 African and 25 Asian states, plus Australia, France[2] and the United Kingdom[3] island territories.

Racial, ethnic and religious mixtures and variety are an Indian Ocean hallmark. The IOR "covers the entire arc of Islam" (Chellaney 2010, 155) from Africa through West Asia[4] and South Asia to Southeast Asia, plus there are very large Hindu, Buddhist and Christian populations. A large proportion of the world's failed and failing states are located in the IOR, with parts of the region labelled "the arc of crisis" and the "arc of instability" (Cordner 2011, 74). The region lacks a common identity, and there is little recent history of regional cooperation. An associated paucity of region-wide regimes, arrangements and architectures to collectively consider strategic issues, particularly security, is also a characteristic.

The environmental importance of the Indian Ocean is beginning to be understood, yet there remains a dearth of literature on IOR environmental security (Bouchard et al. 2010, 16–19). The Indian Ocean is one of the last relatively intact oceanic bastions of incredible biodiversity and climate importance that has not yet been fully exploited and degraded, and is therefore vital to global health.

Increasingly, the importance of Indian Ocean environmental health to sustainable oceanic resources and to the global climate is being understood. Awareness is heightened by the potentially dire consequences of climate change for huge IOR coastal populations and infrastructure. The coastal regions and ecosystems of Asia and Africa are projected to be significantly affected by rising sea levels and temperatures, with increases in parts of the Indian Ocean predicted to be more pronounced than

elsewhere in the world (IPCC 2007a, b). Issues of "climate hazards and socially constructed vulnerability" (Brooks et al. 2005, 151–152) are becoming major security considerations for IOR states.

The oceanic implications of Indian Ocean climate change have so far received little attention. Reliance upon oceanic seafood for protein by many regional populations is an important factor. Effective management of the vast Indian Ocean 'maritime commons', both within national jurisdictions and in the high seas, is emerging as a significant issue for regional and global attention (Rayfuse and Warner 2008).

Importance of the Sea

A central factor that dominates the IOR strategic context is the sea. It is a common strategic medium for internal and external actors. The major maritime trade routes of the Indian Ocean are central to extra- and intra-regional trade that is vital to the global economy. They provide the essential means for facilitating the transport of vast volumes of energy resources and other bulk cargoes, and increasingly manufactured goods, between West Asia, Europe, East Africa, South Asia, East Asia, North America and Australia.

As the global economic and strategic balance swings towards Asia, with India, Indonesia and other Indian Ocean states emerging, and as an increasingly powerful China looks south and west, so the geopolitical focus on the Indian Ocean magnifies. Changes in Indo-Pacific regional power balances are major factors that support realists' notions of security challenges and dynamics. However, it is the potential consequences from climate change that are likely to have the greatest impact in the medium-to-longer term. They will present profound challenges to regional human, food and economic security. Many security issues come together at sea. Regional and extra-regional states are increasingly focused upon maritime security, with rising regional investment in naval and other maritime security capabilities.

Cooperative Security Context

Regional leadership has been lacking in the Indian Ocean. Until recently, India has appeared reluctant to accept the mantle of the major regional power. There are signs that India may be moving to a more assertive role

in the future (Berlin 2011), particularly in the maritime domain (Singh 2012). India's intent to assert regional leadership is increasingly evident under Prime Minister Narendra Modi (Cordner 2016). However, the extent to which the IOR should be viewed as a discrete regional strategic entity is contested. Some argue that a broader Indo-Pacific construct may have utility (Medcalf 2012; Rumley et al. 2012), and this concept is gaining traction in some national policy documents (Australian Government 2013; United States Government 2010).

In the post-colonial era, the IOR continues to experience the legacy of dependency imposed primarily by European colonial powers. As many regional states work to achieve political and economic independence and establish separate identities, a range of external powers—the United States and increasingly China, and to a lesser extent other Asian states, including Japan and South Korea—have joined traditional European expeditionary states to seek influence, primarily to gain access to resources and, increasingly, markets. As Asia rises in importance, the Indian Ocean is becoming a centre of strategic competition among major global powers, particularly India and China.

There are numerous bilateral and subregional arrangements in the IOR that have some maritime security relevance. The Indian Ocean Rim Association (IORA) is the only region-wide body designed to facilitate regional dialogue at the government-to-government level, although its membership does not include all littoral states.[5] IORA's focus is primarily to promote economic cooperation, supported by human, social, environmental and intellectual dialogue. Notably, given the increasing profile of Indian Ocean security–related matters and the need for strategic dialogue on a broad range of regional security issues, the word 'security' does not appear in the IORA Charter (IORA 2014).

The only IOR-wide entity charged specifically with maritime security collaboration is the Indian Ocean Naval Symposium (IONS).[6] The focus of IONS is interaction between senior naval and other maritime security officials, primarily to consider operational and technical matters. IONS does not present an appropriate forum to consider international policy issues, which are properly the purview of heads of government and ministers. The lack of Indian Ocean regional security dialogue entities and mechanisms is likely to become critical, given emerging security risks and vulnerabilities, which will require collective and cooperative consideration and action (IONS 2014).

Analytical Considerations

A holistic notion of security needs to be applied when considering security requirements in the Indian Ocean maritime domain. Several aspects of security are profoundly impacted by what occurs at sea, including economic, environmental, human, food and energy security. The IOR's central importance to world energy in particular has greatly increased with the economic emergence of China and India (Klare 2008, 63–87). The two nations' increasing demands for imported hydrocarbons have significant IOR maritime security dimensions. The need to integrate environmental and climate security, along with energy security, as fundamental elements of national security is slowly being recognized (Chellaney 2010). The United States (2010, 84–85), for example, specifically identified this requirement, observing: "Climate change and energy are two key issues that will play a significant role in shaping the future security environment. Although they produce distinct types of challenges, climate change, energy security, and economic stability are inextricably linked."

The emphasis upon traditional and non-traditional threats to security[7] is already changing in the Indian Ocean and Asia more broadly (Caballero-Anthony 2010). Many security factors have significant maritime security dimensions, including law and order transgressions,[8] local armed conflicts arising from political instability and failed states that abound in the IOR, proliferation of weapons of mass destruction (WMDs), and the rising impacts of natural disasters. Definitions and concepts of what is encompassed by the term 'maritime security' are multifarious, imprecise and evolving (Rahman 2009, 29–46), and this presents problems when endeavouring to build cooperative approaches among diverse actors.

A critical consideration is the extent to which common perceptions of risk and vulnerability that generate imperatives to take collective action exist, or should exist, and by whom. Who should take action, which actors should be involved? During the Cold War, for example, the clear, compelling and immediate threat to the survival of Europe drove the creation of formal cooperative security arrangements among the Western powers. The shared history of two world wars and the leadership role of the United States were central to the formation and effectiveness of the North Atlantic Treaty Organization (NATO).

Strong political leadership and cooperative approaches driven by mutually compelling senses of dire threats to national survival have been features of past collective security arrangements. Key questions relevant

to the emerging IOR strategic circumstance include: how can disparate actors be persuaded that climate change, for example, presents existential risks that may bring death and misery to millions of people while inflicting enormous environmental and economic damage? What conditions are necessary to generate the kind of urgency and commitment to collective action to deal with the risks to IOR security resulting from climate change that the risk of nuclear annihilation did during the Cold War? A relatively slowly unfolding crisis, such as climate change, is hard to precisely quantify and predict. It represents the ultimate, incalculable uncertainty: aka *risk*.

A Conceptual Nexus: Security, Risk and Vulnerability

The security/risk paradigm is changing (Beck 2009a; Jayasuriya 2009). According to Ulrich Beck (1999, 4), risks "have become a major force of political mobilization". It may be easier for nation-states to set aside differences and to compromise upon aspects of sovereign control in order to face mutual external threats, such as those from international terrorism and the impacts of climate change, if there is a common understanding of the shared risks. A critical issue is what 'tipping point' is necessary to convince political and other leaders that they must act. Will reactive 'crisis management' continue to prevail, with collective action only likely *after* a major disaster, as evinced in the responses to the 2004 Asian tsunami and the 11 September 2001 terrorist attacks? A key challenge is to devise ways of presenting risks so that leaders can clearly understand the extent of the uncertainty, and therefore feel compelled to impose pre-emptive mitigation to reduce existential risks.

Security issues such as those arising from climate change, ocean resource availability and energy affect the common interests of peoples. They combine and magnify to present massive challenges that underscore the need for effective collective security governance and policy responses. Dealing with the threats, vulnerabilities and, critically, risks to the achievement of national, regional and global objectives and interests in the IOR requires understanding, cooperation and action at sea, which must extend from and be coordinated with political action on land. The need for enhanced maritime security cooperation offers the prospect of becoming a key agency that can bind regional and extra-regional actors together to protect common interests by collectively and cooperatively treating the risks.

The emergent risks to IOR maritime security will test liberalist and constructivist international relations theories, along with realist approaches, as numerous and diverse actors struggle to comprehend and deal with multiple security challenges. Treating risks and reducing vulnerabilities have so far received little attention; current regional regimes are ill-equipped to address complex issues that transcend national boundaries.

Contemporary risk management practices have long been applied to decision-making in the private sector, and increasingly in the public sector, at least in the West (Fraser and Simkins 2010). Risk and vulnerability theory is being applied to enhance decision-making when dealing with the strategic impacts of largely uncontrollable factors that present profound uncertainty, such as climate change and international terrorism. Increasingly, risk management concepts and approaches are being applied to matters of national security (Petersen 2011; Brauch 2011) driven by multilateral dynamics evident in contemporary global security paradigms; this is particularly applicable in the evolving Indian Ocean security context.

The nexus between security and risk is an evolving field of analysis (Petersen 2011, 697–700). The utility of risk assessment as a political and social analytical tool to assist in informing regional and national security policy imperatives and options, and as a critical problem-solving (or at least enlightening) approach to IOR maritime security is largely untested. Understanding the uncertainty (i.e. risks) posed to the strategic interests and achievement of objectives of regional and extra-regional actors by multifarious security concerns can be used to inform policy choices designed to treat risks.

Vulnerability

Risk-based approaches alone are unlikely to be sufficient to inform complex international and public policy considerations; qualitative judgements involving many competing factors are required. In the case of international terrorism, for example, uncertainties caused by the prospect of horrendous acts perpetrated by irrational actors are not amenable to clear assessments of likelihood and consequence; perspectives that consider vulnerabilities are also necessary. Similarly, extreme uncertainties about the impacts of climate change require consideration of vulnerabilities (Adger 2006, 268). Some analysts seek to combine risk, threat and vulnerability (Young 2010, 10–11; Elahi et al. 2011). Ironically, it is the shared and

common exposure of states to uncertainties (or risks) imposed by non-traditional actors, and actions perpetrated from outside the normative international system, such as terrorism and climate change, that may persuade the traditional core international actors, nation-states, that collective and cooperative actions are necessary.

Of relevance here are Beck's (2009b, 291–292) concepts of "manufactured uncertainty": man-made or man-induced risks in globalized contexts where rising uncertainty works against rational approaches. Increasingly, the world is faced with risks that cannot be effectively addressed at the individual nation-state level, and this is demonstrably the case in the Indian Ocean. Risks and vulnerabilities transcend national boundaries and require collective responses (Beck 2002, 41–42).

The positive side of understanding risk is that it can act as a catalyst for identifying opportunities, because "incalculable uncertainty can also be a source of creativity, the reason for permitting the unexpected and experimenting with the new" (Beck 2009b, 291). This is consistent with contemporary industry approaches that see risk as the "effect of uncertainty on objectives" (Australian/New Zealand Standards 2009, 1). Addressing risk can help identify choices towards achieving organizational objectives; understanding risk can assist in highlighting both threats and opportunities (Australian/New Zealand Standards 2009, iv–v and 22–23).

Changing Notions of Security

Changing the notion of what constitutes security, broadened to encompass such matters as human, environmental, economic, food and energy security, combined with perceptions of risk and vulnerability (Brauch 2011), opens the way for new, or at least largely untested, ways of approaching IOR maritime security strategic policy options. Shared perceptions of incalculable and uncontrollable risks, such as those that arise from climate change, terrorism and piracy, can provide the catalyst to generate collective and cooperative risk mitigation responses. An amenability of regional actors to consider "cosmopolitan alternatives" (Beck 2009a, 3 and 20) can result from risk treatment and mitigation considerations.

A workable and widely accepted definition of maritime security is necessary to support cooperative and collective security agendas. Traditional military strategic concepts and theories remain relevant, particularly those that apply to maritime strategy, and grand and military strategy (Mahan 1890; Corbett 1911; Wylie 1967; Paret 1986), along with contemporary

constructs of maritime security and strategy (Hill 1986; Till 2007). There are parallels and lessons that can inform evolving IOR strategic circumstances. Connections between traditional maritime strategy concepts and current notions of maritime security can provide policy and theory insights. Modern conceptions of security as a broad agenda, along with more traditional constructs of security—both 'conventional' and 'unconventional' or 'traditional' and 'non-traditional'—as they are relevant to maritime security, are pertinent.

Notably, UNCLOS significantly and irreversibly altered the international discourse by defining States' rights at sea and prescribing collective responsibilities to cooperate in protecting the marine environment. International law considerations are important in determining maritime security policy options for the Indian Ocean (Kraska 2012; Kaye 2010). The idea of the need to protect common interests in the maritime domain as a fundamental basis for cooperation among regional and extra-regional states is relatively new and evolving and presents opportunities for productive enquiry.

As the IOR increasingly becomes an arena of geostrategic interest, opportunities to identify insights from international relations theoretical perspectives are presented (Burchill et al. 2009; Griffiths 2011). Rivalry among the great powers and regional and global balance of power connotations are evident (Kaplan 2009; Rumley et al. 2012). The focus of balance of power theory is on strategic competition, deterrence and the implications of balance (or imbalance) between states and their abilities to threaten to use or apply force.

In the evolving Indian Ocean strategic context, common and shared economic, environmental and human factors are significant but underappreciated from a security perspective. They may provide motivation for major powers and regional states to pursue alternative notions of security (Cordner 2011). The security challenges posed by climate change range high among alternative perspectives that need to be considered (Scheffran 2011). The need to mitigate common risks to security in a context of rising uncertainty, particularly in the maritime domain, comes to the fore.

Towards Regionalism?

Taken together, notions of power and guarding national interests, and the interests of multiple actors, combined with collective and cooperative approaches to mitigating risks and reducing vulnerabilities to common interests, invoke prospects for a hybrid or composite regionalism—in the

Indian Ocean case, primarily 'maritime regionalism'. This presents cooperative versions of international relations practice to an extent consistent with realists and idealists schools that probably sits somewhere between the two (Rourke 1993, 138–158; Burchill et al. 2009).

Aspects of IOR regionalism, as it interacts with globalism, are also evident (Cronin 1993), particularly in the Indo-Pacific crossover regions of South Asia, Indo-China, South East Asia and Australia (Bhattacharyya 2010). In conjunction with risk-based approaches, governance constructs must be considered as they currently or potentially apply to IOR security. Nation-states may choose to surrender aspects of sovereignty in order to address commonly held risks (Beck 2009a) through regional institutional arrangements. Exploring governance options and possible international arrangements and regimes to facilitate dialogue and develop cooperative and collective maritime security outcomes in the IOR, where cooperative mechanisms have hitherto not existed, presents a fruitful area of enquiry. Such arrangements can be central to risk treatment strategies.

The converging concepts of security, risk and vulnerability offer promise in considering maritime security strategic options and opportunities in the diverse IOR context. A combined analytical basis affords utility in moving incongruent Indian Ocean regional actors towards cooperative and collective security arrangements designed to treat common risks and shared vulnerabilities in the maritime domain.

Notes

1. The third edition of the International Hydrographic Organization publication *Limits of Oceans and Seas* did not include the Southern Ocean; a draft fourth edition, not yet accepted, does. The delineation of the Southern Ocean is contested, with Australia advocating that it begins from its southern coastline, most nations advocating 60° South and yet others basing it upon seasonal variations of the Antarctic convergence zone.
2. The French Indian Ocean island territories include Crozet, Kerguelen, Mayotte, Reunion, St. Paul and Amsterdam, and the Scattered Islands.
3. The British Indian Ocean Territory.
4. The term 'West Asia' is used in preference to 'Middle East', as it more accurately describes contemporary Asian geography than the latter term, which is a legacy of the British and European colonial past.
5. IORA is the only regional forum linking most countries of the Indian Ocean rim through an annual Foreign Ministers' meeting. The Charter declares that IORA facilitates and promotes economic cooperation, bringing

together representatives of member states' governments, businesses and academia. In a spirit of multilateralism, the Association seeks to build and expand understanding and mutually beneficial cooperation through a consensus-based, evolutionary and non-intrusive approach. Members are Australia, Bangladesh, Comoros, India, Indonesia, Iran, Kenya, Madagascar, Malaysia, Mauritius, Mozambique, Oman, Seychelles, Singapore, South Africa, Sri Lanka, Tanzania, Thailand, United Arab Emirates (UAE) and Yemen. China, Egypt, France, Japan, the United Kingdom and the United States are dialogue partners. The Indian Ocean Tourism Organization and the Indian Ocean Research Group have observer status.

6. IONS "provides a regional forum through which the 'Chiefs-of-Navy' of all the littoral states of the IOR can periodically meet to constructively engage one another through the creation and promotion of regionally relevant mechanisms, events, and activities". IONS includes the navies of 36 nations that permanently hold territory that abuts or lies within the Indian Ocean. These have been grouped into four subregions: South Asian Littorals: Bangladesh, India, Maldives, Pakistan, Seychelles, Sri Lanka and the United Kingdom; West Asian Littorals: Bahrain, Iran, Iraq, Kuwait, Oman, Qatar, Saudi Arabia, UAE and Yemen; East African Littorals: Comoros, Djibouti, Egypt, Eritrea, France, Kenya, Madagascar, Mauritius, Mozambique, Somalia, South Africa, Sudan and Tanzania; and South East Asian and Australian Littorals: Australia, Indonesia, Malaysia, Myanmar, Singapore, Thailand and Timor-Leste. Navies that have a strategic interest in the IOR are also invited to participate in the biennial seminars and annual workshops; the United States, China, Italy and Russia have participated.
7. The term 'traditional security' is generally applied to 'nation-state on nation-state' security issues, conflicts and wars; 'non-traditional security' encompasses challenges to the survival and well-being of peoples and states that arise primarily out of non-military sources and includes such issues as transnational crime, piracy and sea robbery, terrorism, natural and man-made disasters, information security and cybercrime; and climate change, resource exploitation and pollution.
8. Law and order at sea issues include, for example, piracy; smuggling of people, drugs and arms; illegal fishing; illegal immigration; and marine pollution and dumping at sea.

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CHAPTER 2

Creating an Analytical Framework: Maritime Security, Risk and Vulnerability

The world of international relations is largely dominated by expedience, pragmatism and anarchy. Decisions that have wider international consequences are often predicated upon the national interests of individual nation-states, or perhaps more accurately, interests as perceived by the ruling elites in individual nation-states. Theoretical concepts can be an anathema to international relations practitioners and policy advisers operating under tight time pressures with many competing demands. However, common or at least understood and generally accepted analytical paradigms can be important when attempting to persuade diverse actors with differing world views and potentially conflicting agendas towards the need for cooperative and collective security. There is a need for sound theoretical bases to facilitate meaningful dialogue that can lead to workable strategies and joint action among diverse and multifarious agencies, including agreed or at least largely accepted definitions.

The framework for this analysis of the multifaceted Indian Ocean region (IOR) maritime security situation is based upon convergent concepts of security, risk and vulnerability. These need to be developed and defined if the outcomes of the analytical approach are to be perceived as credible by key decision-makers and their advisers. Theoretical constructs of maritime security, risk and vulnerability are the core concepts advocated here: the prisms through which options for enhancing Indian Ocean maritime security are developed and assessed. This is not

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a simple task because, as Zedner (2003, 176) noted, "[s]ecurity, like risk, is a capacious concept, perilously capable of meaning all things to all comers." However, risk offers a relatively benign construct for considering shared regional maritime security challenges. Risk-based approaches provide an intellectual vehicle to consider common challenges to security and mechanisms for identifying opportunities for risk mitigation. Risk- and vulnerability-based approaches can present uncontentious paradigms for contemplating how to deal with shared security 'threats' that generate uncertainty.

In academia and among theoreticians, there has been a curious traditional separation between security studies and risk studies. According to Petersen (2011), the two have divergent histories and, until recently, had "hardly 'spoken' to one another". Consistent with the approach advocated in this analysis, Petersen observed that the "increased focus on terrorism, climate change and other catastrophic transnational threats appears to have brought the two fields of study closer together" by providing a "common empirical theme" that highlights the need for "a common research agenda". There is an embryonic but rapidly increasing dialogue between risk studies and security studies (Petersen 2011, 694–697 and 701–709). Consideration of the terms 'security', 'risk' and 'vulnerability' is necessary in building a workable concept of maritime security that can be applied in the IOR context.

Security and Maritime Security

There is no single definition or concept of security, and there is no single, universal, internationally accepted definition of maritime security. Sam Bateman (2011, 2–3) characterized the inability of regional countries in the Asia-Pacific to agree on a definition of maritime security as a "basic wicked problem". He noted that it presents enormous difficulties for endeavours to develop regional cooperative approaches. The wider concept of what comprises security has been the subject of considerable debate and intellectual discourse, and has been increasingly contested in international relations theory (Dalby 1997, 6; Krahmann 2005, 10).

Despite the complications presented by a complex milieu of security actors and issues, practical policy on maritime security is necessary. Widening and deepening security conversations and analyses can lead to the development of alternative perspectives on security problems, with lateral approaches to devising potential remedies and responses.

Whichever concept of security is adopted, using the word *security* has enormous political significance, as it gives an issue priority (Booth 1997, 110). A brief epistemological scan is necessary in order to derive a workable contemporary conception. Fundamental questions include: who and what will be secure, secure from what, and what 'qualifies' as a security issue?

Emerging Security Pluralism

The notion of security being solely based upon existential threats to the survival of undefined or poorly defined referent objects is problematic. The inadequacy of threats to survival as the basis for security was recognized by those advocating 'securitization theory'.[1] The way threats are dealt with needs to be directly related to how they are perceived by affected communities (Balzacq 2011, xii). Apart from difficulties in defining the objects of insecurity, the idea that security in international relations, and therefore measures to provide security, could only be relevant where survival is threatened, or perceived to be threatened, is inconsistent with international norms and community expectations. Equating security with survival is of little assistance where threats to intangible issues like 'values' are concerned (Baldwin 1997, 21).

Broadening of security beyond a strict focus upon national (or state) security towards the security of individuals or the security of collective peoples beyond nation-state boundaries significantly widens the security agenda. The security of individuals can be affected by multifarious matters like "economic welfare, environmental concerns, cultural identity, and political rights" more frequently than by traditional military issues (Wæver 1995, 47).

Widening the notion of security can greatly complicate the security construct in practice. The mixing of referent objects and perpetrators presented difficult dilemmas. However, such is the actuality faced in many real-world circumstances. Lipschutz (1995, 215) observed that if, for example, the "logic of security" is applied to the environment, "we might reasonably conclude that the major threats to the environment are the very people who seek security from the effects of a damaged environment". In a similar vein are threats to security from "societal and state disintegration" driven by internal societal actions and coercive activities by states that "target as enemies the very people who live within the damaged ecosystems under state jurisdiction". This, in part, encapsulates

contemporary conflict situations in parts of West Asia, including Syria and Iraq. Security needs to be conceptualized as a "pragmatic act" in which the context is taken into account (Wilkinson 2011, 94).

Securitization theory was primarily devised by Western European theorists in the post-Cold War European context. Its relevance and utility to wider security contexts, for example the IOR that is predominately developing world and where populations are beset by multifarious security issues without the luxury of choice, is subject to question. However, the globalized scheme of security pluralism and associated dilemmas that securitization theorists identified closely equates to the real-world Indian Ocean maritime security context. Devising regionally appropriate security policies and arrangements to deal with an increasingly complex security environment, made more so by the multiplicity of actors at various stages of development, with diverse security needs and agendas, presents significant challenges in the IOR.

Security as a Normative Concept

Another primarily European-based perspective on security theory, known as critical security studies,[2] promoted a normative orientation to the study of security that is related to critical theories in international relations (Burke 2012, 168–170). Reconsidering and reconceptualizing notions of security that encompass and go beyond "territorial and ethnocentric" nation-state (or national) security is at the core of the critical security studies construct. Important political questions that concern organizing global or regional action to address common, pressing security issues arising from "poverty, development, and environmental degradation" with more flexibility and imagination (than allegedly those in the traditional, realist approach to security) might be possible (Dalby 1997, 25). Interpretive approaches to defining and addressing security need to be developed that are "grounded in reflexive practices" and "based upon shared norms and values". These can provide foundations for collective actions to deal with common security challenges (Krause and Williams 1997, 50–51), including shared assessments of risk.

Critical security studies invited enriched security discourses that are reflective of post-postmodern world realities. These included addressing tensions and accommodations between globalization, regionalism and nationalism; global plurality, disparities and inequities; multiple international actors (in addition to nation-states); and international

interdependency. Expanding notions of what is encompassed by security invite ever-wider conceptual considerations.

New and non-traditional challenges have emerged as major security concerns in the post–Cold War security environment (Brauch 2011, 63, 66). The security concept has widened from "traditional military and diplomatic security" to encompass "economic, societal and environmental dimensions" involving referent objects other than the state, with multifarious security actors. Security threats arising from global environmental changes, for example, are being recognized as "fundamentally different" (Brauch and Spring 2011, 33) because they "are not posed by 'them' … but by us", our consumerism and lifestyle. If 'we' are the 'threat', traditional military approaches to security become less relevant.

Extensions of the agenda to encompass manifold factors that come under the broader security banner, including economic, human, energy, food and environmental security, along with law and order issues, have considerable convergence and overlap in the maritime domain. They are therefore directly relevant to, integrally involved with and, to varying degrees, dependent upon maritime security.

Insurance, Risk and Security

The practical world of the global insurance industry presents an exemplar for the merging of risk and security considerations. Security has become connected to risk, insurance and values as a normative concept. Insurance is profoundly about risk: evaluating and hedging against calculable and incalculable uncertainty. And it is also about security; insurance provides an option for mitigating the consequences of the failure of other risk treatment options. Risk and security therefore, in large part, coincide.

In commenting on the relationship between security and risk in an insurance context, Lobo-Guerrero (2011, xi and 1–3) observed that it was unclear why security studies within international relations had not "developed elements from which to understand how risks became the objects of those representations of danger". The "concept of uncertainty" is, however, complex and requires judgement and calculations that provide a "constant tension between ways of imagining the world and ways of making uncertainty matter". Lobo-Guerrero suggested that there was a need to move beyond "the curious division of labour between security studies, political economy and political theory"; this is agreed. In the practical world of providing security solutions that treat risks and reduce

vulnerabilities, it is outcomes that matter. Brauch (2011, 61) noted that whichever perspective on security was engaged, central considerations involved dealing with threats, risks and vulnerabilities. The security–risk–vulnerability nexus at a regional level, as in the IOR case, involves many factors and many actors that need to be brought together to make complementary contributions; developing shared understandings is essential.

Classical Security Perspectives

Historical dimensions of strategic concepts provide essential foundations to contemporary security thinking that are not only about preparing for armed conflicts. It includes determination of the vital interests that need to be secured and the central objectives or goals to be pursued and protected (Craig and Gilbert 1986, 869). Understanding the context has long been recognized as an essential security consideration. Clausewitz (1976 (1832), 88), for example, assessed that the "most far-reaching act of judgment that the statesman and commander have to make" is to understand the nature of the conflict, or security context in modern parlance, upon which they are embarked. Corbett (1911, 25–26), in making extensive reference to Clausewitz, particularly emphasized the importance of understanding the "nature of a war", which can be extended to mean the need to understand the nature of a security context. Sun Tzu identified the importance of "inducing the people to have the same aim as the leadership" and the essentialities of understanding "what the conditions are" (Sun Tzu 2005 (~512 BC), 4 and 7) in determining what strategies are likely to succeed.

These quotations reveal significant convergence in the thinking of Clausewitz, Sun Tzu and Corbett in their endeavours to derive universal theories about war, despite coming from widely diverse historical and contextual backgrounds. They identified three fundamental factors that continue to have relevance in contemporary security practices: the *primacy of politics*, the essentiality of understanding the *nature of the security context* and the importance of a direct correlation between the *means* to be applied to provide security against the security *ends* being sought.

No assessment of classical strategic thought and its relevance to maritime security can be complete without consideration of the enormously influential perspectives of Alfred Thayer Mahan. He identified factors that endure in the contemporary context, including the "profound influence of sea commerce upon the wealth and strength of countries". He

recognized that the desire to "secure to one's own people a disproportionate share of such benefits" can lead to a "clash of interests", and that "wars arising from other causes have been greatly modified … by the control of the sea" (Mahan 1890, 1). In referring to Britain's great success as a maritime power, Mahan (1890, 25–77) observed that the "principle conditions" affecting the sea power of nations have been integral to the successful attainment of national objectives of prosperity and power. They include such factors as geography, physical conformation, the extent of territory, the size and character of the population and the character of the government.

While Mahan's list of conditions affecting sea power was intended to be descriptive rather than prescriptive, his perspectives greatly influenced the strategic thinking of the United States and other powers, like Russia and Japan (Till 1984, 1–5, 31 and 62–63). Little wonder that Mahanian tendencies have been ascribed to both China and India today as they emerge as significant regional and potentially global maritime powers (Mohan 2012, 3, 39–41, 46 and 212–214; Kaplan 2010, 279).

Written more than 100 years ago, Mahan and Corbett's analyses of the importance of Sea Lines of Communication (SLOCs), the ability to control the sea for one's own purposes and the importance of sea power remain largely relevant in the Indian Ocean context today. One important point of departure is that the focus on the need to control the sea has moved beyond that of individual nation-states to become a systemic requirement. While sea power has been decisively influential in world affairs throughout history, the nature of that influence has changed. Till (1984, 5) suggested that the ability to "enjoy their off-shore resources in security", for example, has become an important consideration in recent times. Till also asserted that the concept of sea power is about the capacity to influence events on land by what is done at or from the sea. He pointed out (Till 2013, 339–340), somewhat ironically, that while Mahan's theories continue to have significant relevance today, "disorder at sea is largely attributable to events ashore. This is the opposite of Mahan's central argument." Till (1994, 2) usefully defined sea power "in terms of its consequences, its outputs not the inputs, the ends not the means"—a further verification of Clausewitz and Corbett's traditional strategic perspectives.

The notion of sea power has evolved over time and is now recognized as a combination of military[3] and non-military capabilities[4] (Till 1984, 14, 1994, 2). The convergence of state concepts of sea power and the need to provide for collective safety and security in support of the global trading

system is at the core of modern constructs of maritime security. The interdependent nature of the contemporary global and regional economic and trading system requires states to consider cooperative approaches, in conjunction with other states and increasingly with non-state actors, including international regimes,[5] regional anti-piracy regimes[6] and industry, to ensure that vital SLOCs remain open to support shared interests.

Contemporary Security Concepts

The end of the Cold War triggered a reconceptualization of what is meant by security (Brauch 2011, 61). Global security during the Cold War was dominated by the Super Power strategic nuclear deterrence impasse (Gaddis 1982, 289–308). In the immediate post-Cold War period, there were expectations that the world was going to be much more decentralized and regionalized in character. With this came a wider security agenda that addressed not only traditional and political security perspectives but also non-traditional aspects like economic, societal and environmental security. Resultant contentions of what is encompassed or should be encompassed in concepts of security abounded in the post-Cold War period. Four contemporary notions of security that have degrees of significance to maritime security in the IOR are briefly explored. The emphasis is on collective and cooperative security, with common and comprehensive security being less relevant in the IOR maritime context.

Collective Security

The concept of collective security was enshrined in the Covenant of the League of Nations (League of Nations 1919, Article 16) and the Charter of the United Nations (United Nations 1945, Articles 1 and 43). It is fundamentally a realist approach based around the interactions of nation-states. In practice, collective security has been fraught with the lack of desire of individual states to subordinate their sovereignty and national interests to collective action. There have been two notable instances where United Nations Security Council (UNSC)–sanctioned collective military force has been applied: the Korean War (1950–53), where the military forces volunteered by nation-states operated as a United Nations (UN) force; and the Persian Gulf War (1990–91), where the 'coalition of the willing' cooperated to enforce UNSC sanctions while operating under individual national flags. There have also been numerous UN peacekeeping

and peace enforcement operations; peacekeeping is different from collective security in that it usually involves UN-mandated intervention between two (or more) protagonists rather than direct application of military force against an aggressor, as in the Korean and Gulf Wars (Rourke 1993, 340–343; Burke 2012, 164–167). The dominant leadership role of the United States, supported by forces contributed largely by Western-aligned states in the Korean and Gulf conflicts, gave rise to allegations of Western rather than collective interests being defended in both cases (Rourke 1993, 341).

Under the auspices of the UN, efforts to promote collective security and move towards more comprehensive notions of security continue. This presents significant challenges, as the sovereignty of nation-states remains paramount, and progress is often tortuously slow, as indicated in official UN deliberations and correspondence (UNGA 2004).[7] Collective security continues to have salience in the IOR maritime security context because regional states are signatories to the UN Charter, which encourages regional arrangements to support peace and security while mandating that enforcement actions must be authorized by the Security Council (United Nations 1945, Articles 52 and 53). Formal (and informal) regional security arrangements and subsequent actions that involve the potential or actual application of armed force should be conducted under the auspices of the UN.

Cooperative Security

Cooperative security, in the East Asian context, offers a gradualists approach to developing multilateral security structures and dialogues based upon traditional bilateral approaches. It seeks inclusiveness and is based on the ideal that the *process* of cooperative security should include as many relevant actors as possible, while acknowledging the primacy of state interests and building upon regional stability provided by existing bilateral alliances. According to Gareth Evans (1994), cooperative security "effectively captures the essence of" collective, common and comprehensive security.[8] It has been suggested that the concept of cooperative security "suffers from a degree of ambiguity" (Rahman 2009, 25) because it tries to accommodate all perspectives.

In the Asia-Pacific, cooperative security is epitomized by the ASEAN Regional Forum (ARF). At its first meeting on 25 July 1994, the stated objectives were "to foster constructive dialogue and consultation on

political and security issues of common interest and concern; and to make significant contributions to efforts towards confidence-building and preventive diplomacy in the Asia-Pacific region" (ARF 2013). The ARF has generated an extensive web of security dialogue processes that include consideration of regional approaches and maritime security cooperation. Notably, there is, as yet, no parallel entity to the ARF in the IOR.

Common Security

Common security was essentially a pre-end of Cold War realist concept derived from the 1982 Palme Commission (Palme 1982). It was devised to underpin the push for disarmament in Europe. Common security proponents advocated the need to maintain power equilibrium or balance between military capabilities, particularly weaponry, in offence and defence. In this sense, common security is linked with security 'dilemma theory', with its attendant concerns about mistrust in the development of alleged defensive measures that can result in an arms race (Hertz 1950; Jervis 1976, 1978). Common security concepts have limited relevance to IOR maritime security. In the maritime domain, ideas of offence and defence are more usefully presented in maritime strategic terms of sea control,[9] sea assertion,[10] sea denial[11] and maritime power projection[12] (Wylie 1967, 33–36 and 102–103; Australian Department of Defence 2000, 37–45). However, allegations of an 'Asian arms race' abound, particularly involving naval capabilities, and must therefore be considered as a security risk factor (Ball 2011; SIPRI 2012).

Comprehensive Security

Comprehensive security attempts to span the many levels and dimensions of security in a composite, multidimensional concept. It endeavours to encompass individual through to state, regional and global security as well as domestic and external security, and accommodate military and non-military, or traditional and non-traditional aspects of security. Comprehensive security is essentially Asian in its origins and perspectives, having its foundations in Japan's post-war security experience (Akaha 1991, 325). Comprehensive security represents a marked shift away from the state as the central actor in security, with an inward focus "toward the individual citizen", with direct linkages to human, economic and environmental

security, while still including the state and external security, recognizing that all of aspects of security are intertwined (Hsuing 2004, 3–4).

Comprehensive security stemmed from two important perspectives on security. First, military security "was not enough by itself"; concepts of security needed to encompass "a condition that allows nations to pursue their conception of a valuable life". Second, there is a strong emphasis on support for multilateralism (Jayasuriya 2009, 17). The concept has been attractive within ASEAN and to some other members of the ARF.[13] The Council for Security Cooperation in the Asia Pacific (CSCAP) proposed the following definition to the ARF: "Comprehensive security is the pursuit of sustainable security in all fields (personal, political, economic, social, cultural, military, environmental) in both the domestic and external spheres, essentially through cooperative means" (CSCAP 1996, 2). The CSCAP concept included seven principles: comprehensiveness, mutual interdependence, cooperative peace and shared security, self-reliance, inclusiveness, peaceful engagement, and good citizenship (CSCAP 1996, 2–5). The ARF was looking to notions of comprehensive security because "the concept would greatly facilitate consensus building and the formulation of strategies, processes, institutions and measures to manage security" that would be of "an 'overarching' variety, adaptable enough to accommodate the diverse security concerns of all regional states" (CSCAP 1996, 2).

Critics of the ARF/CSCAP version of comprehensive security suggest that the concept is too broad, indeterminate, nebulous and unfocused to be of practical use (Rahman 2009, 21–23). However, as Asian states have grown economically and politically with increased confidence and more outwardly looking world views, and as interstate competition has increased within the region over sovereignty issues, the desire for a more comprehensive (regionally tolerant and coherent) approach to security at all levels may gain increasing favour (Rolfe 2008, 106–111). Comprehensive security continues to have a distinctly Asian flavour. The notion is being tested by an emergent and assertive China, despite being advocated in a recent Chinese defence white paper (China 2013).

Security Governance

The emergence of new security paradigms in recent years underscored the need for security governance arrangements to be reconsidered. Traditionally, the nation-state has been the central and primary actor in

international security discourse. Non-state actors, in addition to states, pose new security threats[14] and are also providers of security.[15] Contemporary security threats are less likely to target states; they are more likely to have societies and individuals as their objects. Notably, there are rising security implications from amorphous contemporary *threats*, like climate change, that are not *targeted* at *anyone in particular* yet potentially impact the security of *everyone in general* to a greater or lesser extent.

Krahmann (2005, 3 and 11) offered an alternative definition of what constituted a threat to security "as an event with potentially negative consequences for the survival or welfare of a state, a society, or an individual". This broad definition underlines the complexity of the concept of a security threat. Adding welfare as a security criterion contributes a further, value-laden dimension to security. One of the striking features of this definition is its close alignment, indeed parallels, with concepts of risk. Risk is often defined as the effect of uncertainty on objectives (defined by its object), evaluated in terms of likelihood (probability) and consequences (potential effects), and is bounded by context and appetite (nature of the circumstances) (AS/NZS 2009).

While the academic concept of security may have become increasingly contested in international relations theory, with attempts to deepen and widen it to include both traditional and non-traditional security challenges, the policy world has moved on to embrace broader and more inclusive security constructs. For example, the Australian government (2013, 5) defined national security as "a broad and evolving concept. It is concerned with how we shape the environment, and how we prevent and prepare for threats to our sovereignty, people, assets, infrastructure and institutions. National security is also concerned with how we respond to such threats, and recover from any event which may occur." This definition in essence focuses upon outcomes and outputs from security contexts in terms of prevention, response and recovery, which is the same language and approach used in risk management. The increasing need to deal with non-state actors and threats to domestic society and the international community from illegal activities and natural disasters is also recognized in official Australian government policy documents (Australian Government 2009, 27). 'Whole of nation' and 'whole of government' approaches to security and other issues have long been advocated in the Australian polity (Shergold 2004; McCarthy 2012).

Maritime Security in Practice

The Law of the Sea (United Nations 1983) provides a contemporary framework for oceans governance that has implications for maritime security practices and encourages collective and cooperative approaches. The common need among multiple actors for "good order at sea" (Bateman et al. 2009, 4; Till 2013, 282–317) underpins the requirement to provide for the safety and security of maritime trade, and supports aspirations to exploit and conserve marine resources. These requirements are added to interstate competition as foundational constructs of maritime security. Dealing cooperatively to address threats (or risks) to good order at sea that include "piracy and armed robbery against ships, maritime terrorism, illicit trafficking in drugs and arms, people smuggling, pollution, illegal fishing and marine natural hazards" (Bateman et al. 2009, 4) brings together traditional concepts of sea power with contemporary cooperative security imperatives in the maritime domain.

The published security policies of significant IOR states and extra-regional states involved in the Indian Ocean indicate approaches to maritime security and security more broadly that are, in some respects, ahead of the academic literature. There is a definite move to wider and more inclusive definitions of security that encompass and go beyond traditional state-on-state interpretations. The Indian Navy, for example, in its inaugural maritime strategy statement, made clear that providing maritime security is a fundamental aspect of ensuring national security. The connection between economic growth, "good order at sea" and the "constabulary roles" this entails is recognized (Indian Navy 2007, iii–v).

China in 2013, while not explicitly defining security or maritime security, advocated a broader concept of security that recognized the interweaving of "traditional and non-traditional security challenges" (China 2013). China declared that it "is a major maritime as well as land country"; the seas are important to national development and security. Numerous references are made to maritime security, including "countering non-traditional security threats" and providing "support for China's maritime law enforcement, fisheries, and oil and gas exploitation", that require cooperation between military and civil agencies, implying a broader understanding and definition. China "advocates a new security concept featuring mutual trust, mutual benefit, equality and coordination, and pursues comprehensive security, common security and cooperative security".

US official documents, similarly to China and India, noted the changing security context and advocated a holistic approach to security. The US Defense Department (2010, 7) observed that the "continued growth and power of non-state actors will remain a key feature of the environment" and noted the emerging non-traditional and complex security context. A cooperative approach to providing security across the global maritime domain was advocated, observing the potentially "catastrophic" effects of climate change. Changing conditions "combine to create an uncertain future and cause us to think anew about how we view seapower. No one nation has the resources required to provide safety and security throughout the entire maritime domain. Increasingly, governments, non-governmental organizations, international organizations, and the private sector will form partnerships of common interest to counter these emerging threats" (United States Navy et al. 2007).

In this evolving context, difficulties remain with basic concepts and definitions of maritime security and security more broadly. The term *maritime security* has many different meanings for different people and purposes, including, for example, alignment with regional security concepts to produce such terms as "comprehensive maritime security" and "cooperative maritime security" (Rahman 2009, 29). The lack of agreement among ARF member countries on a definition of maritime security was noted by Bateman. Some countries prefer a traditional state-on-state concept and others increasingly seek to include non-traditional threats to the marine environment, offshore resources, law and order at sea, and maritime safety.[16]

The essentially systemic nature of the maritime security challenge is a core consideration. The realities of competing priorities for resources to deal with non-traditional versus traditional security issues must also be taken into account. There is a need for all participants in the maritime system, including nation-states, to fully appreciate that both traditional and non-traditional security threats can pose existential crises. The potentially existential nature of the consequences of non-traditional threats emanating from climate change and resource shortages present *non-discretionary* security challenges that must be addressed. The lack of agreement on fundamental maritime security definitions in the Indo-Pacific and elsewhere makes the task of progressing regional maritime security cooperation more difficult. The security and safety of shipping and seaborne trade is, however, an area of common concern to most regional countries. Wider issues of offshore resource and marine environmental security and

risks present profound, longer-term security concerns that are likely to present greater challenges to gaining common understanding and agreement.

Risk

At first glance, risk is a relatively uncomplicated concept. Clear and concise language is used in its formal, universally accepted definitions. In Western society these definitions have long been applied at political, organizational, operational and technical levels in the private sector, and increasingly in the public sector. The concept of risk is embraced by multifarious actors, including states. Risk becomes conceptually challenging and more problematic in its application to a broader range of complex international issues, contexts and circumstances.

An internationally accepted risk vocabulary has been developed over many years of application, primarily in the practical world of private enterprise. Risk is simply defined as the "effect of uncertainty on objectives" (ISO 2009, 1–2).[17] *ISO 31000:2009 Risk management – Principles and guidelines* (AS/NZS 2009, iv–v) emphasizes the benefits of "organizations" having a "framework that integrates the process for managing risk".[18] Notably, the positive and proactive aspects of risk management are extolled, including suggestions that if well implemented it can "increase the likelihood of achieving objectives", "improve the identification of opportunities and threats", and "improve governance".[19]

The definition and treatment of risk, including the notion of being able to manage risk as if it were a finite, tangible product or service, present as fundamentally process oriented and mechanistic in application. These relatively simplistic notions pose potential limitations to the utility of risk in developing and assessing international policy and strategic outcomes. In engineering and scientific contexts, risk can often be assessed in *quantitative* terms. Probabilities and consequences of risk events arising can be mathematically determined, with varying degrees of confidence. Processes can be imposed to mitigate risks so that levels of uncertainty can become "tolerable"[20] to an organization's "risk appetite"[21] (ISO 2009, 9; AS/NZS 2009, 5–7).

As risk management ascends into the higher echelons of an organization, a group of organizations or a complex *system*, like the IOR, it becomes more challenging to apply. With large entities, like nation-states or regional conglomerations, collective objectives become harder to define and agree,

and risks become larger and more nebulous. Defining and assessing risk becomes more art than science, requiring *qualitative* judgements based upon experience and multidisciplinary insights. There is also a strong governance connection with strategic level and organization-wide approaches to risk management.[22]

The concept of enterprise risk management (ERM), for example, has been applied widely in Western organizations for many years in the private sector, and increasingly in government and public sectors.[23] The benefit of 'whole of organization' approaches to managing risk as integral parts of enterprise decision-making and performance management was reinforced during the global financial crisis (GFC). The broad, all-encompassing and strategic notion of ERM has potential application in complex and multifaceted international maritime security contexts, although defining the scope of the *enterprise*, the extent of the *organization* and its integrated *objectives* presents significant challenges.

Risk and Decision-Making

Many private sector organizations, and increasingly public sector organizations, employ risk constructs as an integral and vital part of decision-making. For example, when resource companies are making decisions that involve significant investments with long-term returns on ventures like mining operations or offshore oil and gas exploration and exploitation, several independent expert risk assessments will typically be commissioned. Risk assessments may include financial, to assess the investment viability of a project; technical, to determine technical feasibility; legal, to consider legislative and regulatory aspects; and political, the combined uncertainties over the long-term of political stability, security, economic, social and cultural factors.

Assessments focus upon identifying key risk areas or issues and evaluating the likelihood and consequences from the perspective of the particular organization and the objectives of the venture under consideration. An important question is 'so what?' for my organization and my stakeholders if the venture proceeds and certain events transpire. Assessments also consider risk mitigation options that may be available, from an organization's perspective. The outcomes from risk assessments will typically be considered by an organization's senior management and governing board. Decisions will be informed by such factors as the financial and technical viability of a proposed venture, and political and regulatory factors, noting

that resource ventures may require large investments and take decades to deliver returns.[24] An organization's risk appetite and tolerance will be important guiding principles for decision-making. The nature and extent of uncertainty and the degree to which risk can be cost-effectively mitigated will be central considerations.

With regard to security risks, private sector organizations will often be significantly reliant upon the political climate and the effectiveness of state security forces. The provision of comprehensive security will often be beyond the capabilities and the permissible purview of private companies due to national security regulatory requirements. Assessments of the assurances that national and in some cases regional security regimes offer, including the long-term viability of those assurances and mitigation options should security fail (i.e. evacuation and temporary closure of facilities, the availability and affordability of force majeure insurance), are important considerations.

Risk management is fundamentally about adopting a structured approach to dealing with uncertainty (ISO 2009, iv). Risk management frameworks present systemized processes to identify, analyse, evaluate and treat risks to support strategies for risk mitigation, prevention, response and recovery. Processes normally followed to effect risk management, whether at organizational, national or regional level, are summarized as follows:

- Define the risk context, including core objectives.
- Identify key risk issues and vulnerabilities.
- Ongoing rigorous assessments by competent, experienced individuals and responsible organizations of the likelihood and consequences of risk.
- Formulate risk appetite and tolerance settings.
- Formulate policy and actions to treat risks so they are reduced as low as reasonably possible (ALARP).
- Residual risk (i.e. risk that is unable to be fully mitigated) acceptance by responsible authorities.
- Formulate risk treatment options: prevention, response and recovery, and arrangements, processes and mechanisms.
- Consider collaborative arrangements and mechanisms to deal with cross-jurisdictional and multijurisdictional risk and incident prevention, response and recovery.
- Include the difficult area of understanding and managing cumulative, accumulated or aggregated risks.[25]

Formal risk management approaches are already extensively utilized in some national jurisdictions, for example Australia, but are not yet widely embraced in the IOR. A significant benefit for governments and regional entities adopting risk management approaches is that these approaches are well understood and widely used by industry and other actors. Improved communication and shared responsibilities for managing risk between diverse actors can be facilitated.

Risk in International Relations: A 'World Risk Society'?

Risk-based approaches to decision-making and management have long been employed in the private sector, increasingly in the public sector, and in the security assessments of individual nation-states, particularly in the West. While the idea of risk is intrinsically related to governance and is very much a part of the discourse around sociology, anthropology, economics, science and philosophy, until recently, it has hardly influenced thinking in the international relations discipline (Lobo-Guerrero 2010, 4420).

Until recently, formal risk assessments have rarely been applied in international relations and risk has received little attention in related literature. The worlds of business, management and science, and that of international affairs have largely evolved separately. Ulrich Beck's seminal works *Risk Society: Towards a New Modernity* (1992) and *World Risk Society* (1999) sought to change that, although his views are controversial and have not been subject to universal acclaim or acceptance.

Beck made numerous observations that resonate with contemporary IOR circumstances. He wrote that "reflexive modernization is the age of uncertainty and ambivalence, which combines the constant threat of disasters on an entirely new scale with the possibility and necessity to reinvent our political institutions and invent new ways of conducting politics". He suggested that the "very idea of controllability, certainty or security … collapses"; a paradigm shift has occurred to present a "world risk society" where Western and non-Western societies share the same space, time and challenges. Beck asserted that "we are moving from a world of enemies to one of dangers and risks"; risk "is the modern approach to foresee and control the future consequences of human action, the various unintended consequences of radicalized modernity" that present "a new order: it is not national, but global". He advocated that risk analysis requires an interdisciplinary approach (Beck 1999, 93).

Revised constructs of modernity, Beck (1999, 16–62) contended, necessitated radical shifts in how the international community operates. He identified notions of shared risks by "risk communities" and therefore *the need for cooperative, shared approaches to dealing with massive global risks to survival that are beyond the capability and remit of any single nation-state or collective entity to address.* He highlighted convergence of the evolving risk paradigm with both realist and constructivist agendas. Realists are faced with "forced global socialization due to dangers produced by civilization" that give rise to the "growing importance of transnational institutions", and constructivists therefore appreciate the need for "transnational 'discourse coalitions'". Beck (2009a) argued that his world risk society concept was normative; it has become the new 'norm' in global society. A "critical theory of world risk society becomes at once realistic and critical"; it can no longer be dismissed as a peripheral idea.

Beck's theory of reflexive modernity or "re-modernization" (Latour 2003, 36) was recognized as a "powerful proposition" because it required attention to be refocused away from the mainstream of social and political discourse to look at discontinuities that can provide catalysts for seeing issues through different lenses, presenting a "lever for making new things happen" (Latour 2003, 46). Beck's perceptions of the utility of risk-based approaches, particularly the focus on discontinuities, very much converge with mainstream risk concepts.

Beck's controversial views stimulated numerous commentary and critiques, with his concepts lauded by some and criticized by others. The 'eco-warrior' aspects of his theories have tended to polarize, dominate and inflame debate, and, to a degree, have detracted from reasoned evaluation of his concepts. Mythen (2004, 180–182) asserted that "the risk society argument is plagued by both theoretical and empirical deficiencies" and "Beck's determination to provide a universal model of risk helps us to understand his general unwillingness to engage in a process of empirical validation." Rather than risk being a universalizing concept, Mythen declared, Beck misjudged the socialization realities of inequalities that perpetuate vulnerability, particularly in the developing world. This has relevance in the IOR context, where vulnerability must also be a core consideration, particularly given the uneven mechanisms and capacities to mitigate risk across the region. Similarly, Beck is accused of overstating the globalizing tendency of risk. However, the evidence seems clear; certain

types of contemporary risk are perpetrated and enhanced due to the increasingly interconnected nature of the world.

In his analysis of risk management and responses to large-scale disasters, Williams provided some of the empirical evidence necessary to underpin Beck's theses that others had identified as lacking. Williams (2008, 1118) observed in "high modernity" that "institutionalized scientific knowledge and technical expertise have contributed to the proliferation and worsening of risks rather than their amelioration." He noted that in situations of high uncertainty, organizations tended to respond by deploying "science and technology in combination with a misplaced faith in their capabilities (including presumed infallibility) so as to redefine risks as more manageable and acceptable". Williams surmised that the distinction between whether a disaster was natural or man-made had become less relevant. The consequences have been magnified by the built environment and failures of people and organizations to recognize and mitigate composite risks generated by interactions between the natural and the man-made, the physical and the human environments.

Beck (2009b, 291) noted that "incalculable uncertainty" can promote creativity, providing the "reason for permitting the unexpected and experimenting with the new". Rather than risk being perceived exclusively in negative terms, understanding risk can also serve as a catalyst for proactive and innovative thought and action. Careful consideration of risks can uncover opportunities for enhancement and improvement to those with open minds who are willing, or forced by necessity, to embrace change. This has been the experience with sophisticated risk-based approaches to decision-making and management in private and public sector organizations, albeit primarily in Western contexts.

Risk-based constructs are yet to be extensively embraced in the Global South. Applicability remains to be tested; political, cultural and societal factors will no doubt have impacts that will need to be understood and accommodated. Risk could be simply dismissed as a Western concept. However, it presents largely unexplored opportunities for developing collective and cooperative approaches to enhancing security in the IOR context. There is increasing recognition of the need to develop theories on the politics of uncertainty in international relations as an "ontological condition for liberal governance" where understanding risk presents both constraints and opportunities (Lobo-Guerrero 2010, 4431).

Vulnerability

ISO 31000:2009 Risk Management – Principles and Guidelines does not mention vulnerability as a factor to be considered in risk management.[26] At the heart of this apparent oversight lie important conceptual issues about risks that can be 'measured' or calculated, and risks that are incalculable and shrouded in profound uncertainty impervious to quantitative or qualitative assessment, and a combination of these factors. Concerns about vulnerability are vitally important in complex security contexts, where the extent of uncertainty is so difficult to assess that risk-based approaches alone are inadequate. By necessity, the security response must extend beyond treating (undefinable) risks to exploring options for reducing vulnerability as well.

Some risk practitioners advocate that vulnerability forms an integral component of security risk assessment. Mesjasz (2011, 155) noted that "although vulnerability and security are logically symmetrical, in the recent discourse on environment, development and economy the dominance of a vulnerability-based over a security-based approach may be observed". Young (2010, 10–11) advised that security risk mitigation strategies "typically focus on the vulnerability component of risk simply because it is often the only component amenable to mitigation". Elahi et al. (2011) summarized that security risk assessments are "challenging because risk factors, such as probability and damage of attacks, are not always numerically measurable … by identifying and analyzing common vulnerabilities the probability and damage of risks are evaluated qualitatively".

Traditional industry approaches to risk management are founded upon a premise that the likelihood and consequences of uncertainty, that is, risk events, are quantifiable, even if subjectively by employing qualitative analysis. This assumes levels of knowledge, predictability and rationality that may be unrealistic in instances of profound uncertainty. For example, security risk assessments associated with international terrorism can be highly problematic. International terrorists, people prepared to commit suicide while inflicting mass murder on faceless fellow humans, thereby perpetrating acts that are beyond norms of human behaviour, can be deemed to be grossly irrational. Terrorists have elements of surprise at their disposal that includes significant freedom to choose time, place, targets, scale and weapons. As Young (2010, 12) pointed out in regard to terrorism: "Historical data on previous occurrences may not be germane in estimating the likelihood component of risk, because the conditions

driving such events sometimes change over even relatively short timescales." Assessing and reducing vulnerability becomes the primary viable option where risks are significantly random and unpredictable because events are likely to be created by irrational actors or actions beyond the normal range of human experience.

This phenomenon has been recognized in the literature on climate change. Brooks et al. (2005, 152–153) observed that definitions of risk in nature are commonly problematic because multiple, largely unrelated factors combine to make assessments of the likelihood of a "hazard event" triggering "a disaster or series of events with an undesirable outcome" that may result in a range of consequences extremely difficult to determine with any degree of confidence. The variables are large, uncontrollable and indeterminate, and the dynamics of interaction between natural events and the natural and man-made environments are often incalculable; therefore, risk is viewed as a "function of hazard and vulnerability".

Vulnerability depends critically on the context. According to Brooks et al. (2005), the "factors that make a system vulnerable to a hazard will depend on the nature of the system and the type of hazard in question". Vulnerability is "essentially … determined by the internal properties of a system".

Definitions of vulnerability in the world of climate change vary. In 2007, the Intergovernmental Panel on Climate Change (IPCC) offered two definitions of vulnerability as follows: "The degree to which a system is susceptible to, or unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude, and rate of climate variation to which a system is exposed, its sensitivity, and its adaptive capacity". Alternatively, the "degree to which a system is susceptible to injury, damage, or harm (one part – the problematic or detrimental part – of sensitivity)", with sensitivity, in turn, described as the "degree to which a system is affected by or responsive to climate stimuli" (IPCC 2007). In 2014, the IPCC presented a revised definition of vulnerability as "the propensity or predisposition to be adversely affected. Vulnerability encompasses a variety of concepts and elements including sensitivity or susceptibility to harm and lack of capacity to cope and adapt" (IPCC 2014, 4).

Brauch (2011, 67–78) considered vulnerability to be constantly changing due to a "*complex* process encompassing multiple intricate dimensions". He suggested that vulnerability had two distinct features "*exposure* and *insufficient capacities*" that encompassed physical and sociological

exposure to risk and the lack of capacity to prevent, prepare for and respond to "hazards and disasters".

In the predominately developing-world IOR context, the lack of capacity to mitigate harm and to change and adapt is a very significant risk consideration; it is particularly important that notions of vulnerability be taken into account. The following definition is proposed:

Vulnerability is the state of susceptibility to harm from exposure to risks posing unquantifiable uncertainty combined with insufficient capacities to prevent, prepare, respond or adapt.

Towards a Universal Definition of Maritime Security

A workable definition of maritime security can be developed by drawing upon the analysis of security and strategy, plus risk and vulnerability. A broad concept is necessary in seeking to develop policy and governance options that will enhance maritime security in the IOR. Notions inherent in securitization and critical security studies need to be considered. Widening of the concept of maritime security may be difficult to accept for those coming from realists' international relations perspectives. However, this is necessary in order to adopt a strategic approach to the interactive and holistic nature of security risks and vulnerabilities in an increasingly globalized context. However, as experience has shown in the ARF Western Pacific context, gaining IOR-wide acceptance of a universal definition is a lofty and probably unachievable aspiration.

Reflexive practices must be included in keeping with evolving values and norms, often expressed through international regimes, with both the perpetrators and the protectors of security increasingly involving state and non-state actors. The lines between state and community responsibilities and those of individuals, along with the rights and obligations of other, non-state, entities, have become increasingly blurred. This does not mean that the requirement to provide security is any less compelling. Notably, convergent concepts of security and risk are evident, particularly in contemporary practical applications. Perceptions of certainty and uncertainty are apparent, where uncertainty equals risk, which needs to be assessed and mitigated, often with a security response.

Identifying 'security for whom' and 'whose values' will remain problematic, along with whether or not an issue must represent an 'existential threat' in order to qualify as a security matter. What may appear to be an

existential threat to one actor may be a manageable annoyance to another. In line with risk-based thinking, the important question becomes one of perception by the 'referent object' whose security is considered threatened, who may perceive that their very existence is in jeopardy, or whose core values may be under threat.

Perceived cause and effect become critical considerations, along with the means required in order to achieve the security ends being sought. As the traditional military strategists correctly identified, understanding the *nature of the conflict*, or the *security context*, is an essential precursor to effective action. While this has become more difficult to achieve with accuracy and certainty, due to the complex, evolving and systemic nature of the world, the requirement to do so is ever more compelling. Providing a security response that is inappropriate because the fundamental nature of the problem was not understood can have dire unintended consequences and can create even larger security concerns.[27]

Concepts of *maritime security* should be consistent with the *profoundly international, interconnected and systemic realities of the oceans.* Security must be conducted in the context of and support the global collective security framework enshrined in the UN Charter and related international agreements, particularly the Law of the Sea. Comprehensive and cooperative security concepts also need to be embraced. Individual state and non-state actors, along with regional and global regimes, need to be recognized and accommodated.

Multifarious aspects of human endeavour have security considerations that converge and overlap to varying degrees at sea. Included here, for example, are associated requirements for economic, environmental, energy, human, food and traditional military security. Political, cultural and social issues are also involved, along with domestic and external concerns.

The notion of the convergence between security theories and complex systems theories has been recognized as enriching the security discourse (Mesjasz, 58–62). Nowhere is this more apparent than in considering maritime security. A systemic approach is essential; maritime security needs to be an integral and central component of global and regional security systems. The sea needs to be husbanded by the community of mankind as part of our common heritage, while at the same time, the business of humanity, that is, trade, resource exploitation, international competition and so on, needs to be facilitated.

Providing security in the maritime domain lies beyond the rights and responsibilities, and capacities, of any single actor or group of actors; the

requirement is comprehensive and the responsibilities are collective. Notably, the published national security policy documents of significant IOR regional states, and extra-regional states, include notions of security that recognize the changing and broadening nature of the security environment.

Devising a concise and lucid yet comprehensive definition that adequately captures the nuances of the evolving and complex IOR maritime security construct and requirements is not easy; however, a simple definition is needed. Taking the many factors outlined into account, cognizant of the requirement to align the means with the ends being sought while understanding the nature of the security context, the definition advocated here is as follows:

> Maritime security is an inclusive concept that derives from the systemic nature of the maritime domain presenting multiple and interrelated requirements for security cooperation between state and non-state actors; it addresses traditional and non-traditional security challenges. Maritime security involves coordinating collective and cooperative risk mitigation and vulnerability reduction efforts in order to protect and promote national, regional and global vital interests, objectives and core values, including those relating to state sovereignty, freedom of navigation, economic development, environment and ocean resources, human and social development, and political stability.

A Risk, Vulnerability and Security Analytical Framework

In moving towards an integrated security, risk and vulnerability ethnographic analytical framework for Indian Ocean maritime security, several key factors emerge. These include the communal nature of risk and security and how this can translate into incentives to adopt collective and cooperative security approaches and risk treatment or vulnerability reduction strategies, noting that impacts will vary for different actors within a common system. In this sense, the analytical approach being pursued here is transformative, in line with constructivists' perspectives of international relations, and normative, consistent with both realists' and liberalists' perspectives. A risk, vulnerability and security analytical framework can be applied to develop maritime security policy options for the IOR (Table 2.1).

Table 2.1 Risk, vulnerability and security analytical framework

Stage/Group	*Process*	*Risk, vulnerability and security analysis process framework*
Establish 'who'	1	Identify key actors involved (or should be involved)
	2	Understand vital interests, roles and core values of key actors
	3	Define whose perspectives are applied or considered (i.e. 'so what' for whom?)
Establish objectives and interests	4	Understand and define commonly held objectives; appreciate variances
	5	Recognize discontinuities that create uncertainties
Assess risks and vulnerabilities	6	Apply primarily qualitative judgements in assessing risks.
	7	Assess vulnerabilities to profound and incalculable uncertainty
	8	Understand and define common and diverse perceptions of uncertainties (risks) that impact the achievement of objectives
	9	Establish the strategic maritime security risk context
Understand risk impacts	10	Define appetite and tolerance for risk for key actors
	11	Ensure that the nature of maritime security challenges and risks are understood
	12	Cater for variances in the likelihood and consequences of security risk events for different actors in the IOR maritime system
Treat, mitigate, accept risks/reduce vulnerabilities	13	Consider options and opportunities for treating security risks and reducing vulnerabilities available to various actors individually, collectively and cooperatively
	14	Ensure that the means and ends required to achieve enhanced maritime security are understood and applied
Ongoing evaluation	15	A cyclic process: feedback to the start—a cybernetic system

Notes

1. The term 'securitization' was originally coined by the 'Copenhagen School' of security studies, a group of scholars who were variously associated with the Copenhagen Peace Research Institute circa 1983, and after that included Barry Buzan, Ole Wæver and Jaap de Wilde as prominent members.

2. Critical security studies are often associated with 'the Frankfurt School's Critical Theory'. The 'Frankfurt School' is a term used to describe what originally started as the Institute for Social Research, set up by a group of neo-Marxist intellectuals in Germany in 1923, affiliated to Goethe University in Frankfurt and independently of the Communist Party, which has been influential in the development of Marxist theory ever since.
3. Mainly naval forces but also involving air and land forces, and abilities to command, control, communicate and the effectiveness of surveillance, reconnaissance and intelligence, along with cyber and space.
4. For example, merchant and fishing fleets, port infrastructure, ship building and repair industries.
5. For example, the International Maritime Organization—IMO.
6. For example, the Regional Cooperation Agreement on Combating Piracy and Armed Robbery against Ships in Asia (ReCAAP) and the Code of Conduct concerning the Repression of Piracy and Armed Robbery against Ships in the Western Indian Ocean and the Gulf of Aden (Djibouti Code of Conduct).
7. In 2004, Kofi Anan, Secretary General of the United Nations, provided a statement that typified collective security challenges and concerns. In his letter to the UN General Assembly (UNGA) in launching a report from his specially appointed 'High-level Panel on Threats, Challenges and Change', he stated, "I argued that we faced a decisive moment for the United Nations – and in particular for the aspiration set out in the Charter to provide collective security for all. I drew attention to deep divisions among the Member States on the nature of the threats that we faced and the appropriateness of the use of force to address those threats … The report offers the United Nations a unique opportunity to refashion and renew our institutions. I wholly endorse its core arguments for a *broader, more comprehensive concept* of collective security: one that tackles new and old threats and addresses the security concerns of all States – rich and poor, weak and strong. The Panel's insistence that we must see the interconnectedness of contemporary threats to our security is particularly important … As the Panel rightly says, our principal focus should be on preventing threats from emerging. But should such threats emerge, we must be better prepared to respond."
8. Gareth Evans argued: "The virtue, and utility, of the expression 'cooperative security' is that the language itself encourages an open and constructive mindset, one less likely to be inhibited by familiar disciplinary boundaries and traditional state-centered security thinking. The term tends to connote consultation rather than confrontation, reassurance rather than deterrence, transparency rather than secrecy, prevention rather than correction, and interdependence rather than unilateralism."

9. Sea control is defined as that condition which exists when one has freedom of action to use an area of sea for one's own purposes for a period of time and, if required, to deny its use to an opponent.
10. Sea assertion involves asserting control or dominance of an area of sea for a period of time.
11. Sea denial is defined as that condition which exists when an adversary is denied the ability to use an area of sea for his own purposes for a period of time.
12. Maritime power projection involves the delivery of force from the sea and can take the form of amphibious or Special Forces landings or the delivery of bombardment, guided or unguided weapons, and military aircraft from seaborne platforms.
13. The inaugural ASEAN Regional Forum (ARF) meeting on 25 July 1994 directed that comprehensive security be studied, and at its second meeting on 1 August 1995, the notion of "comprehensive security" was specifically referred to. The Chairman's statement noted: "[T]he ARF recognises that the concept of comprehensive security includes not only military aspects but also political, economic, social and other issues."
14. Threats such as civil war, transnational crime, terrorism, infectious diseases, and the proliferation of small arms are now included. To this could be added piracy; illegal immigration; trafficking of drugs, weapons and people; illegal, unreported and unregulated fishing; and marine resource exploitation and pollution.
15. Non-governmental organizations (NGOs), private security companies and international regimes are now providers of security in some contexts.
16. Sam Bateman provided the following statement about defining maritime security to the 2nd ARF Inter-Sessional Meeting on Maritime Security held in Auckland, 29–30 March 2010: "The situation is complicated by the lack of agreement among regional countries both on a definition of maritime security and on the priority to be accorded different threats. Some countries include non-traditional security threats within their definition, but others are uncomfortable with including environmental threats and illegal fishing. The concept of maritime security is now much wider and more diverse than the traditional one of defence against military threats and the protection of national interests and sovereignty at sea. With the notion of comprehensive security, the concept now includes non-traditional security issues, such as piracy, terrorism, natural disasters, climate change, illegal fishing, marine pollution, maritime safety and the smuggling of drugs, arms and people."
17. The meanings of the words in the definition of risk are explained: "Effect is a deviation from the expected – positive and/or negative"; "Objectives can have different aspects (such as financial, health and safety, and environmental goals) and can apply at different levels (such as strategic,

organization-wide, project, product and process)" and "Uncertainty is the state, even partial, of deficiency of information related to, understanding or knowledge of, an event, its consequence, or likelihood". The definition notes state: "Risk is often characterized by reference to potential *events* … and *consequences* or a combination of these" and is "often expressed in terms of a combination of the consequence of an event … and the associated *likelihood* … of occurrence". The associated term "risk management" is defined as "coordination activities to direct and control an organization with regard to *risk*" (ISO 2009, 2).

18. Risk management includes the "overall governance, strategy and planning, management, reporting processes, policies, values and culture" (AS/NZS 2009, iv–v).
19. *HB 158-2010* (ISO 2010, 13–19) provides extensive guidance on the implementation of holistic risk management in organizations and expounds upon the practice and benefits of instituting risk controls and risk assurance mechanisms.
20. *ISO Guide 73* defines *risk tolerance* as the "organization's or stakeholder's readiness to bear the risk after risk treatment in order to achieve objectives".
21. *ISO Guide 73* defines *risk appetite* as the "amount and type of risk that an organization is willing to pursue or retain".
22. *HB 158-2010* (ISO 2010, 21–22) asserts that risk management "is fundamental to organizational control and a critical part of providing sound corporate governance. It touches all aspects of … activities … many organizations have moved to adopt Enterprise Risk Management (ERM)".
23. There are several definitions of enterprise risk management (ERM) in use, with the official international risk management literature offering a US-derived definition (ISO 2010, 6). The (US) Committee of Sponsoring Organizations of the Treadway Commission (COSO) defines ERM as: "A process effected by an entity's board of directors, management and other personnel, applied in strategy setting and across an enterprise, designed to identify potential events that may affect the entity, and manage risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives." A definition used by the (US) Actuarial Society, Enterprise Risk Management Committee, May 2003, is as follows: "ERM is the discipline by which an organisation in any industry assesses, controls, exploits, finances, and monitors risks from all sources for the purpose of increasing the organization's short- and long-term value to its stakeholders." HM Treasury (UK) defines ERM as: "All the processes involved in identifying, assessing and judging risks, assigning ownership, taking actions to mitigate or anticipate them and monitoring and reviewing progress." Implicit in these ERM definitions is recognition that it

presents a strategic decision support framework for management designed to improve the quality of decision-making at all levels of the organization.

24. Political risk assessments are particularly important in forecasting the long-term situation in a specific geopolitical context. The risk identification process is important, as it sets the political risk context. Political risk calculation is invariably a measure of judgement by the analyst and entity leadership. Evaluations of political stability and security, over a 20- to 30-year time frame, in parts of the developing world where, for example, major natural resources are available for exploitation will often be difficult.
25. How risks combine and potentially magnify due to cumulative and/or aggregated factors, which often appear to be discrete and diverse but in fact impact on each other, presents challenges to risk management at national and organizational levels. Evaluations of aggregated and accumulated risk at larger organizational levels that involve complex interactions require access to good data and the application of experienced judgement employing a largely qualitative approach. Effective quantitative assessment of aggregated and accumulated risk in organizations has generally proven elusive. Various approaches, models and technology-driven systems have been tried. The results have been useful for calculating aggregated risk at a tactical level where largely technical, routinized processes are employed. Reasonable confidence in qualitative judgements in assessing aggregated and accumulated risk at the enterprise or organizational level requires sound organizational constructs, good risk and safety management processes, systems and information, and the engagement of suitably experienced and responsible management oversight.
26. Although "vulnerability" is defined as "intrinsic properties of something resulting in susceptibility to a risk source that can lead to an event with consequences" in ISO (2009, 8).
27. Witness the unintended outcomes of the US-led 'War on Terror'.

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CHAPTER 3

The Indian Ocean Region Maritime Security Risk Context

Establishing the strategic risk context is an essential first step in the risk analysis process. It forms the foundation for assessing risks and subsequently developing risk treatment options. Critical questions in the overall risk analysis process include: what are the system-wide objectives that may require maritime security responses in the Indian Ocean region (IOR)? What external and internal risk and vulnerability factors impact the security of IOR maritime systems? Which actors need to be involved, which governance arrangements are necessary; and whose interests, values and security should be considered? The risk context analyses provide bases for informing how maritime security can interface with and contribute to other aspects of regional security, for example, traditional and non-traditional security, economic, environmental, human, food and energy security.[1]

Formal risk management guidelines emphasize the criticality of establishing the risk context and conducting a risk assessment. They form part of a well-structured systematic approach. Risk context requirements are consistent with the need to understand the nature of a conflict emphasized in strategic security approaches. The risk context articulates an organization's objectives, explains the risk management parameters and sets the scope for defining and treating risks. The subsequent risk assessment involves identifying, analysing and evaluating the risks, and in this case, the

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vulnerabilities, that may impact achievement of an organization's strategic objectives (AS/NZS 2009, 3 and 15–18).

The guidance outlined in *ISO 31000:2009 Risk Management – Principles and Guidelines* has proven to be sound for private and public sector entities in a variety of organizational and risk circumstances. The critics of Ulrich Beck's grand concepts of risk on global and regional scales noted that his *world risk* assertions lacked empiricism; his theories remain to be validated.

Applying risk management processes to a complicated international scenario certainly presents challenges. Formal processes assume the existence of a distinct organization that has defined (or at least definable) objectives. In the diverse and largely incoherent Indian Ocean context, there is no clearly identified regional organization. Regional, subregional and extra-regional actors have a range of largely unstated objectives and interests potentially at risk. Strategic risks to maritime security will impact various components of an IOR 'organization' and specific 'objectives' differently; commonly perceived risks will have a variety of impacts. For example, sea level rise may have existential consequences for low-lying IOR island states and coastal zones, and be relatively inconsequential for others; sea temperature rise may be catastrophic for certain types of sea life and enhancing for others; impacts on fisheries and tourism will vary.

These complicating factors do not, however, imply that risks should not be considered as communal concerns in a regional context; there are many instances of the "Cosmopolitan Condition" (Beck 2007) in the IOR. While the variety of direct effects that may arise for diverse, individual actors need to be acknowledged, overall impacts on the interconnected maritime system should be a paramount collective concern. For example, sea level rise effects could range from coastal inundation and complete loss of livelihoods for some to the maritime security consequences of mass transmigration for others; all participants in the system will be affected, directly or indirectly. These concerns do not render risk-based IOR maritime security redundant as an intellectual and practical regional security policy development initiative. They do, however, support the need for a structured approach.

Viewing the IOR as a Maritime System

A useful approach for conceptualizing an Indian Ocean virtual organization, where no organization currently exists, is to contemplate the IOR as a complex system. The nexus between organizations as systems with

orientation to shared objectives or goals and the IOR as a system that functions within and connects to the wider global system is consistent with both general systems and related contingency theories of organizations (Clegg and Dunkerley 1980, 175–177; Shafritz and Ott 1987, 234–239) and international relations theories (Keal 2012, 246–249; Rourke 1993, 32–83). Regional security complex theory, for example, has been suggested as one way of recognizing "regional clusters" when considering securitization. The idea of a regional security complex depends upon there being "significant levels of security interdependence" among regional actors (Buzan and Wæver 2003, 40–76 and 229). The notion of region-wide security interdependence in the diverse IOR has so far been tenuous. Emerging maritime security issues present profound security interdependency challenges into the future, particularly those related to climate change and resource depletion in the marine environment, along with threats to maritime trade flows.

What is an essentially neorealist approach based around states and national, regional and global interests offers utility in drawing together securitization factors and priorities. However, what constitutes regional as apart from global in the international system presents difficulties, particularly in attempting to identify and differentiate what falls on which side of an imaginary regional/global boundary (Buzan and Wæver 2003, 27–28). There is very limited utility in attempting to do this in the interconnected maritime context. This conundrum can be ameliorated by taking a systems approach that recognizes that there will be multiple and diverse areas of crossover: 'systems within systems'. Concentrating on the key elements relevant to a particular analysis is necessary. Matters germane to maritime, marine and security within the IOR geographical boundaries need to be the focus.

A virtual IOR organization can essentially be viewed as an open system adapting to constantly changing environmental factors (Shafritz and Ott 1987, 237), operating in a continuum of certainty and uncertainty (Lawrence and Lorsch 1987, 205–209). Contingency theory has salience because the effectiveness of an organization, viewed as a system, is dependent upon the interactions between any issue under consideration and other aspects of the system. Everything is situational and dynamic; the greater the levels of uncertainty, the more contingent approaches to decision-making become applicable (Shafritz and Ott 1987, 238). Notably, systems theory generally, and specifically in international relations, is concerned primarily with relationships, structure and interdependence

(Katz and Kahn 1987, 253). The international system is constantly evolving, noting that the idea of an 'international system' and that of a 'system of states' have been largely synonymous in recent times. While the state remains the central actor, other actors such as intergovernmental organizations, non-governmental organizations, transnational corporations and individuals must increasingly be considered (Devetak 2012, 4–18).

The challenge in endeavouring to define a virtual IOR organization as an integrated, open system is to focus upon commonalities rather than differences. Analysts have offered several ways of defining the IOR as a largely unconnected collection of primarily land-centric subregions (Gupta 2010, 61–66), with the Middle East, South Asia, Asia-Pacific Rim, Sub-Saharan Africa and East Asia (to include Australia) variously mentioned (Cohen 2003; Buzan and Wæver 2003). The concept of an "Indian Ocean System" comprising "coherent sub-regional" systems was proposed by Bouchard and Crumplin (2010, 41), which, they suggested, would include the "Persian Gulf, South-Asia, South-East Asia, East Africa, Horn of Africa, Southern Africa, South-West Indian Ocean Islands" as part of the "other peripheral regional systems" of the "Greater Middle East, African Union, Asia-Pacific". The proposed subregional systems largely correlate with cooperative and economic groupings.

The idea of an Indo-Pacific construct has also been suggested (Medcalf 2012; Rumley et al. 2012). An Indo-Pacific concept may be particularly attractive to states and regions that straddle the confluence of the Indian and Pacific Oceans, such as Australia and parts of Southeast Asia. However, it has limitations when viewed from Indian Ocean regional maritime strategic perspectives. Maritime strategic concepts recognize the interconnected and systemic nature of the world's oceans, of factors such as trade and the environment, and therefore the need for *security of the global maritime system*. The western and north-western oceanic extremities of the Indian Ocean, choke points and connections to the Mediterranean Sea and the Atlantic Ocean, along with the central sea lines of communication (SLOCs) and marine zones, need to be considered in equal measure to those on the eastern and north-eastern side that connect with the Pacific Ocean. A maritime security problem, such as piracy, that impacts maritime trade flows in the Gulf of Aden or the Malacca Straits affects the whole Indian Ocean (and global) trading system and therefore presents systemic maritime security risks.

Maritime strategic perspectives recognize the systemic nature of global and regional maritime. The sea lanes are highways for world commerce that pass through areas within national jurisdiction, and the high seas, for

the mutual benefit of internal and external Indian Ocean actors. The well-being of the Indian Ocean marine environment, similarly, should be of concern to all mankind. A general systems approach to geopolitics is useful for understanding relationships between political structures and geographical environments (Cohen 2003, 3 and 58), and this has particular relevance in the IOR maritime context.

From a geopolitical perspective, the IOR currently does not comprise an integrated security system; at best, it can be described as a disparate and diverse collection of subsystems. However, the proliferation of 'non-traditional' security threats in the IOR requires 'non-traditional' security approaches involving both state and non-state actors (Rumley and Chaturvedi 2004, 27–29). The idea of a "maritime regionalism paradigm" has salience here, with the interrelationships of people and the full spectrum of security agendas with the Ocean at its centre (Rumley et al. 2012, 4–5).

Geopolitical divisions and concepts of sovereignty are often clear and precise on land. However, they become less so in the oceanic domain due to the interconnected nature of maritime geography and the convergence of issues. In the IOR, the Ocean is of central importance, the core element in attempts to define a regional order; it is the primary common link internally and with the rest of the world (Bouchard 2004, 84–85 and 102–104).

Maritime strategic perspectives call for the primary focus to be on the integrating and interconnected nature of the sea: Panikkar's (1945, 18) notion of "the oneness of the sea" as it affects the shared objectives of those ashore. The advent of the United Nations Convention on the Law of the Sea (UNCLOS) reinforced this view. The UN General Assembly (UNGA) resolved that "the problems of ocean space are closely interrelated and need to be considered as a whole". The UNGA also noted the need to develop the "law of the sea in a framework of close international cooperation" (United Nations 1983, xx); many UNCLOS provisions add substance to this view.[2]

For the purposes of analysing maritime security risks, an IOR virtual organization needs to be an expansive and inclusive maritime system, operating within the geographical confines of the Indian Ocean, as part of the global maritime system. A workable basis for defining the risk context and conducting risk assessments is necessary. This involves viewing the IOR as follows:

> A virtual organization defined as a dynamic oceanic system functioning within the geographical boundaries of the Indian Ocean. Practical utility is

afforded by conceiving the Indian Ocean as an open system, comprising a composite oceanic and littoral geographic region in which regional and extra-regional actors have common objectives and interests with common risks and shared vulnerabilities.

Defining IOR Maritime Strategic Objectives

The routinized approach to risk contextual analysis recommends that the external context, fundamentally, the wider operating environment within which an organization functions, should be considered separately from the internal context, which includes an organization's capabilities and objectives (AS/NZS 2009, 14–17; ISO 2010, 13–14). The inherently interconnected nature of the IOR maritime system, within the global maritime system, apparent in the overarching globalized and political context, makes efforts to separate external from internal IOR contextual factors in the maritime domain difficult, and to a considerable extent, nugatory. The emergence of a so-called new security agenda recognizes the overlapping importance of non-traditional security (Rumley 2013, 15; Brauch and Spring 2011, 39–40) with traditional state military security issues. In this maritime security risk context, defining precise boundaries between national, regional and global issues offers little utility. Central considerations are how common issues impact regionally and how effective regional institutions and collective and cooperative arrangements are, or can be, in dealing with the management of shared risks to the common objectives of multifarious actors: regional and extra-regional. This requires a composite, integrated, systemic approach.

Factors that impact the IOR maritime security risk context require a forward-looking analysis. A time horizon of 30 years and beyond is necessary to encompass contextual trends for issues such as climate change. Generic strategic or enterprise IOR objectives are derived. The strategic objectives are necessarily high level and broad.

Law of the Sea

A framework for global oceans governance is provided by UNCLOS. Then UN Secretary General Javier Perez de Cuellar opened UNCLOS for signature in December 1982 with a speech optimistically titled 'International Law Is Irrevocably Transformed' (United Nations 1983, xxix–xxxii). The President of the Third UNCLOS Conference, Tommy Koh from

Singapore, suggested that UNCLOS will "stand the test of time" as a "comprehensive constitution for the oceans", while acknowledging that it "consists of series of compromises" intended to promote "international peace and security" by providing the basis for maritime territorial claims, supporting the international community's "interest in the freedom of navigation", enhancing conservation and utilization of living resources at sea, providing for protection and preservation of the marine environment, facilitating scientific research at sea and providing mechanisms for dispute resolution (United Nations 1983, xxxiii–xxxvii).

The fundamental intent of UNCLOS remains relevant in the Indian Ocean today. The law of the sea impacts maritime security in many ways. There are also numerous subordinate international regimes relevant to the maritime domain, some of which are listed in the Appendix.[3] All IOR littoral states and significant extra-regional states have ratified UNCLOS, with the exception of Indian Ocean Rim Association (IORA) member states Iran and United Arab Emirates (UAE) (both signatories in 1982 but have not yet ratified), along with non-IORA states Eritrea and Israel. The United States is the only significant external maritime power that is not a signatory. This circumstance generates ongoing frustration in the international community, with the UNGA regularly announcing that it "*[c]alls upon* all States that have not done so, in order to achieve the goal of universal participation, to become parties to the Convention and the Part XI Agreement" (UNGA 2012a). Notwithstanding the lack of ratification by a small number of IOR littoral states, and the United States, UNCLOS is established as customary international law and variously employed by all actors in the international maritime system.[4]

The list of maritime security–related treaties in the Appendix is not intended to be comprehensive; however, it does support several observations. The International Convention for the Safety of Life at Sea 1974 (SOLAS 74) is well subscribed by IOR littoral states. It is important to maritime security, particularly ports and shipping, because the International Code for the Security of Ships and of Port Facilities (ISPS Code) (IMO 2002) is directly related and provides the international legislative framework for the safety and security of shipping and facilities against terrorism and other criminal acts. While SOLAS 74 and the ISPS Code provide international regimes for safety and security regulation, they do not authorize states to respond to acts or threats of terrorism and other criminal acts against shipping, ports and fixed offshore platforms. Authority to develop responses

are provided by the Convention for the Suppression of Unlawful Acts against the Safety of Maritime Navigation (SUA 1988) (IMO 2005a) and Protocol for the Suppression of Unlawful Acts against the Safety of Fixed Platforms Located on the Continental Shelf (SUA Protocol 1988) (IMO 2005b). Accession and ratification by Indian Ocean states to SUA 1988 and SUA Protocol 1988 is strong. Notable exceptions are Malaysia, Indonesia and Iraq, given their offshore oil and gas, port, and shipping activities.

The Convention on the Prevention of Marine Pollution by Dumping Wastes and Other Matter 1972 (London Convention 1972), the 1996 Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter 1972 (London Protocol 1996), and the International Convention on Oil Pollution Preparedness, Response and Co-operation 1990 (OPRC 1990), relevant to marine pollution prevention, response and recovery, are also listed in the Appendix. While support from Indian Ocean littoral states for OPRC 1990 is strong, support for the 1972 London Convention and the 1996 London Protocol is patchy; numerous IOR states with significant maritime claims and offshore oil and gas interests are not signatories.

Support for the International Convention on Maritime Search and Rescue, 1979 (SAR 1979) is strong among more developed IOR states but less so among developing states, indicating a lack of willingness and capacity to take responsibility for search and rescue at sea.[5] The UN Fish Stocks Agreement 1993–95, listed in the Appendix, primarily concerns the management of straddling and migratory fish stocks, which is of greater relevance to states adjacent to tuna migratory routes on the western side of the Indian Ocean.

Further linkages between the law of the sea, other international instruments and risk-based approaches to IOR maritime security are identified in an analysis of environmental issues later in this chapter and in a separate case study on offshore oil and gas. In essence, UNCLOS and related international provisions present a series of compromises designed to underpin "good order at sea" (Bateman et al. 2009) and to appease the sometimes conflicting oceanic interests of nation-states and other actors. Highly technical questions concerning sovereignty, jurisdiction, conservation and other matters abound. The voluntary, and therefore to an extent, arbitrary, nature of state decisions to embrace or reject all or parts of UNCLOS, along with various interpretations, continue to present significant challenges (Antrim 2012, 80–81). Three maritime legislative areas of significance are explored below in the IOR

maritime security context: maritime sovereignty, freedom of navigation, and environmental protection and resource management.

Maritime Sovereignty

In common with other oceanic regions, the majority of Indian Ocean states employ UNCLOS to make extensive maritime jurisdictional claims, while only a small number of states appear to have defied UNCLOS (Kaye 2010, 113). Maritime claims in the IOR "cover the full range of types of jurisdiction" (Kaye 2010, 127), and the majority of states have satisfactorily delimited their maritime boundaries (Rumley 2013, 62–64).

There are allegations of inappropriate interpretations of baselines, particularly in the north-western Indian Ocean around the Persian Gulf (Kaye 2010, 117–121; Kraska 2012, 464–471). Strategically important offshore oil and gas fields and energy SLOCs magnify jurisdictional tensions, which have been significant in regional conflicts. Global and regional energy supplies were central considerations in the 1984–88 'Tanker War' (part of the Iran–Iraq War) and the 1990–91 and 2003 Persian Gulf Wars.

There are several maritime boundary delimitation disputes in the IOR; however, remarkably few have involved or are likely to involve armed conflict (Kaye 2010, 114–121). A very positive example of how formal international arbitration processes can resolve sensitive maritime boundaries occurred when India and Bangladesh, on 7 July 2014, accepted a determination by the UN Permanent Court of Arbitration on the delimitation of shared boundaries in the Bay of Bengal (Permanent Court of Arbitration 2014; Bateman 2014).

Most IOR littoral states maintain a 12 nautical mile territorial sea and have declared 200 nautical mile exclusive economic zones (EEZs).[6] Several states have lodged extended continental shelf claims.[7] The Seychelles, Indonesia and Maldives have drawn archipelagic baselines, with Indonesia proclaiming archipelagic sea lanes (Kaye 2010, 121–122).

The provisions of UNCLOS are foundational to widely held maritime territorial aspirations particularly relevant to littoral states in the IOR virtual organization. Maritime sovereignty is important to regional and extra-regional actors, as it defines rights and responsibilities. It underpins traditional security issues, such as border security, as well as non-traditional security factors, such as oceanic resource exploitation and environmental management.

The first generic objective for the IOR maritime system, related to the law of the sea, is as follows:

Strategic Objective 1. Attain and sustain maritime territorial sovereignty.

Freedom of Navigation

The integrity of the Indian Ocean SLOCs is vitally important to the interests of regional and extra-regional actors. Navigational freedom to facilitate trade and permit the legitimate passage of warships and other activities, such as resource exploitation and scientific research, is a foundational principle of UNCLOS.[8] Rights of innocent passage, transit passage and archipelagic sea lanes passage, along with "freedom of the high seas" (UNCLOS Article 87), represent compromises between the expansive territorial jurisdiction claims permitted under UNCLOS and freedom of navigation. While many IOR littoral states respect and comply with the spirit and intent of UNCLOS, a significant number seek to impose restrictions on freedom of navigation in territorial seas, contiguous zones and/or EEZs, plus international straits that go beyond that permitted or intended under UNCLOS (Kaye 2010, 122–124). As Kraska (2012, 488) observed:

> [T]he law of the sea also creates expectations concerning the rights and duties of the coastal state with the freedom of navigation of foreign-flagged vessels and aircraft. Contending interpretations of UNCLOS might contribute to tension and increase the risk of conflict. Specifically, disagreements exist concerning the right of foreign flagged warships and commercial vessels to enjoy innocent passage in the territorial sea, transit passage through international straits, and high seas freedoms of navigation and other internationally lawful uses of the sea in the EEZ and on the high seas.

Restrictions placed upon navigation through strategically important straits in the north-western and north-eastern corners of the Indian Ocean are of particular concern. Various declarations made by littoral states seek to impose some level of restriction on transit through the Strait of Hormuz and Bab-el-Mendeb. The law of the sea does not permit the closure of or restriction of traffic through an international strait, and passage cannot be hindered or impeded (Kaye 2010, 122–124). Further, some major external maritime powers with significant interests in the IOR, such as China,

have allegedly taken an "expansive view of coastal state authority", which puts them at odds with the United States, which champions liberal interpretations of freedom of navigation as part of a long-term "strategy of assured access to the global commons as an enduring American security interest" (Kraska 2012, 488–490; Bateman 2012). Annual US Department of Defense Freedom of Navigation reports, for example, contain allegations of numerous transgressions by states involved in the Indian Ocean, including China and India (US DoD 2014a).

Important to freedom of navigation and law and order at sea are states' obligations under UNCLOS to "render assistance" and provide "an adequate and effective search and rescue service" (Article 98), prevent slavery (Article 99) and deal with piracy and other illicit activities at sea (Articles 100–111). These obligations particularly apply in Areas Beyond National Jurisdiction (ABNJ), called the "high seas" (UNCLOS Part VII), which comprise 40 per cent of the world's surface, 64 per cent of the oceans' surface and almost 95 per cent of their volume (FAO 2011); they also variously apply to areas within national jurisdiction.

The second IOR maritime system objective relates to freedom of navigation. It can, to an extent, lead to circumstances that are at odds with Strategic Objective 1:

Strategic Objective 2. Assure freedom of navigation in accordance with UNCLOS.

Conservation, Protection and Management of the Marine Environment and Resources

A central tenet of oceans governance is conservation, protection and management of the marine environment and the resources found in the oceanic domain. UNCLOS defines maritime zones where states are permitted to assert sovereignty (i.e. territorial seas), others that are subject to levels of national jurisdiction (i.e. EEZs and extended continental shelf), and the high seas or ABNJ. UNCLOS also defines responsibilities for the conservation and utilization of living resources in the EEZs (Articles 61–68) plus sovereign rights to explore and exploit the seabed (Article 56). Extended continental shelf provisions, as determined by the Commission on the Limits of the Continental Shelf, may allow a coastal state access to "non-living resources of the sea-bed" and living "sedentary species" (Articles 76 and 77 and Annex II). UNCLOS also requires states to conserve and

manage the living resources of the high seas (Part VII, Section 2); urges littoral states to cooperate either "directly or through an appropriate regional organization" in the conservation and management of enclosed or semi-enclosed seas (Article 123); protect and preserve the marine environment (Part XII); and conduct, promote and cooperate in marine scientific research (Part XIII).

Notions of interdependence, with the oceans being a vital part of the "global commons" under the "principle of the common heritage of mankind" (UNEP 2013),[9] and wider understandings of the intrinsic importance of the oceans to the world and to humanity are considerations that underpin contemporary oceans governance and policy (Gupta 2010, 18–22). Maritime sustainability is "deemed to be essential to the future wellbeing of the world" (Chang 2012, 56). Aspects of this concept are evident in the 1972 Stockholm Declaration[10]; the 1992 Rio Declaration, Chap. 17 of Agenda 21[11]; the 2002 Johannesburg Declaration[12]; the 1972 London Convention; and the 1996 London Protocol. However, an overall sense of direction is missing. Marine resource and environmental issues are immense and inherently interconnected. However, comprehensive, aggregated and integrated approaches to oceans governance, advocated under UNCLOS, are not generally implemented in areas within national jurisdiction in the Indian Ocean, although there are ongoing efforts in this direction in Australia (Chang 2012, 57–61 and 73–76).

Efforts to promote integrated oceans governance in the high seas are also at a nascent stage. The future of ocean resources is dire. More than 75 per cent of the world's fish stocks are reported as fully or overexploited (FAO 2007), with increasing numbers of marine species considered to be threatened or endangered. High seas management is fragmented between agencies with different agendas and priorities, which presents significant governance concerns (Rayfuse and Warner 2008, 401–402).[13] Many years of discussions through the United Nations Informal Consultative Process on Oceans and the Law of the Sea (UNICPOLOS) have made little real progress. There is strong resistance from some developed countries to extend UNCLOS Part XI provisions beyond primarily mineral resources to also include living resources.

The lack of high seas governance has been described as a "tragedy of the commons" that highlights the ineffectiveness of flag state jurisdiction (Rayfuse and Warner 2008, 403–408). Efforts to enforce maritime domain governance in the IOR are particularly weak because a considerable number of states, "specifically those situated in Africa", lack the

resources necessary to properly enforce their maritime sovereignty (Potgieter 2012, 3). UNGA (2012b) efforts continue in an endeavour to improve global and regional approaches to fisheries and other ocean resources management.[14]

The third IOR maritime system objective related to the law of the sea is as follows:

Strategic Objective 3. Implement effective conservation, protection and management of the marine environment in areas within national jurisdiction and the high seas.

Globalization, Economy and Trade

Globalization is central to the contemporary strategic context, although the impact of this postmodern phenomenon is uneven. The concept is complex and contested in definition and scope (Rossi 2007). Many arguably pre-modern countries and societal groups within countries, including developed countries, have limited opportunities to participate. Despite positive economic and social effects, globalization accentuates disparities between peoples in developed states able to participate in the international system and peoples in undeveloped states less able to participate (UNCTAD 2012). Maritime security is a core consideration in globalization because the sea-based trading system, upon which it depends, needs to be defended (Till 2009, 1–8; Prakash 2011, 7).

The challenges, opportunities and pressures that globalization imposes are heightened in the IOR due to grossly uneven effects. Developed or more advanced states, such as Australia and South Africa, are able to participate in the globalized economy and have some capacity to adapt to issues such as climate change. Developing states are likely to become increasingly marginalized and disenfranchised. Attendant regional security problems will impact all participants in the IOR. Globalization tends to emphasize the importance of non-state actors and, to an extent, diminishes the role of states, requiring adjustments to geopolitical settings and concepts (Cohen 2003, 7). This applies in the politico-economic dimension, with multinational corporations and international financial institutions dominating manufacturing, trade and finances across the world; and in the case of environmental change, that can be linked to global cultural and political factors (Held and McGrew 2002, 2–8).

Globalized networks have emerged with both positive and negative implications for maritime security (Rumley 2013, 16–17). The need for balance between political, economic and cultural agendas is highlighted (Rossi 2007, 60). In the dynamic and diverse IOR, where religious differences can dominate, political ideological variances abound and there is vast economic disparity, the aspirations and impacts of globalization are particularly fraught; attaining balance and equity poses huge challenges (Homer-Dixon 2006, 11–14). The IOR result is a security milieu where increased globalized networks heighten systemic vulnerabilities to threats from non-state actors and transnational elements. Technological connectivity has brought both defenders and perpetrators closer together to share space and time, and solutions that require international cooperation and will often involve international law (Rumley 2013, 16–17). Giddens (2000, 65) observed that "globalization contributes directly to the creation of new risks; it places a premium upon the effective management of both the dynamic and the threatening sides of risk-taking". Globalization generates uncertainties that equate to risks in the IOR; importantly, it also presents opportunities.

Directly linked to globalization and particularly relevant to maritime security is economic performance and trade. The emerging prominence of the IOR economically and as a principal maritime trade route, with particular significance for energy and other bulk commodities, is well documented. Keeping the IOR SLOCs open is vital to global and regional economies.

Uneven economic development is profoundly evident in the IOR, and this creates intra-regional tensions. According to the United Nations Conference on Trade and Development (UNCTAD), the IOR contains 22 of the world's 48 least developed countries (LDCs).[15] Twelve IOR littoral states and 10 landlocked states are listed. Growth in African and Asian LDCs is variable and fragile; many states have narrow commodity-dependent economies (UNCTAD 2012, iii, 2 and 14). The developing countries in the IOR are very vulnerable to structural economic changes and uncertainties (UNCTAD 2013, 1–31).

One notable trend has been the expansion of South–South trade, with more than half of LDC exports now to other developing economies, consistent with a gradual shift in the balance of the world economy (UNCTAD 2011, v and 21; Bouchard 2004, 99). This global macroeconomic trend has particular significance for the IOR, given the proliferation of developing economies, combined with a pre-colonial history

of intra-regional trade that appears to be re-emerging (Chew 2011, 15; Bose 2006, 15). South–South trade increases have occurred predominantly in Asia, led by China and India, and less so in Africa (UNCTAD 2013, 28–30).

While some economies in the Indian Ocean continue to experience strong growth, regional economies are largely commodity based and the economic outlook is fragile. Economic well-being, development and diversification remain major priorities, regionally and globally.

Strategic Objective 2, freedom of navigation, is underscored by economic and trade requirements. Specific strategic objectives that relate to globalization and economy include:

Strategic Objective 4. Address the uneven effects of globalization across the IOR system.

Strategic Objective 5. Promote economic development and enhance intra-regional and extra-regional maritime trade.

Energy

Energy security in the IOR is crucial to global and regional economies. Access to West Asian oil remains a vital global and regional issue. The IOR SLOCs are the world's most strategically important energy trade routes. The Strait of Hormuz is the main energy supply link between the Persian Gulf region and the rest of the world. A fifth of the world's oil supply moves through the Strait. Much of this oil passes through the Straits of Malacca or around Cape Agulhas, South Africa. North-west Indian Ocean oil has great significance for global energy because the "entire volume of unused oil production capacity is located in OPEC-member countries, and almost all of it is in Persian Gulf countries". The unfettered flow of oil between West Asia and East/South Asia is vital to global economic prosperity. Maintaining the integrity, security and safety of the Indian Ocean SLOCs is essential to the economies of producers and consumers of West Asian oil (Emerson and Mathur 2013, 4–18).

China is reported to have overtaken the United States as the world's largest importer of crude oil (Collis 2013). China's growing dependence upon energy imports is a major strategic issue. Domestic political stability and, ultimately, the survival of the Chinese Communist Party (CCP) depend upon continued economic growth, which is heavily contingent upon assured and uninterrupted access to energy (Yuan 2013, 158). The

majority of China's imported oil and gas (greater than 80 per cent) passes through the Indian Ocean and the South China Sea (SCS). This presents a significant strategic vulnerability for China (Weimar 2013, 9–10) and, indirectly, the region, in what former President Hu Jintao reportedly described as "China's 'Malacca Straits Dilemma'" (Singh 2011, 237–239). In an effort to reduce its strategic vulnerability, China has been constructing a deep-sea port with oil refineries at Gwadar in Balochistan, Pakistan, 400 km from the Strait of Hormuz. After delays in finalizing construction of the port, it has been reported that the development of an oil pipeline from Gwadar to Xinjiang in western China will commence in 2017 (Bhutta 2016).

India is also heavily reliant upon energy imports, with 68 per cent of oil and approximately 85 per cent of gas transiting the Indian Ocean from regional sources (Weimar 2013, 19–20). India's demand for energy is projected to increase by 110 per cent by 2030; the vast majority of this will be imported by sea (BP 2013). China and India have major strategic interests in safeguarding the security of seaborne trade, particularly in hydrocarbons, and in maintaining access to IOR energy resources (Rumley 2013, 50–59; Weimar 2013, 12–15).

Coal receives far less attention than oil, although its strategic importance in the IOR is increasing. The largest global energy demand growth area is for coal, forecast to expand by 73 per cent between 2005 and 2030 (Australian Coal Association 2010). The top-five coal importers in the world are in Asia, in the order: China, Japan, India, South Korea and Taiwan. IOR states Indonesia and Australia are the world's largest exporters of coal, with South Africa in sixth place (World Coal Association 2013). Coal travels as bulk cargo by sea and much of it passes through parts of the Indian Ocean.

The geopolitics of world energy is changing, with the dynamics of IOR energy trade and competition being a central feature (Rumley 2013, 53–54). The possibility of conflict around access to energy continues to be a concern, exacerbated by ongoing and expanding instability in West Asia; the need for new cooperative arrangements remains (Klare 2008, 14–31 and 238–261). However, the global strategic context and significance of West Asia oil supplies and reserves is changing. The United States has reduced its reliance upon West Asian oil through exploiting domestic reserves of oil, lease condensate and natural gas, primarily from shale and other very low permeability formations (US EIA 2012). The imperative for the United States to engage in energy-fuelled conflict in the IOR is

declining, while the strategic stakes for China and India continue to rise. China and India are extremely strategically vulnerable; little wonder both countries are making significant investments in blue-water-capable maritime forces, including base access.

In conflicts in West Asia, the SCS or other areas along the IOR SLOCs, the imperative to take action will be far greater for China and India than for the United States. This has major strategic implications for Indian Ocean littoral states, and for external states, particularly those in North Asia and Europe, that are similarly affected. Efforts by China to diversify energy supply sources and routes are ongoing. The IOR SLOCs will increase in strategic importance in the foreseeable future.

Strategic Objectives 2, 4 and 5 are considerably impacted by regional energy security. A specific objective that relates to the integrity of IOR energy flows is as follows:

Strategic Objective 6. Ensure the integrity of energy (oil, gas and coal) maritime supply routes throughout the IOR.

Social Cohesion and Development

Aspirations for enhanced social cohesion and development do not sit easily in the IOR, known for its diversity, complexity, lack of homogeneity and conflict. In West Asia, for example, conflicts involving religious fundamentalism abound; local conflicts have regional and global implications (Giddens 2000, 153–154). Conflicts are most likely to occur "where state legitimacy has crumbled and there is criminality, corruption and the break-up of civil society", which demonstrably applies to parts of the IOR (O'Loughlin and Luke 2010, 7).

The civil war in Syria that has spilled into Iraq, with the advent of the so-called Islamic State (IS)[16] with aspirations of creating an Islamic caliphate,[17] representing an extreme example. The ongoing conflicts in Syria and Iraq increasingly involve surrounding states, including Turkey, Iran, Jordan and Saudi Arabia, revealing stark divisions in the Islamic world. A diverse range of Islamic terrorist groups are competing for power and influence as they perpetrate 'global jihad'. The vast scale of violence in Iraq and Syria has raised religious tensions and violence worldwide. Communities in West Asia, South Asia and Africa "that coexisted for centuries are now at loggerheads with each other … ethnic and religious cleansing by ISIS are particularly precipitating anger, suspicion,

and prejudice between Sunni and Shia Muslims, and between Muslims and non-Muslims. ISIS propaganda is politicising, radicalising, and militarising Sunni Muslim youth" (Gunaratna 2015, 8).

Cooperative responses to a regional and global threat are being elicited from Western and some West Asian (mainly Arabic) countries. There are joint efforts to contain and ultimately eliminate what is perceived as a common threat (Gunaratna 2015, 7). This dynamic and chronic situation presents problematic regional security risks, generating profound uncertainty; the consequences are unknown but increasingly dire. Exactly how this will impact regional maritime security is unclear. The breakdown of law and order on land, with vast numbers of dislocated people, will almost certainly result in mass transmigration on an increasing scale. Law and order at sea challenges, including drug smuggling to fund terrorists operations, plus arms smuggling and illegal immigration, are likely to increase.

Ideological, racial, cultural, ethnic and religious differences and diversity abound in the modern IOR. Many IOR states feature prominently in the Failed States Index (Fund for Peace 2013),[18] based on social, economic and political indicators selected to inform judgements on prospects for state failure.[19]

Prior to European colonization, historical ocean trading linkages that spanned the Indian Ocean "facilitated an archaic form of globalisation, acting simultaneously as conduits for the communication of ideas, knowledge, and culture between different parts of the ancient world" (Chew 2011, 15). Bose (2006, 281–282) cited an "interplay of multiple and competing universalisms" as being able to create room for "understanding through intelligible translations". He posits that this provides "the only hope for a new cosmopolitanism in a postcolonial setting". Kaplan (2009, 31) suggested that it was through the "peripatetic movements" of regional sailors, combined with colonization, that the contemporary Indian Ocean "forms a historical and cultural unit" that, like the "world at large today, has no single focal point".

The rise of Islamist-fuelled ambitions for dominance in West Asia, parts of South Asia and Africa, along with internecine conflict between various branches of Islam, including aspirations for an IS, has greatly destabilized much of the western IOR and will generate maritime security consequences. The optimistic outlook for a region evolving into a positively integrated cosmopolitanism, posited by Bose and Chew, is very far from the IOR reality evident today and forecast into the medium and longer term.

The IOR harbours the majority of the world's refugees and internally displaced persons (IDPs), the result of forced displacement caused by numerous instances of political violence and civil war; religious, racial and ethnic intolerance and discrimination; economic and environmental disadvantage; and natural/man-made disasters (UNHCR 2013, 6–30). A further 200 million people globally are estimated to be "international migrants" seeking a better life. With ongoing and expanding conflicts in parts of the region, and the forecast impacts of climate change, the numbers of refugees and IDPs can be expected to significantly increase. Migration on a massive scale generates enormous economic, social, political and security challenges, which are likely to intensify. They have implications for regional stability and maritime security (Laipson and Pandya 2010, ix and 87).

Social, political and economic disintegration in parts of the IOR provides fertile environments for the proliferation of law and order problems. Organized crime and trafficking and smuggling of drugs, arms and people, along with piracy and illegal, unreported and unregulated (IUU) fishing, flourish where institutions are weak or non-existent, for example, the Horn of Africa, Afghanistan, Sri Lanka and Indonesia. Non-state actors' impact on security is growing substantially, including greater linkages between criminals, insurgents and terrorist groups. Radical Islamist groups profoundly influence security in large parts of the IOR; groups linked to or affiliated with al-Qaeda or ISIS are reported to be present in at least Afghanistan, Egypt, Indonesia, Iraq, Iran, Pakistan, Saudi Arabia, Somalia, Sudan, Syria, Kenya and Yemen (Potgieter 2012, 11; Gunaratna 2015). In some instances, non-state actors, such as criminal groups and terrorist organizations, have "resources and influence that may equal, or even exceed, those of many states" (Dupont 2001, 230). This will severely test and overwhelm national security capabilities.

Strategic objectives directly relevant to social cohesion and development are as follows:

Strategic Objective 7. Promote social tolerance, cohesion and stability founded upon economic and societal development and integration.

Strategic Objective 8. Impose law and order consistent with international regimes and norms.

State Competition and Potential for Interstate Conflict

Traditional, state-on-state military security issues are of considerable importance and concern in the IOR. Non-traditional security concerns such as environmental decline, unregulated population movements, social and economic dislocation, and transnational crime and terrorism can have adverse consequences for states and contribute to interstate tensions and conflict. Parts of the IOR have variously been labelled the "arc of crisis" (Chellaney 2009, 158–159) and the "arc of instability" (Rumley 2006, 16–18) due to conflicts and political instability in West, South and Southeast Asia, and East Africa (Cordner 2011, 74–76).

Many extra-regional countries have significant, legitimate interests to protect in the IOR (Rumley 2013, 40–41; Cordner 2011, 75). A large emerging issue is the strategic rivalry between the two Asian great powers, China and India, which until recently had entailed territorial disputes on land. The strategic dynamic is changing with China and India "rising as naval powers at a moment of relative American decline" (Mohan 2012, 10 and 17–21). The United States continues to be capable of deploying "credible combat power in the Pacific Rim and the Indian Ocean/Arabian Gulf region" (Hoyt 2013, 290–291). However, declining US interest in protecting Indian Ocean energy SLOCs, reducing naval capacity, war weariness following the Iraq and Afghanistan conflicts, and moves towards isolationism following the Trump presidential election mean that US intervention can no longer be assumed. China, India and all states that have hitherto 'freeloaded' on US-assured maritime security and freedom of navigation must look to providing their own security 'insurance'.

In what has been described as an evolving maritime security dilemma, China and India are making considerable investments in naval forces. They have expanding strategic and economic power, with national security agendas that significantly focus upon maritime strategy and enhanced sea power. The rapid rise of Chinese military power is putting India and the United States in a challenging position (Mohan 2012, 248–249; Weimar 2013, 26).

China is extremely strategically vulnerable owing to its dependence upon Indian Ocean SLOCs, straddled by India, that pass through narrow choke points in the north-western and north-eastern corners. The increasing incursion of Chinese naval forces into the Indian Ocean is consistent

with China's rising need to secure extended SLOCs. The growing and overt People's Liberation Army-Navy presence in the IOR, including access to port facilities in some regional countries,[20] creates uncertainty and fuels naval arms growth, particularly in India (Singh 2015). Opportunities for strategic miscalculation at sea will inevitably increase as navies of the two Asian great powers project power and endeavour to assert sea control to protect their interests, and attempt to establish and maintain spheres of strategic influence (Prakash 2011).

The possession and proliferation of weapons of mass destruction (WMDs), particularly nuclear weapons, remains a major transnational security problem, presenting "a challenge the international community has trouble assessing and even more difficulty managing" (Hoyt 2013, 292). India, Pakistan, Israel and potentially Iran possess nuclear weapons, while the United States, China, France, Russia and Britain have the capability to deploy nuclear weapons into the region.

Regional security stakes are raised by the existence of nuclear weapons in the IOR. The possibility of nuclear weapons states 'bullying' non-nuclear states and strategic miscalculations between nuclear states having dire consequences are of concern. The prospect of nuclear weapons (or other WMDs) falling into the hands of terrorist organizations is a mounting concern, particularly with the potential "Talibanization" of Pakistan (Chellaney 2010, 158–160). Nuclear competition between India and China, with China continuing to support Pakistan's nuclear weapons capability (Mohan 2012, 21–24), adds another dimension to strategic rivalry. Sea-based nuclear deterrence is being actively pursued by India and Pakistan, which, along with China's "naval nuclearization", is changing and complicating the security context (Rehman 2012). Media reports have suggested that Saudi Arabia has been financially supporting Pakistan's nuclear weapons capability, and that Pakistan would provide weapons to the former if needed (Urban 2013). The deep antipathy between Iran (and other Arab states) and Israel also remains concerning (Hoyt 2013, 292).

Indian Ocean conflicts on land have maritime security consequences. The 1980–88 Iran–Iraq War spilled into the maritime domain with the 'Tanker War', and the two Persian Gulf Wars (1990–91 and 2003) had significant maritime dimensions. The India–Pakistan War in 1971 also had significant maritime aspects. There have been mutual allegations of maritime sovereignty transgressions, including the 2008 Mumbai terrorist attacks.

The likelihood of conflict between the states of the Malay Peninsula and the Indonesian Archipelago has reduced in recent years. The advent of coordinated 'MALSINDO Plus' (Malaysia, Singapore, Indonesia plus Thailand) anti-piracy patrols in the Malacca Straits since 2004, combined with the Regional Cooperation Agreement on Combating Piracy and Armed Robbery against Ships in Asia (ReCAAP), is a positive regional maritime security initiative. The same cannot be said for rising tensions over maritime boundaries and access to resources (primarily offshore oil and gas) in the SCS. Conflict in the SCS would significantly impact Indian Ocean maritime security, even though the former lies outside the IOR.

In the wider Indian Ocean maritime security context, most regional states have limited naval and other maritime enforcement and defensive capabilities; many are unable to effectively patrol their claimed maritime domains. India, Australia and, to an extent, Pakistan, Singapore, Malaysia, Thailand and Indonesia have capable naval and other maritime security forces, as do some Arabian Gulf states (Saudi Arabia, Iran, UAE). Other states in the western Indian Ocean have small naval forces, which offer low levels of effectiveness (South Africa, Yemen, Kenya and Djibouti), along with some South Asian states, including Sri Lanka and Bangladesh. Many IOR states lack intelligence, early warning, and maritime air surveillance and reconnaissance. They lack maritime security patrol and response capabilities necessary to exercise sovereign control over their maritime areas. The paucity of national capabilities is exacerbated, at regional and subregional levels, by the lack of cooperative bodies to coordinate sparse resources and manage crises.

The United States, Britain and other Western powers remain deeply engaged in West Asia in support of their interests in global energy security and in dealing with Islamist extremism. The involvement of external states helps to stabilize regional security and has significant maritime security dimensions. In many cases, such involvement is essential to make up for shortfalls in the security capabilities of regional states. However, in IOR states that experienced colonial rule, it remains easy for politicians to invoke the spectre of imperialism or 'gunboat diplomacy'. External involvement is not universally welcomed, and certain types of intervention have the potential to destabilize regional security. Realization has dawned, especially after the 2004 Asian tsunami international relief effort and ongoing anti-piracy patrols off Somalia, that cooperative engagement with external powers can offer benefits (Cordner 2011, 75).

IOR strategic objectives relating to state competition and potential for interstate conflict are as follows:

Strategic Objective 9. Establish a nuclear weapons and other WMDs–free zone in the IOR; prevent WMD proliferation, particularly nuclear weapons; remove nuclear weapons and WMDs; prevent extra-regional states and other actors from bringing WMDs into the IOR.

Strategic Objective 10. Encourage political order in IOR states and promote regional stability.

Regional Security Architectures

Apart from UN entities, region-wide security architectures and mechanisms for dealing with maritime security and other security dialogue and cooperation are lacking. IORA does not include security in its Charter and its membership is restrictive; several important littoral states are not members. However, four of the six priority areas for regional action identified by IORA involve enhancing maritime security: Maritime Safety and Security; Fisheries Management; Disaster Risk Management; and Academic, Science and Technology (IORA 2014). The only other IOR-wide maritime security entity is Indian Ocean Naval Symposium, which has an expansive membership of maritime security force leaders who primarily deal with operational and technical cooperation between regional maritime forces (IONS 2014).

The need for effective and enhanced regional security architectures is reflected in the following:

Strategic Objective 11. Develop regional maritime security dialogue and cooperation architectures in the IOR.

Environment, Climate Change and Ocean Resources

Evolving environment, ocean resources and climate change scenarios pose the quintessential risk context: the ultimate manifestation of Beck's (1999, 5) *world risk society* that "opens public discourse and social science to challenges of ecological crisis … global, local and personal at the same time". There is great uncertainty, potentially dire consequences, the need for coordinated action and a lack of agreement between policy-makers on what mitigation measures are necessary, and what might be possible. As

envisaged by Beck (1999, 53–54), the prospect of "often irreparable damage that can no longer be limited" or compensated becomes a "problem of incalculability of consequences and damage", with an attendant "lack of accountability" for perpetrating the risks.

The concept of environmental security is diverse. It traverses the full common security range, from global, regional and state through to impacts on special interest groups and on individuals. The environment, impacted by climate change and ocean resource exploitation, is emerging as the greatest collective and cooperative security issue for the IOR in the medium term (Cordner 2011, 69–72; Doyle 2004, 156–157). The challenges presented are more serious for the developing world, especially South Asia, Southeast Asia and Africa, because of often extreme vulnerability, combined with limited capacities to respond or adapt. Recent experience portends what is likely in the future: over 50 per cent of the population of South Asia was reported as being affected by natural disasters in "the last two decades"; this included high death tolls and significant economic consequences (Sharma 2012, 13).

An increasing number of countries, worldwide, regard climate change as a security threat (Youngblut 2009, 3–4). The US Department of Defense (2014b, vi and 8) noted the significant security challenges posed by climate change and observed that the "impacts of climate change may increase the frequency, scale, and complexity of future missions". Securitization of climate change is now well recognized for the IOR (Rumley 2010, 152–153). The need to address security impacts is increasing as the risks grow because prevention and adaptation strategies are continuing to fail. The United Nations Framework Convention for Climate Change, for example, is "based on the notion of anthropomorphic global warming and on the need to curb it" (Palmujoki 2010, 197 and 202).

While not traditionally and inherently a security problem, the linkages between geopolitics and "biopolitical" security have now been established (Chellaney 2010, 160–168; Brauch and Spring 2011, 32). Acceptance by the global insurance industry that climate change presents valid risks has effectively put paid to earlier tendencies in some quarters to deny the emerging problems. Insurance responses are based upon Western capitalist rational approaches to risk (Lobo-Guerrero 2010, 249–250).

The North–South divide is exemplified in the insurance case. However, relationships and approaches to environmental issues, exacerbated by climate change, are far from coherent and cooperative between states in the South. For example, dire political, social and security prospects of climate

change for South Asia are acknowledged by the South Asian Association for Regional Cooperation (SAARC), and regional initiatives "seem to be quite impressive". However, the "boastful rhetoric on regional cooperation" was exposed by the lack of collective response to the 2010 floods in Pakistan that highlighted political tensions between SAARC member states—particularly India and Pakistan (Sharma 2012, 13 and 17–18).

The ubiquitous and indiscriminate nature of environmental degradation has long been documented. Subrahmanyam (1990, 1001–1003) observed, in 1989, that "the time to act is now, though perhaps it is already too late". There was a "disturbing trend among the leaders of some industrialised nations … while highlighting the perils of … sea-level rise and ecological degradation" to talk of the responsibilities "for corrective action to be borne by all – the developed and developing nations, those who caused the problem and those who are the victims of it". State-level responses are observed to be "long on good intentions" but invariably fall short on "specific remedies". Environmental concerns have the potential to impact sustainability, human life and politics.

In response to questions in the Government of India Lok Sabha (2010), the Indian Minister of Earth Sciences epitomized policy dilemmas. He responded that "sea-level rise is very slow phenomenon" (sic) and emphasized that the Intergovernmental Panel on Climate Change (IPCC) reports indicate "climate change models have a large uncertainty in respect of presenting consensus scenario of future climate and changes" (sic). These observations highlight four significant aspects of the climate change environmental risk context that continue to be relevant in the IOR: the shared impacts; the incremental and insidious nature of the threats; the lack of willingness of affected parties to recognize the extent of the risks, combined with a desire to divert blame to others; and an unwillingness to take action while recognizing that comprehensive and coordinated policy responses are necessary.

Climate Science and Policy Uncertainty

The notion that the world's climate is changing is no longer in dispute. The IPCC (2013, 4) declared:

> Warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, the amounts of snow and ice have

diminished, sea level has risen, and the concentrations of greenhouse gases have increased.

The intent here is not to review or challenge the science; that lies beyond the scope of this security policy and risk analysis. However, policy-makers rely upon the outcomes of scientific investigation to inform appropriate responses, and this presents significant challenges. Endeavouring to discern definitive climate change–related forecasts for the vast, diverse and largely remote maritime IOR has proven to be elusive. Long-term data paucity continues to hamper efforts to develop satisfactory and compelling perspectives about how Indian Ocean climate variability occurs in order to support confident predictions.

Climate researchers have identified linkages between Indian Ocean sea surface temperature (SST) variations, the El Niño–Southern Oscillation (ENSO), the Indian Ocean dipole (IOD), and climate and weather variations around the IOR. These have impacted the incidence, duration and extent of droughts in Australia and East Africa, and the reliability of the monsoon in South Asia. The SST and IOD correlation is considered to have greater impact than ENSO in the Indian Ocean (Ummenhofer et al. 2009, 2011; Tierney et al. 2013). The ongoing work of scientists globally has identified the variable Indian Ocean SST and IOD relationship and recognized the "need for a better understanding of the mechanisms", along with "the need for improved and sustained Indian Ocean observations", before reliable predictions can be made (Ummenhofer et al. 2009).

IPCC reports extensively employ risk and vulnerability language. This includes the certainty of findings, likelihood and confidence, based upon scientific evidence and expert analyses. The IPCC Working Group I Fifth Assessment Report, which addressed the physical science basis for judgements and predictions on climate change, provided definitions of confidence and uncertainty used for scientific and technical assessments (Stocker et al. 2013, 36). The IPCC Working Group II Fifth Assessment Report provided risk and vulnerability definitions, along with the criterion employed for assessments (IPCC 2014c, 6–15).

IPCC reports are far-reaching and dense. They are also frustratingly generalized from policy formulation perspectives. Even though summaries for policy-makers are provided, the sheer volume, scope and complexity of the findings, including at times contradictory judgements drawn from a broad range of research and analytical activities derived from diverse disciplines, geographies and experts, make digesting the outcomes extremely

challenging. The volume and detail of information present policy risks because vital factors may not be fully comprehended or may be overlooked. The IPCC notes with "high confidence" that "responding to climate-related risks involves decision-making in a changing world, with continuing uncertainty about the severity and timing of … impacts and with limits to the effectiveness of adaptation … Uncertainties about future vulnerability, exposure, and responses to interlinked human and natural systems are high" (IPCC 2014a, 9–11).

Maritime Security Implications of Environment and Climate Change

The outcomes of climate change for environmental, food, human and economic security present risks and vulnerabilities that will have significant IOR maritime security implications. Marine resource management, for example, is directly impacted by the environment and climate change, and is related to food security. According to Chellaney (2010, 160), climate change will "aggravate existing security challenges" and "intensify interstate and intrastate competition over natural resources, making resource conflicts more likely". The vulnerability of the IOR to natural disasters is well recognized, with South Asia in particular being one of the most disaster-prone subregions in the world. Climate change–related security challenges are likely to include increasing instability in weak and vulnerable states that are dealing with multiple stressors. Environmental security and disaster management need to be combined (Chaturvedi 2008, 57–58). Notably, violent conflict increases vulnerability by inhibiting capacities to adapt (Youngblut 2009, 304; IPCC 2014a, 7–8).

Climate and Weather Impacts

Climate change–related impacts of weather extremes are already evident around the IOR, although the effects are widely uneven. The significant vulnerabilities of "some ecosystems and many human systems" have been revealed (IPCC 2014a, 7–8). Tropical areas of the Indian Ocean, due to the effects of the IOD, are likely to experience "reduced warming and decreased rainfall in the east (including Indonesia), and enhanced warming and increased rainfall in the west (including East Africa)" (Stocker et al. 2013, 106). The "global frequency of tropical cyclones will either

decrease or remain essentially unchanged", while related maximum wind speeds and precipitation will "likely increase" (Stocker et al. 2013, 107; Christensen et al. 2013, 1220). This means that the intensity of cyclone-related flooding and destruction is likely to increase over time.

Monsoons are likely to persist for longer, with an increase in "precipitation extremes" very likely in Africa, South Asia, Southeast Asia and Australia. Monsoonal rainfall is projected to become "more intense in the future, and to affect larger areas" (Christensen et al. 2013, 1219 and 1228; IPCC 2014e, 7). There is a related "high confidence in projected rise in temperature" (Christensen et al. 2013, 1273), along with "significant increase in the occurrence of sea level extremes" primarily due to an "increase in mean sea level" (Stocker et al. 2013, 112). Extreme weather events and sea level rise will impact food security, with many regions likely to experience a decline in productivity. Inundation of low-lying areas "will especially affect rice growing regions", along with more "frequent and intense heat-waves", which will result in increased "mortality and morbidity" due to disease increases and food shortages (IPCC 2014e, 3–4). Small islands in the IOR are extremely vulnerable and likely to be severely affected by multiple stressors (IPCC 2014f, 2).

Coastal Zone Impacts

There is no universal, internationally accepted definition of the coastal zone. Ketchum's (1972) definition is adequate for this analysis: "The band of dry land and adjacent ocean space (water and submerged land) in which terrestrial processes and land uses directly affect oceanic processes and uses, and vice versa." The IOR littoral includes vast coastal zones and low-lying areas with massive populations that are "very likely" to be profoundly impacted by sea level rise "projected throughout the 21st century and beyond", which will cause "submergence, coastal flooding, and coastal erosion", which in turn is projected to "increase displacement of people" (IPCC 2014a, 16 and 20–21).

IPCC reports state that the "risk of severe harm and loss" is "particularly high in large urban and rural areas in low-lying coastal zones", particularly for cities in "Asian megadeltas", where emergent risks will be direct and "indirect, transboundary, and long-distance" (IPCC 2014c, 3). According to the IPCC (2014e, 3–4 and 19), "half to two-thirds of Asia's cities with 1 million or more inhabitants are exposed to one or multiple hazards, with floods and cyclones the most important". Flood

risks are "heavily concentrated in India [and] Bangladesh". Asia has "more than 90% of the global population exposed to tropical cyclones", with predictions that, by the "2070s, the top Asian cities in terms of population exposure … to coastal flooding" will include Indian Ocean rim megacities: Kolkata, Mumbai, Dhaka and Rangoon. Mumbai is projected to have "more than 11 million people exposed by 2070" (IPCC 2012, 510). Coastal systems in Africa are also extremely vulnerable and will be severely impacted by sea level rise (IPCC 2014d, 16). More intense extreme weather events will generate requirements for humanitarian assistance and disaster relief (HADR) responses on ever-increasing scales (IPCC 2014g, 54).

Human Migration Impacts

The IPCC (2014c, 22–23) predicted that "climate change will bear significant consequences for migration flows", although "there is as of yet insufficient literature to permit assessment of projected region-specific consequences of such migration". Floods and droughts are already the predominant causes of migration and internal displacement in Asia, with "38.3 million people" internally displaced in 2010 alone (IPCC 2014e, 28).

The scale of the projected climate change–related coastal zone impact around the Indian Ocean is so immense that it is difficult to comprehend. Millions of people in low-lying areas of Bangladesh, Pakistan, Sri Lanka, India, Vietnam, Myanmar and Indonesia, plus parts of Africa, are likely to be affected (Cordner 2011, 71). Harbingers of what lies ahead include Cyclone Nargis in Myanmar, May 2008, which killed approximately 140,000 people, with 2.4 million people affected (UNISDR 2010, 1–2). Although not climate change related, the December 2004 Asian tsunami in the Indian Ocean is also indicative of the impact of extreme natural disasters on intensely populated coastal communities. The death toll was reported to be 227,000, with 1.8 million people displaced—said to be the worst natural disaster of its kind in recorded human history (Athukorala 2012, 212).

Environmentally driven migration is not a new phenomenon, and the numbers of people likely to be affected by climate-induced environmental changes are difficult to predict. A range of experts suggest at least 50 million migrants, while others say that there could be "200 million climate migrants by 2050" (Laipson and Pandya 2010, x and 3). More severe climate change scenarios suggest "the prospect of perhaps billions

of people over the medium or longer term being forced to relocate". This will pose an "enormous challenge even if played out over the course of decades" (Campbell et al. 2007, 8). Chronic humanitarian crises are portended on a staggering scale for much of the IOR. Many states see migration as a security risk, with national security forces being increasingly involved.

Marine Systems Impacts

The IPCC suggests with "high confidence" that by the "mid-21st century … global marine-species redistribution and marine bio-diversity reduction in sensitive regions will challenge" the sustainability of fisheries and other ecosystems (IPCC 2014a, 16; 2014b, 5). This will impact food and human security, particularly in regions that already experience "high food insecurity and high inequality (like Africa)". Notably, "more than half of the global marine fish catch" is in "the West Pacific and Indian Ocean" and "climate change may lead to a massive redistribution of fisheries catch potential, with … large declines in the tropics, particularly Indonesia". Coral reef degradation will "negatively impact island communities and livelihoods" that are heavily dependent upon subsistence fisheries and tourism (IPCC 2014a, 20–21; 2014d, 22; 2014e, 17; 2014f, 2). Ocean ecosystems are at risk and changes to ocean "temperatures, chemistry and other factors" will present "new challenges for fisheries, as well as benefits"; however, "adaptation strategies are generally poorly developed" (IPCC 2014g, 5).

The forecast impacts must be considered in a context where the world's oceanic fisheries are already reported to be in dire straits, with 80 per cent of fish stocks "depleted or on the verge of extinction" (Council on Foreign Relations 2012). The Food and Agriculture Organization of the UN (FAO 2013, 1) reported that "many of the world's fishery resources … are in a precarious state", with overfishing, inefficiency and overcapacity being common across the world. Indian Ocean fisheries are reported to be the least productive of the world's designated fisheries areas; however, fish are important to local populations in Asia and Africa as cheap sources of protein and for employment (Potgieter 2012, 9).

The IOR will be particularly susceptible to declining marine catches, combined with increasing overexploited fish stocks. This is compounded by IUU fishing (often encouraged by corrupt practices) and the failure by many flag states to meet their responsibilities to exercise effective control

over their fishing fleets and ensure compliance with conservation and management measures. The effects are uneven so far. The Eastern Indian Ocean is experiencing high growth rates in catches, particularly in the Bay of Bengal and Andaman Sea, while catches in the western Indian Ocean have declined slightly. The Southwest Indian Ocean Fisheries Commission reported, in 2010, that 65 per cent of fish stocks for 140 species were estimated to be fully exploited, 29 per cent overexploited and 6 per cent not fully exploited (FAO 2012, 12, 17–19, 53, 59, 92, 93, and 95).

One maritime security implication of the evolving impact on fishing and other environmentally exacerbated economic challenges could be a rise in piracy. Piracy off the coast of Somalia, according to some analysts, presented an extreme example of the wider regional and global implications of local fishers, exploited and disenfranchised, being forced to turn to crime to sustain their livelihoods. According to Schofield (2008, 102–111), Somalia had a huge, resource-rich maritime domain and fishing resource that was systematically plundered by large, capable foreign distant-water fishing fleets. The area has been vastly overexploited by IUU fishers and stocks are in danger of collapse. While the international community has been willing to deal directly with piracy, to keep maritime trade flowing, there has been less effort to address causal factors.

Maritime Security Risk Implications of Environment and Climate Change

The maritime security implications of the combined environmental, oceanic resource exploitation and climate change context in the IOR are likely to be profound and far-reaching in the medium-to-longer term. However, they are difficult to quantify with certainty, which presents a policy quandary that encourages inaction, and therefore increases the risks. Many Indian Ocean states and states with interests in the IOR are beginning to recognize the maritime security challenges posed by environmental concerns in national security policies and preparations. The need to provide HADR capabilities feature in maritime security force structure plans. Vulnerable developing states have little capacity to adapt and are likely to be increasingly impacted by environmental and resource scarcity factors. Transmigration on a massive scale, major food and human security problems, rising law and order at sea incidents, coastal zone disasters, and the prospects of failed states and local conflicts will present rising security

challenges. These will include massively expanding requirements for HADR, which will extend into the maritime domain.

Shared and common environmentally related security challenges will transcend international boundaries in the IOR. Collective and cooperative security responses, including maritime security, will be required on a scale and duration much greater than anything previously experienced. Responses will consume vast maritime security resources, well beyond those likely to be available in the region. External powers with interests in the IOR, along with regional states, will be affected and will need to be involved.

Strategic objectives arising from the evolving IOR environment, ocean resources and climate change risk context, noting that many previously discussed Objectives are also relevant, are as follows:

Strategic Objective 12. Assert effective, sustainable control over fish and other resources (including energy and minerals) in areas within national jurisdiction and the high seas.

Strategic Objective 13. Implement effective measures to address the coastal and oceanic environmental impacts of resource degradation and climate change.

Strategic Objective 14. Implement effective management of the coastal zone around the IOR littoral.

Strategic Objective 15. Develop cooperative humanitarian assistance and natural disaster response and recovery mechanisms.

IOR Strategic Objectives for Maritime Security

Fifteen strategic objectives have been derived through the IOR maritime security risk context analyses. These will have varying degrees of application to all IOR states, external states with interests in the IOR and other actors. A composite list of IOR strategic objectives is presented in Table 3.1.

The IOR maritime security risk context analysis draws together a wide range of factors. There is considerable overlap of issues and related objectives that converge in the maritime domain. The risk context analysis sets the scene for the next stage of the risk appraisal process: the assessment of risks. The Indian Ocean maritime security strategic risk assessment process presented in Chap. 4 ascertains and assesses factors that *threaten* the achievement of the organizational objectives identified here. Importantly, it highlights *opportunities* that can be pursued towards achieving those objectives.

Table 3.1 IOR strategic objectives for maritime security

Strategic Objective 1	Attain and sustain maritime territorial sovereignty.
Strategic Objective 2	Assure freedom of navigation in accordance with UNCLOS.
Strategic Objective 3	Implement effective conservation, protection and management of the marine environment in areas within national jurisdiction and the high seas.
Strategic Objective 4	Address the uneven effects of globalization across the IOR system.
Strategic Objective 5	Promote economic development and enhance intra-regional and extra-regional maritime trade.
Strategic Objective 6	Ensure the integrity of energy (oil, gas and coal) maritime supply routes throughout the IOR.
Strategic Objective 7	Promote social tolerance, cohesion and stability founded upon economic and societal development and integration.
Strategic Objective 8	Impose law and order consistent with international regimes and norms.
Strategic Objective 9	Establish a nuclear weapons and other WMDs–free zone in the IOR; prevent WMD proliferation, particularly nuclear weapons; remove nuclear weapons and WMDs; prevent extra-regional states and other actors from bringing WMDs into the IOR.
Strategic Objective 10	Encourage political order in IOR states and promote regional stability.
Strategic Objective 11	Develop regional maritime security dialogue and cooperation architectures in the IOR.
Strategic Objective 12	Assert effective, sustainable control over fish and other resources (including energy and minerals) in areas within national jurisdiction and the high seas.
Strategic Objective 13	Implement effective measures to address the coastal and oceanic environmental impacts of resource degradation and climate change.
Strategic Objective 14	Implement effective management of the coastal zone around the IOR littoral.
Strategic Objective 15	Develop cooperative humanitarian assistance and natural disaster response and recovery mechanisms.

NOTES

1. The limitations inherent in a risk assessment based upon judgements from a single strategic analyst are acknowledged. Where possible, multiple perspectives have been engaged that reflect different extra-regional, regional and subregional priorities, along with a range of professional and experiential backgrounds. The risk assessment process can involve scenarios and

other techniques designed to assist in developing and understanding potential risks and vulnerabilities.

2. See UNCLOS Article 24 'Duties of the coastal state'; Part VII 'High Seas', Section 1 'General Provisions' and Section 2 'Conservation and Management of the Living Resources of the High Seas'; Part XI 'The Area'; Part XII 'Protection and Preservation of the Marine Environment'; Part XIII 'Marine Scientific Research'; and Part XIV 'Development and Transfer of Marine Technology'.
3. A summary of accession and ratification of selected maritime security–related international conventions and protocols by IOR littoral and important extra-regional states is provided in the Appendix.
4. The ongoing crisis in the South China Sea is a case in point. Various parties selectively refer to UNCLOS, including the United States and China, to support their positions.
5. Accession by Association for Southeast Asian Nations (ASEAN) states to the 1979 SAR Convention is low, with several ASEAN states also being IOR states. In 2015–16, the Council for Security Cooperation in the Asia Pacific (CSCAP) convened a study group to look at harmonization of maritime and aeronautical search and rescue in the India–Asia-Pacific region. One of the key recommendations in the resulting CSCAP Memorandum is that all regional states should accede to the 1979 SAR Convention.
6. As permitted under UNCLOS Part II, Article 33, and Part V.
7. Under UNCLOS Part VI.
8. UNCLOS Part II, Section 3 documents the "Right of Innocent Passage in the Territorial Sea"; Part III provides for passage through straits used for international navigation by defining the concepts of "Transit Passage" and "Innocent Passage"; Part IV provides for the "Right of archipelagic sea lanes passage" through archipelagic states; Part V, Article 58 specifies that the same freedoms of navigation that apply to the "High Seas" provided in Part VII also apply in EEZs.
9. According to the United Nations Environment Programme: "The 'Global Commons' refers to resource domains or areas that lie outside of the political reach of any one nation State. Thus international law identifies four global commons namely: the High Seas, the Atmosphere, Antarctica, and Outer Space. These areas have historically been guided by the principle of the common heritage of humankind – the open access doctrine or the *mare liberum* (free sea for everyone) in the case of the High Seas. Despite efforts by governments or individuals to establish property rights or other forms of control over most natural resources, the Global Commons have remained an exception."
10. The United Nations Conference on the Human Environment met at Stockholm, 5–16 June 1972.

11. United Nations, Report of World Summit on Sustainable Development, Johannesburg, South Africa, 26 August–4 September 2002, 8.
12. Adopted at the 17th plenary meeting of the World Summit on Sustainable Development, 4 September 2002.
13. Rayfuse and Warner (2008, 402) observed: "High seas management is, however, currently fragmented among a variety of sectoral and geographically based bodies, including the treaty regimes established under the International Maritime Organization (IMO) and regional fisheries management organizations (RFMOs). This decentralized, fragmented regime gives rise to a number of difficulties and gaps in both governance and regulation, not to mention in implementation."
14. For example, in 2012, the UNGA declared that it "*calls upon* all States, directly or through regional fisheries management organizations and arrangements, to apply widely, in accordance with international law and the Code, the precautionary approach and ecosystem approaches to the conservation, management and exploitation of fish stocks … *Encourages* States to increase their reliance on scientific advice in developing, adopting and implementing conservation and management measures, and to increase their efforts, including through international cooperation, to promote science for conservation and management measures that apply, in accordance with international law, the precautionary approach and ecosystem approaches to fisheries management, enhancing understanding of ecosystem approaches, in order to ensure the long-term conservation and sustainable use of living marine resources."
15. Forty-eight countries are currently designated by the UN as "least developed countries" (LDCs). IOR states listed as LDCs include: Afghanistan, Bangladesh, Bhutan, Burundi, Comoros, Djibouti, Eritrea, Ethiopia, Lesotho, Madagascar, Malawi, Mozambique, Myanmar (Burma), Nepal, Rwanda, Somalia, Sudan, Timor-Leste, Uganda, United Republic of Tanzania, Yemen and Zambia. The list of LDCs is reviewed every three years by the UN Economic and Social Council, in the light of recommendations by the Committee for Development Policy (CDP). The following three criteria were used by the CDP in the latest review of the list, in March 2012: "(a) A per capita income criterion, based on a three-year average estimate of the gross national income (GNI) per capita, with a threshold of $992 for possible cases of addition to the list, and a threshold of $1190 for graduation from LDC status; (b) [a] human assets criterion, involving a composite index (the Human Assets Index) based on indicators of: (i) nutrition (percentage of the population that is undernourished); (ii) health (child mortality ratio); (iii) school enrolment (gross secondary school enrolment ratio); and (iv) literacy (adult literacy ratio); and (c) [a]n economic vulnerability criterion, involving a composite index (the Economic

Vulnerability Index) based on indicators of: (i) natural shocks (index of instability of agricultural production; share of the population victim of natural disasters); (ii) trade-related shocks (index of instability of exports of goods and services); (iii) physical exposure to shocks (share of the population living in low-lying areas); (iv) economic exposure to shocks (share of agriculture, forestry and fisheries in GDP [gross national product]; index of merchandise export concentration); (v) smallness (population in logarithm); and (vi) remoteness (index of remoteness)."

16. Variously referred to as ISIS (Islamic State of Iraq and Greater Syria) and ISIL (Islamic State of Iraq and the Levant), and increasingly being referred to as 'Daesh' in the West, an acronym of the Arabic words that mean the same as ISIS: Al Dawla al-Islamyia fil Iraq wa'al Sham, used by some Western governments in order to reduce IS legitimacy.
17. 'Caliphate' is a term used to describe a form of Islamic government led by a 'caliph'—a person who claims to be a political and religious successor to Prophet Muhammad and a leader of the entire Muslim community.
18. Somalia is listed at number 1. Other IOR states in the top 20 include: Sudan, South Sudan, Yemen, Afghanistan, Zimbabwe, Iraq, Pakistan and Kenya; with Burundi, Eritrea, Uganda, Myanmar (Burma), Sri Lanka, Bangladesh, Nepal, Timor-Leste, Egypt, Iran, Malawi, Rwanda and Cambodia also rated highly.
19. The 12 Failed States Index criteria are grouped as follows: Social: Demographic Pressures, Refugees and Internally Displaced Persons (IDPs), Group Grievance, and Human Flight and Brain Drain; Economic: Uneven Economic Development, Poverty and Economic Decline; Political: State Legitimacy, Public Services, Human Rights and Rule of Law, Security Apparatus, Factionalized Elites and External Intervention.
20. For example, Pakistan, Sri Lanka and Djibouti.

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CHAPTER 4

Indian Ocean Maritime Security Strategic Risk Assessment

Formal risk management guidelines recommend a risk assessment once the risk context has been established. The risk assessment draws upon the risk context and includes "risk identification, risk analysis and risk evaluation" (AS/NZS 2009, 17–18; ISO 2010, 14–17). The fundamental purpose of the strategic assessment presented here is to identify, analyse and evaluate risks to the achievement of strategic objectives for maritime security in the Indian Ocean region (IOR). Risk assessment is an essential precursor to developing the next step: risk treatment options, which involves exploring how risks can be avoided, mitigated or, if necessary, retained (AS/NZS 2009, 18–20; ISO 2010, 17–18).

The risk assessment process is intended to identify factors that may *threaten* the achievement of organizational objectives, and importantly, it can be used to highlight *opportunities* that can be pursued towards achieving those objectives. Formal risk management is essentially process driven. Care needs to be taken, in the complex and dynamic IOR international context, that it is not overly mechanistic and therefore simplistic. Vulnerabilities also need to be identified, particularly where profound and incalculable uncertainty exists. Primarily, qualitative analyses are employed using experienced judgement and drawing upon numerous multinational, multidisciplinary expert perspectives, recognizing that precise or finite outcomes will be rare. The aim is to identify broad, high-level and strategic risks and vulnerabilities that impact all participants in the Indian Ocean

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maritime system to a greater or lesser extent. Recognizing the need to treat common risks and shared vulnerabilities can lead towards cooperative and collective regional approaches to Indian Ocean maritime security.

The IOR maritime security strategic risk assessment is the distilled outcome of research drawn from many sources. Firsthand observations and engagements from an embedded and experienced strategic analyst are applied. The depth and granularity of the strategic risk assessment can be enhanced with greater application of resources: time, multiple experts and, importantly, perspectives from key decision-makers.

The risks identified are intended to be generic and enduring, recognizing that risk assessments in other organizational contexts are often designed to be specific event based. In the complex and diverse Indian Ocean context, there are likely to be many incidents that will indicate manifestation of a particular risk; this does not mean, however, that the strategic risk has ceased to exist. Further, in order to be credible, the strategic risk assessment must be part of a continuing process that takes account of changing contextual factors. The risk assessment offered here is a snapshot in time.

A key question that must be repeatedly asked is as follows: 'so what—and for whom?' As outlined in earlier discussions about risk, the impact of a particular hazard or risk event will vary for different actors within a system. What might be an annoyance for one Indian Ocean stakeholder might present an existential crisis for another. The *maritime security risk assessment* presented here is focused upon likely *IOR maritime system-wide impacts* rather than implications for individual actors.

High-level decision-making, in both corporate and government sectors, is usually supported by tight and concise reports derived from such assessments. Such reports should help answer 'so what for me' questions for specific actors with regard to systemic risks. Importantly, the outcomes can demonstrate to key stakeholders the scale and breadth of shared maritime risks and common vulnerabilities. The risk assessment can provide the catalyst, focus and impetus for subsequent collective, cooperative maritime security risk treatment approaches.

Risk Criteria

A risk criteria framework provides a useful mechanism for developing comparative perspectives of the relative potential effects of particular risks. This involves consideration of the *likelihood* of a risk arising along with the

consequences to the organization, in this case the IOR maritime system, should it occur. The combination of likelihood and consequence informs composite judgements about the *overall level of risk* to the system.

In the IOR maritime security case, the primary requirement is to identify system-wide risks based upon analysis and evaluation of often cumulative, aggregated and interdependent consequences. Importantly, the relationship between the strategic objectives identified in Chap. 3 and the strategic risks defined here is complex and multidimensional. Specific objectives may be affected by multiple risks and vice versa. For example, the systemic impacts on freedom of navigation from the risk of a single piracy event could be assessed as low. However, multiple and sustained piracy attacks over a prolonged period in several geographical areas would have a much greater systemic impact upon freedom of navigation and trade, and may affect economic, energy and globalization objectives; the overall risk would be higher. Similarly, the risks from a single extreme weather event may be local and manageable. However, cumulative and aggregated risks from multiple weather events over time will impact environment objectives, along with economic, social, sustainable resources, and law and order objectives; they may present dire risks for the IOR system as a whole.

Relationships between objectives, risks and vulnerabilities, including temporal, spatial, cumulative and aggregate factors, should be recognized if possible; they are integral to assessing systemic levels of risk. Defining risk criteria and assessing risk are core activities for an organization's leadership (Fraser and Simkins 2010, 171–188). Leaders need to be intimately involved in the risk analysis process, and they need to take ownership of the outcomes. In the IOR case, identification of the regional 'leadership' entity is, of itself, problematic, and this poses systemic risks that need to be acknowledged and treated.

The risk criteria in the Table 4.1 have been selected to assist in differentiating risk priorities:

The combined *likelihood*, *consequence* and *risk profile* can be presented in tabular form, with a colour code designed to highlight the significance of various risks; see the indicative IOR risk criteria matrix in Table 4.2. For example, a risk that has *extreme* consequences and is *almost certain* to occur would be assessed as *very high* overall and shown in *red*; a risk with *serious* consequences and *remote* likelihood would be assessed as *low* and shown in *blue*.

Table 4.1 Risk criteria

Risk criteria
Likelihood: probability of a risk occurring that will have IOR system-wide effects: 1. Almost certain 2. Probable 3. Possible 4. Unlikely 5. Remote **Consequences**: impact of a risk upon the IOR system, noting that the criteria are *negative*, when part of the assessment process will also seek *positive consequences* or *opportunities*: 1. Extreme 2. Serious 3. Major 4. Minor 5. Negligible **Overall risk profile**: the outcome from the combined assessment of likelihood and consequence can be presented as the overall *risk profile*: 1. Very high 2. High 3. Medium 4. Low 5. Very low

Table 4.2 Indicative risk assessment matrix

Consequence / Likelihood	Almost Certain	Probable	Possible	Unlikely	Remote
Extreme					
Serious					
Major					
Minor					
Negligible					

Risk Profile Designator	Colour Code
Very High	
High	
Medium	
Low	
Very low	

Maritime Security Risks in the IOR

The indicative assessment of risks to maritime security in the IOR, including identification, analysis and evaluation, is presented below. This section relates directly to the risk context analyses presented in Chap. 3; much of the discussion there applies and is not repeated here. Brief comments upon *vulnerabilities* and *opportunities* are provided in addition to a brief narrative about each risk, and the assessment, utilizing the risk criteria and matrix presented in Tables 4.1 and 4.2. Risks that are likely to have maritime systemic consequences, or may require a maritime security response, are assessed from an IOR systemic perspective. Some risks will impact multiple objectives.

Maritime Sovereignty

Transgressions of maritime sovereignty, primarily offences against the sovereignty or sovereignty claims of nation-states, can take several forms. These include intentional or accidental transgressions by other states, ranging from invasion to incidental incursions, and transgressions by non-state actors, for example, illegal, unreported and unregulated (IUU) fishing, illegal dumping or marine pollution. The level of sovereign control and the related level of transgression are also factors that need to be considered. The extent of sovereign controls permitted under the United Nations Convention on the Law of the Sea (UNCLOS) in the territorial sea and those that apply in the exclusive economic zone (EEZ), for example, are different and transgressions can have different consequences.

Assessing past frequency and future likelihood of maritime sovereignty incursions is difficult because data and records are generally managed by individual states. Those states that have strong maritime security and sovereignty control regimes and capabilities, mainly developed states, keep comprehensive records but may be unwilling for reasons of national security to make them public. Other states, mainly developing states, may not have good maritime domain awareness and may not have accurate statistics. They may have little awareness of the extent of transgressions due to a lack of surveillance, response and enforcement capabilities; this presents vulnerabilities.

Assessing risk is further complicated by inconsistencies among states' interpretations of UNCLOS, leading to different claims of sovereignty

and different interpretations of transgressions. Claims that would be considered by most participants in the international system to be unreasonable could be assessed as impinging upon the sovereignty of other states. For example, states imposing unlawful or unreasonable conditions on rights of innocent passage, straits transit or archipelagic transit can be perceived to be impinging upon the sovereign rights of others. Declarations made by littoral states that seek to impose some level of restriction on transit, for example, through the Malacca Straits, the Straits of Hormuz or Bab-el-Mendeb, can be problematic (Kaye 2010, 122–124; Kraska 2012, 488).

Some emerging major maritime powers, such as China and India, have allegedly taken an "expansive view of coastal state authority", which puts them at odds with the United States, which champions liberal interpretations of freedom of navigation (Kraska 2012, 488–490; Bateman 2012). The US Department of Defense *2013 Freedom of Navigation Report*, for example, alleges that China exceeds UNCLOS with "excessive straight baselines; security jurisdiction in contiguous zone; jurisdiction over airspace above the exclusive economic zone (EEZ); domestic law criminalizing survey activity by foreign entities in EEZ; prior permission required for innocent passage of foreign military ships through territorial sea", while India, it is alleged, requires "authorization … for military exercises or maneuvers in EEZ" (sic) (US DoD 2014).

The maritime sovereignty risk area coincides significantly with freedom of navigation. Three broad areas of risk are identified and presented in Table 4.3.

Vulnerabilities The lack of capacity by mainly developing states to effectively control their maritime domains presents significant vulnerabilities. It increases the likelihood of undetected transgressions occurring, and even if detected, the ability to respond to them is reduced. The consequences of uninhibited transgressions of maritime domains are magnified.

Table 4.3 Maritime security risks—maritime sovereignty

Maritime Security Risk	Likelihood	Consequence	Overall Risk
MS Risk 1. Transgressions of sovereignty in the territorial sea.	Probable	Serious	Very High
MS Risk 2. Transgressions in the EEZ.	Almost Certain	Major	High
MS Risk 3. States asserting unreasonable maritime sovereignty claims.	Possible	Major	High

Opportunities Maritime sovereignty risks present opportunities for actors in the IOR maritime system to consult and cooperate, to consider collective security arrangements. They reinforce the desirability of maritime security cooperative dialogue arrangements. Effective control of maritime domains can enhance national sovereignty and provide regional economic, environmental and security benefits. Consistent application of and respect for maritime regimes and dispute resolution arrangements, specified by UNCLOS, can enhance maritime security cooperation, and therefore, Indian Ocean regional peace and stability.

Freedom of Navigation

Transgressions against freedom of navigation impact both internal actors and external actors with interests in the IOR and can be perpetrated by state and non-state actors. Risk events can include states closing international straits or archipelagic sea lanes; states restricting or imposing conditions on transit of international straits, archipelagic sea lanes and/or areas within national jurisdiction (i.e. territorial seas, EEZs); states interdicting or controlling freedom of navigation along sea lines of communication (SLOCs); and/or impositions on freedom of navigation by non-state actors (i.e. piracy and sea robbery, maritime terrorism).

Complete closure of international straits or archipelagic sea lanes is a relatively rare event, although it has significant maritime systemic consequences. Some states seek to impose restrictions that exceed reasonable interpretations of UNCLOS. There are numerous instances of non-state actors impinging upon freedom of navigation through acts of piracy or sea robbery, although the overall impact on the regional and international maritime system is relatively low; it is in the interests of the shippers and the perpetrators for trade to continue to flow. Three broad areas of risk are identified (Table 4.4).

Vulnerabilities Actors that are unable to challenge and oppose impositions on freedom of navigation are particularly vulnerable. This includes states that are unable to assert effective sea control and sea users, such as shipping companies, that are reliant upon the international community to ensure that freedom of navigation rights are maintained.

Table 4.4 Maritime security risks—freedom of navigation

Maritime Security Risk	Likelihood	Consequence	Overall Risk
MS Risk 4. State *closures* of international straits, archipelagic sea lanes and/or areas within national jurisdiction.	Unlikely	Serious	Medium
MS Risk 5. State *restrictions* on freedom of navigation in international straits, archipelagic sea lanes and/or areas within national jurisdiction.	Probable	Major	High
MS Risk 6. Non-state actors impinging upon freedom of navigation (i.e. piracy and sea robbery, maritime terrorism).	Almost Certain	Minor	Medium

Opportunities Freedom of navigation risks present opportunities for regional and extra-regional states and other entities to cooperate in providing collective security in order to meet common objectives and protect shared interests. Maintaining the integrity of the Indian Ocean SLOCs supports economic and energy security objectives, and is integral to supporting the globalized economy and maintaining regional stability.

Marine Environment and Ocean Resources

Transgressions against the marine environment can take many forms, both macro and micro, and can be perpetrated by state and non-state actors. Contraventions can occur either intentionally, for example, dumping and unrestricted resource exploitation in the maritime domain, or by neglect arising from inadequate regulation and control. Violations can occur in areas within national jurisdictions and areas beyond national jurisdiction (i.e. the high seas). Problems can result from illegal exploitation of marine living species in the water column (i.e. IUU fishing in the EEZ); illegal exploitation of marine living species in and below the seabed; illegal exploitation of non-living resources (i.e. minerals); dumping and pollution at sea, either intentionally or accidentally, for example, resulting from shipping accidents and offshore oil and gas facility incidents; and/or inadequate regulation and control of marine living species and non-living resources exploitation.

The marine environment is also highly likely to be significantly impacted by climate change in the medium-to-longer term, with impacts including sea level and temperature rise, ocean acidification, and increased incidence and severity of extreme weather events. Climate change presents extreme

Table 4.5 Maritime security risks—marine environment and ocean resources

Maritime Security Risk	Likelihood	Consequence	Overall Risk
MS Risk 7. Impacts of climate change on the marine environment.	Almost Certain	Major	High
MS Risk 8. Illegal exploitation of marine living resources, in areas of national jurisdiction and the high seas.	Probable	Major	High
MS Risk 9. Marine pollution and dumping.	Probable	Major	High
MS Risk 10. Inadequate regulation and control of the marine environment.	Almost Certain	Major	High

uncertainty and is therefore an indeterminable risk factor; it is therefore a major vulnerability. Four broad risks are identified (Table 4.5).

Vulnerabilities Many areas in the IOR are extremely vulnerable to marine environmental degradation, ocean resource exploitation and the forecast impacts of climate change. Many regional states have little capacity to effectively regulate and control marine environments. Further, the marine environment in many Indian Ocean areas is extremely sensitive and fragile (i.e. coral reefs). Marine ecosystems and human livelihoods (i.e. fishing and tourism) are likely to be profoundly affected.

Opportunities Addressing risks to the marine environment and oceanic resources presents further imperatives for cooperation among IOR littoral states. Impetus is present for the development and implementation of regional and subregional arrangements for cooperative environmental management, anti-dumping and anti-pollution. This has already occurred to some extent with the Kuwait Convention and associated Protocols in the Persian Gulf (UNEP 1978; Cordner 2013, 47–48), and the Indian Ocean Global Ocean Observing System (IOGOOS) regional alliance (Gupta 2010, 136–139). However, there is considerable scope for further cooperation in ostensibly peaceful and mutually beneficial efforts against ubiquitous and common threats to the marine environment. An appropriately managed marine environment presents economic and human security opportunities. For example, access to sustainable ocean resources (i.e. fisheries) and enhanced tourism in attractive and pristine oceanic and littoral areas.

Climate Change

In addition to the forecast impacts upon the marine environment and ocean resources (IPCC 2007a, b, 2013), climate change will also impose huge maritime security response challenges around the extensive IOR coastal zones. The combination of sea level rise and increasing intensity of weather events, such as cyclones and typhoons, will present extreme risks to many vast littoral Indian Ocean communities. Low-lying coastal areas and islands are threatened with existential risks. Implications include massive transmigration, terrestrially and by sea, as large populations are forced to evacuate. All actors with interest in the IOR are likely to be impacted either directly or indirectly (Table 4.6).

Vulnerabilities Many areas around the Indian Ocean littoral are extremely vulnerable to the impacts of climate change. There is little capacity for risk mitigation among developing IOR states; response, recovery and adaptation abilities are often grossly inadequate. Intergovernmental Panel on Climate Change (IPCC) (2013) assessments indicate that it is already too late to prevent climate change from occurring. Large-scale climate change–induced disasters will have environmental, economic, food and human security impacts that will overwhelm regional capacities and increasingly result in calls for external assistance. The emerging IOR climate change scenario exacerbates environmental, food, human and economic security; global and regional vulnerabilities are evident. Vulnerability reduction initiatives, on a regional scale, are urgently needed.

Opportunities No single global or regional entity will be able to cope with the vast scale and extent of the likely impacts from climate change. The impending and mounting implications of climate change in the IOR, particularly those that apply to coastal and island communities, present imperatives for collective and cooperative prevention, response and recovery arrangements between regional and extra-regional actors.

Table 4.6 Maritime security risks—climate change

Maritime Security Risk	Likelihood	Consequence	Overall Risk
MS Risk 11. Sea-level rise and increasing intensity and frequency of extreme weather events in IOR coastal zones and islands.	Almost Certain	Extreme	Very High

Commonly held and shared risks and vulnerabilities, although uneven in their application and the ability to cope and adapt across the Indian Ocean, present the quintessential imperative for developing regional cooperative maritime security and other vulnerability reduction arrangements.

Economic, Political and Social

The IOR is replete with economic, political and social challenges, including the implications of failed and failing states, economic disparity, disadvantage and non-participation, political instability and disruption, and social disharmony and conflict variously motivated by politics, economics, race, ethnicity and religion. The consequences spill into the maritime domain, resulting in law and order at sea challenges, including piracy, robbery, smuggling, human trafficking and slavery, illegal immigration, and IUU fishing. They are exacerbated by inadequate regulation, combined with inadequate prevention and response capabilities. Political and economic fragility and social dysfunction generate environments where organized crime can flourish. Local law and order enforcement is often grossly deficient.

Law and order at sea concerns are symptomatic of economic, political and social problems ashore. The immediate consequences to the wider Indian Ocean maritime system are relatively minor and local, except for mass illegal immigration, also addressed under the climate change risk. The vastness and challenges of the oceanic context serve to contain and therefore mitigate the risks from economic, political and social dysfunction ashore (Table 4.7).

Vulnerabilities Large geographical areas in the Indian Ocean are vulnerable to law and order at sea transgressions because they are essentially lawless: state regulation and control is non-existent, has broken down or is simply inadequate for the scale of the challenges. Examples of law and order vulnerability include Somalia and Afghanistan. Lawlessness ashore

Table 4.7 Maritime security risks—economic, political and social

Maritime Security Risk	Likelihood	Consequence	Overall Risk
MS Risk 12. Law and order at sea transgressions: crime, piracy, robbery, smuggling, trafficking, illegal immigration, IUU fishing.	Almost Certain	Minor	Medium

and/or at sea in one geographical area often manifests as law and order problems in other areas through, for example, illegal immigration or drug, human and arms trafficking.

Opportunities Combating transgressions of law and order at sea presents further motivation for the creation of regional and subregional cooperative arrangements, including intelligence sharing, joint patrols, and common legislative and regulatory approaches consistent with international law. Addressing economic, political and social security factors presents encouragement to pursue development opportunities such as free trade, open markets, dynamic and mobile workforces, and improved education, which have maritime security dimensions.

Energy

Energy security via SLOCs is a vital issue in the IOR. Regional and extra-regional actors have major interests in the transport by sea of bulk energy resources, including oil, gas and coal. The rapid expansion of offshore oil and gas facilities has significant maritime security dimensions, including safety and environmental, economic and traditional state security (given competition and boundary delimitation disputes), which are addressed at the case study in Chap. 5. Energy risks overlap to a considerable degree with maritime sovereignty, freedom of navigation, and economic, environmental, and law and order at sea risks already identified (Table 4.8).

Vulnerabilities Both exporters and importers of energy in the IOR are vulnerable to disruptions of supply. The economic security of major regional and extra-regional powers, such as China, India and the countries of the European Union, are extremely vulnerable to interruptions to just-in-time energy supplies. The economies of the supplier states in West Asia, Southeast Asia, Australia and, increasingly, East Africa are

Table 4.8 Maritime security risks—energy

Maritime Security Risk		Likelihood	Consequence	Overall Risk
MS Risk 13.	Disruption of energy cargoes at sea.	Possible	Serious	High
MS Risk 14.	Offshore oil and gas safety and security incidents.	Probable	Major	High

similarly vulnerable. Many supplier states are heavily reliant on energy trade for their economic well-being.

Opportunities Energy security is a common concern for regional and extra-regional actors in the IOR. Protection of SLOCs in order to ensure freedom of navigation and uninterrupted flows of energy is in the common interests of regional and global economies. The imperatives for collective and cooperative maritime security approaches are clear.

Weapons of Mass Destruction (WMDs)

Proliferation of nuclear and chemical weapons in the IOR often involves an element of sea transportation; nuclear weapons can also be deployed at sea. Tensions remain high between regional nuclear-armed powers, India and Pakistan, plus Israel and various Arab states. The possibility of nuclear war can never be discounted. The resultant consequences are very high, while the likelihood remains low. WMD proliferation remains a concern with Iran, Saudi Arabia and other states variously mooted to be seeking nuclear weapons.

Chemical weapons have been used on numerous occasions, for example, during the Iran–Iraq War by Saddam Hussein against the Kurds, and there are allegations of use in the Syrian civil war. Some states have stockpiles of chemical agents. The prospect of WMDs being acquired by terrorists groups remains a real risk, particularly apparent in parts of the IOR where religious extremism abounds.

The consequences arising from WMD use at sea are generally lower than on land. Radiation and chemical or biological agents are more readily degraded and dispersed by the elements at sea and fewer people are likely to be directly affected. Transportation of WMDs by sea remains an ongoing concern. Conflict or the threat of conflict involving WMDs, particularly nuclear weapons, which will have regional and global implications, is likely to extend into the maritime domain and will have significant maritime security consequences; this issue also has implications for traditional, state-on-state security (Table 4.9).

Vulnerabilities Many parts of the Indian Ocean littoral have vast populations that are extremely vulnerable to the use of WMDs. Biological and chemical agents, for example, would result in massive loss of life in areas where there are large concentrations of people in poor socio-economic

Table 4.9 Maritime security risks—weapons of mass destruction (WMDs)

Maritime Security Risk		Likelihood	Consequence	Overall Risk
MS Risk 15.	Transportation and deployment of WMD, primarily nuclear weapons, at sea.	Possible	Major	Medium

conditions. Weak state regimes and the ongoing activities of non-state actors, including terrorists motivated by religious extremism, mean that parts of the IOR are vulnerable to WMDs.

Opportunities Maritime security cooperation among regional and extra-regional states in the IOR is required to prevent the spread of WMDs. There are mutual benefits for regional states, supported by extra-regional entities, to take concerted, collective action to reduce the risks generated by WMD proliferation.

Traditional Security

The maritime security implications of traditional, state-on-state security concerns must be seriously considered. The prospects of global war in the contemporary globalized context appear to be remote, although the consequences would be extreme. Similarly, the likelihood of a region-wide war also appears to be reduced by mutual interests in containing conflicts. More likely occurrences are local, limited state-on-state conflicts between regional protagonists, for example, Iran–Iraq, Iran–Saudi Arabia, Arab states–Israel and India–Pakistan. Conflicts arising from power projection and sea control by major powers, such as the United States, China and India, along with local skirmishes over maritime boundary delimitations and access to resources, are also possible. Local conflicts and major power incursions have the potential to impact upon maritime sovereignty and freedom of navigation (disruption of SLOCs), with political, economic, energy, food and human security consequences (Table 4.10).

Vulnerabilities Regional and extra-regional economies are very vulnerable to disruptions to the just-in-time supply of raw materials to markets resulting from state-on-state conflict. Conflicts ashore often generate massive secondary problems, such as transmigration and refugees, that flow into the maritime domain. Developing countries are vulnerable because they

Table 4.10 Maritime security risks—traditional security

Maritime Security Risk	Likelihood	Consequence	Overall Risk
MS Risk 16. Local state on state, conflict spilling into the maritime domain.	Possible	Major	Medium
MS Risk 17. Maritime intervention (power projection, asserting sea control) by major powers in the IOR.	Possible	Serious	High

are often involved in local conflicts and their populations have little capacity to respond or adapt.

Opportunities Regional and extra-regional states need to promote regional stability in the Indian Ocean. The convergence of traditional and non-traditional maritime security concerns can act as a catalyst for developing mutually beneficial maritime security arrangements, regimes and dialogue forums that involve both regional and extra-regional actors, primarily states but also international entities. Regional and extra-regional maritime forces can be employed to enhance stability, to respond to natural disasters and to assist in imposing law and order at sea.

Safety at Sea

Safety at sea and maritime security are largely concordant; they are increasingly recognized as complementary concepts. The Appendix shows that the vast majority of IOR states are parties to the 1974 SOLAS Convention (IMO 1974), while several IOR states are not party to the 1979 Maritime Search and Rescue Convention (IMO 1979). The lack of capacity to respond to search and rescue (SAR) incidents and concerns at the costs that could be incurred may be inhibiting factors for some Indian Ocean respondents. Together, the Conventions represent attempts by the international community to create a global maritime context of shared concern for and responses to maritime safety incidents. This encompasses the full range of maritime disasters that may threaten life at sea, from vessels lost or foundering due to extreme weather events, accidents or conflict to offshore facilities and other activities in the maritime domain. Such incidents occur frequently but, in the main, have relatively minor consequences for the Indian Ocean maritime security system as a whole. Maritime security assets are often used to respond to safety incidents at sea (Table 4.11).

Table 4.11 Maritime security risks—safety at sea

Maritime Security Risk	Likelihood	Consequence	Overall Risk
MS Risk 18. Safety at sea.	Almost Certain	Minor	Medium

Vulnerabilities Many regional countries have lax regulatory regimes that do not demand adherence to safety standards and have little capacity to respond to safety incidents at sea. Concomitantly, regional states that are not parties to international safety at sea regimes are likely to be unprepared to deal with safety incidents; responsibilities for SAR at sea are not shared by a significant number of IOR states. These factors weaken the international SAR system.

Opportunities The safety of mariners and others who go to sea is accepted by many actors in the international maritime community as a communal responsibility (IMO 1974). Safety at sea presents an important, non-threatening area where states and other actors can cooperate.

Regional Security Architecture

There are no IOR-wide multilateral security architectures and mechanisms specifically designed for dealing with security dialogue and cooperation, including maritime security, at the government-to-government level. The Indian Ocean Rim Association (IORA) does not include security in its Charter and its membership is restrictive. Several important Indian Ocean littoral states are not members, for example, Saudi Arabia, Pakistan and Myanmar. There is reported to be little appetite among existing members to countenance expansion.[1] However, maritime security and related matters are increasingly on the IORA agenda. The only region-wide dialogue entity that considers maritime security is the Indian Ocean Naval Symposium (IONS), which has an expansive membership of maritime security force leaders who primarily consider operational and technical cooperation (Table 4.12).

Vulnerabilities The lack of regional and subregional collective and cooperative security architectures, combined with the lack of maritime security capacity, presents major vulnerabilities in the IOR. Opportunities for regionally focused multilateral security dialogue are not routinely avail-

Table 4.12 Maritime security risks—regional security architecture

Maritime Security Risk	Likelihood	Consequence	Overall Risk
MS Risk 19. Lack of IOR architecture and entities to facilitate regional maritime security dialogue and cooperation.	Almost Certain	Serious	Very High

able, as in some other regions. Consequently, the means and habits of cooperation are not being developed.

Opportunities The need to develop IOR security architectures presents major opportunities for enhancing regional maritime security into the future. The Indian Ocean littoral states, in collaboration with extra-regional states with interests in the IOR, plus other actors, have the opportunity to learn from the mistakes and successes of regional security cooperative arrangements in other regions. Arrangements need to be tailored to the unique socio- and geopolitical requirements of the IOR.

Synthesis and Analysis

The 19 IOR maritime security strategic risks are collated in Table 4.13.

A composite risk matrix that combines the strategic objectives (discussed in Chap. 3) with the strategic risks is presented in Table 4.14, with the colour code indicating the overall risk profile. An 'x' indicates those strategic objectives that are impacted by each maritime security risk. The composite picture of risks against objectives provides a useful strategic overview that highlights discontinuities and areas of convergence. Opportunities for targeted collective and cooperative maritime security risk mitigation and risk treatment efforts are highlighted.

Shortcomings inherent in this coarse presentation of relative risk profiles need to be recognized. Care needs to be taken to acknowledge that the granularity and important nuances of risks can be hidden in some instances, particularly for a complex system, such as the IOR. The impact of generic risks upon a specific actor or issue within the IOR maritime system would require further detailed assessment, an example of which is provided in the offshore oil and gas safety and security case study in Chap. 5.

Table 4.13 Indian Ocean region (IOR) maritime security risks

IOR maritime security (MS) risks
MS Risk 1. Transgressions of sovereignty in the territorial sea
MS Risk 2. Transgressions of sovereignty in exclusive economic zones
MS Risk 3. States asserting unreasonable maritime sovereignty claims
MS Risk 4. State *closures* of international straits, archipelagic sea lanes and/or areas within national jurisdiction
MS Risk 5. State *restrictions* on freedom of navigation in international straits, archipelagic sea lanes and/or areas within national jurisdiction
MS Risk 6. Non-state actors impinging upon freedom of navigation (piracy, sea robbery, maritime terrorism)
MS Risk 7. Impacts of climate change on the marine environment
MS Risk 8. Illegal exploitation of marine living resources in areas of national jurisdiction and the high seas
MS Risk 9. Marine pollution and dumping
MS Risk 10. Inadequate regulation and control of the marine environment
MS Risk 11. Sea level rise and increasing intensity and frequency of extreme weather events in IOR coastal zones and islands
MS Risk 12. Law and order at sea transgressions: crime, piracy, robbery, smuggling, trafficking, illegal immigration and illegal, unreported and unregulated fishing
MS Risk 13. Disruption of energy cargoes at sea
MS Risk 14. Offshore oil and gas safety and security incidents
MS Risk 15. Transportation and deployment of weapons of mass destruction, primarily nuclear weapons, at sea
MS Risk 16. Local, state-on-state conflict spilling into the maritime domain
MS Risk 17. Maritime intervention (power projection, asserting sea control) by major powers in the IOR
MS Risk 18. Safety at sea
MS Risk 19. Lack of IOR architecture and entities to facilitate regional maritime security dialogue and cooperation

Summary Analyses

The depiction of strategic risks against strategic objectives in Table 4.14 highlights the convergence of several IOR maritime security risk factors. The risk and vulnerability narratives emphasize the *opportunities*, which can also be identified through taking holistic approaches to risk. Broad observations can be drawn that are helpful in determining risk and vulnerability mitigation priorities and strategies, while acknowledging the qualitative nature of the analyses and the coarseness of the process.

The highest composite risks to maritime security in the IOR in the medium-to-longer term come from transgressions of maritime sovereignty

Table 4.14 Indian Ocean region maritime security risk assessment matrix

IOR Maritime Security Risk Assessment Matrix																				
Strategic Objective	**MS Risk**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**
Risk Profile																				
1		x	x	x	x	x	x		x	x	x	x	x		x	x	x	x		x
2			x	x	x	x	x						x	x	x	x	x	x	x	x
3		x	x	x				x	x	x	x		x		x	x	x	x	x	x
4					x	x	x	x	x		x		x	x			x	x		x
5				x	x	x	x		x				x	x			x	x	x	x
6		x	x	x	x	x	x			x			x	x	x		x	x	x	x
7				x			x	x	x	x	x	x	x		x		x	x	x	x
8		x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x
9		x	x	x						x			x			x	x	x	x	x
10				x	x	x	x	x			x	x	x	x	x	x	x	x	x	x
11		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
12		x	x	x		x	x		x	x	x		x		x				x	x
13								x	x	x	x	x	x							x
14								x	x	x	x	x	x		x		x	x	x	x
15								x				x	x				x	x	x	x

and impacts upon the marine environment and ocean resources from climate change, overexploitation, and inadequate regulation and control. The impacts of climate change in coastal zones and low-lying islands present massive existential risks that are likely to require responses, including maritime security responses, beyond the capabilities of individual or collective IOR states. Regional cooperative efforts to prevent, respond to and recover from extreme weather events are highlighted, along with the need for the involvement of external actors. Risks are exacerbated by the lack of regional maritime security architectures to facilitate collective dialogue and to coordinate action.

The prospect of intervention by the major powers also presents high risks. The possibility of conflict at sea between the major powers cannot be discounted; the consequences for regional maritime security would be significant. The involvement of external powers in the IOR, however, can also present opportunities for enforcing freedom of navigation and responding to other risks, such as those arising from law and order at sea transgressions and natural disasters. Discrete risks to maritime security, such as those arising from WMD transportation and the need for collective safety at sea, are important.

Freedom of navigation risks generally are assessed as medium, while disruption of energy SLOCs is high risk for regional and extra-regional

actors. The likelihood of interference by state actors is lower because potential protagonists have mutual interests in keeping trade flowing. The consequences of non-state actors (pirates, sea robbers and terrorists) impacting in the maritime domain are relatively low when considered in the larger international context of the overall effects on global maritime trade. The need for regional and extra-regional actors to collaborate and cooperate to ensure energy security is underscored.

The juxtaposition of law and order at sea transgressions and the need to impose law and order consistent with international regimes and norms are noteworthy. All the risks identified have legislative and regulatory aspects that require effective law and order responses. The assertion of unreasonable sovereignty claims by some Indian Ocean states, and external actors, impacts on many objectives and raises overall prospects of conflict at sea. Regional and extra-regional actors operating in the IOR should be urged to accede to and interpret UNCLOS and other international maritime regimes in accordance with international norms, and utilize international arbitration mechanisms when necessary. Law and order and safety at sea present significant priority areas for collective action and cooperation in the IOR; the need for cooperative regional dialogue is highlighted.

State-on-state conflict, for example, in West Asia or South Asia, potentially impacts many regional objectives, although the consequences for the IOR maritime system as a whole are relatively low. This is because impacts are likely to be mainly local. However, if closure of international straits occurs as a result, the Straits of Hormuz, Bab-el-Mendeb or Malacca, for example, local conflicts could have wider, systemic consequences.

The majority of risks impact upon the maintenance of political order and regional stability. The regional security architecture risk and the related strategic objective affect all the risks identified. Developing effective regional cooperative arrangements needs to be a high priority for both regional and extra-regional actors with interests in the Indian Ocean. Regional and extra-regional state and cooperative entities, in collaboration and consultation with regional maritime security forces and other national and multilateral agencies, need to develop cooperative strategies for treating the risks.

Cumulative and Aggregated Risks

The Indian Ocean maritime security risk assessment case study provides empirical support to the utility of risk analysis. Systemic understandings

have been developed of region-wide maritime objectives and strategic risks that impact IOR maritime security.

The contingent nature of the interactions between diverse actors, actions, objectives, risks and vulnerabilities must be emphasized. The complex Indian Ocean maritime system functions within, and as an integral part of, the global maritime system. Relationships between factors and risks to objectives are not linear, as the tabular presentation might suggest. The cumulative and aggregated risks that arise across the interrelated spectrum of international law, economy, social development, regional and extra-regional interstate competition, environment, and ocean resources issues, as they impact traditional and non-traditional security, are particularly difficult to comprehend and portray. The longer-term consequences of cumulative, aggregated and interactive risks to safety and security, and good order at sea, are profoundly important to regional oceans governance and to maritime security (Gupta 2010, 35).

Developing and implementing effective risk mitigation and treatment strategies requires an agreed, comprehensive understanding of the risk context, and an assessment of common risks and shared vulnerabilities. The risk context and risk assessments set the scene for an analysis of collective and cooperative regional response factors, options, limitations and prospects.

Notes

1. This observation is based upon remarks made by the Secretary General of the Indian Ocean Rim Association at the 16th Institute for Defence Studies and Analyses Asia Regional Security Conference, New Delhi, India, 20 February 2014.

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CHAPTER 5

Strategic Risk Assessment: Offshore Oil and Gas Safety and Security in the Indo-Pacific

Offshore oil and gas safety and security in the Indo-Pacific is an important and emergent subissue within the wider Indian Ocean maritime security context. The strategic risk assessment presented here demonstrates application of the approach in a separate, although integral and directly related, case study. The systemic nature of the maritime domain is emphasized, along with the interconnectedness of the aims of multifarious actors operating in the offshore oil and gas context, and the implications this holds for maritime security governance. The analytical focus is on specific objectives and risks that involve nation-states, industry, international bodies and non-government organizations. Risk-based approaches to decision-making are already employed by many significant actors in the oil and gas sector, particularly industry and the environmental community.

In non-traditional maritime security terms, safety and security are closely aligned and, in many respects, concordant (Bateman et al. 2009). Notions of risk and vulnerability in the offshore oil and gas exploration and exploitation circumstance are largely consistent with Beck's (1999, 6) "conditions of manufactured uncertainty", where human endeavour is creating a range of risks that otherwise would not exist. The risks have economic, environmental, human, food and energy security aspects. Traditional security concerns arising from state competition for access to resources, maritime boundary delimitation and energy trade flows are highlighted, along with non-traditional law and order at sea concerns.

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This analysis stemmed from a Council for Security in the Asia Pacific (CSCAP) Study Group on offshore oil and gas safety and security during 2010 that was co-chaired by Australia, Singapore and Vietnam.[1] The majority of CSCAP member countries were represented in the Study Group, including China, Japan, the United States and most Association for Southeast Asian Nations (ASEAN) states. The Study Group outcomes, in the form of a CSCAP Memorandum (CSCAP 2011), were presented to an ASEAN Regional Forum (ARF) Intersessional Meeting (ISM) on Maritime Security held in Seoul, South Korea, in April 2013. As a result, offshore oil and gas safety and security was included in a series of ARF Maritime Security Workshops on Marine Environmental Protection (MEP) commencing in 2014.[2]

The geographical focus is primarily on emerging offshore oil and gas fields in the Indo-Pacific. In addition to the long-exploited offshore fields in West Asia, primarily in the Persian Gulf, there have been recent reports of significant offshore gas reserves and exploitation activities commencing off the east coast of Africa. The geographical coverage of this analysis extends from the East China Sea south through the South China Sea (SCS) to the northeast and central Indian Ocean. It includes waters to the northwest of Australia, the Andaman Sea, the Bay of Bengal and areas off India's west coast. The SCS is a focal area of interest due to the proliferation of offshore oil and gas activity in waters claimed by numerous littoral states in crowded, environmentally sensitive and strategically important waters. While the SCS technically sits outside the Indian Ocean, maritime security is directly impacted by events there due to the interconnected nature of the maritime domain.

The Risk Context

The Indo-Pacific offshore oil and gas safety and security risk context is fundamentally defined by massive increases in offshore oil and gas exploration and exploitation activity, and investment, driven by economic growth and the rising demand for energy in Asia. Economic growth in China and India was predicted to continue to average greater than 5 per cent per annum through to 2035 (US EIA 2011, 19). World energy demand was forecast to increase by one-third between 2010 and 2035 (IEA 2011). While coal and nuclear power will meet much of the increase, the largest rise in demand will be for natural gas. Non-OECD (Organisation for Economic Co-operation and Development) Asia,[3] led by China and India,

is predicted to increase its share of world natural gas consumption from 10 per cent in 2008 to 19 per cent in 2035; gas consumption is forecast to increase by an average of 3.9 per cent annually (US EIA 2011, 48–49).

China is forecast to be the world's largest energy consumer by 2035, with consumption increasing to more than 70 per cent higher than the United States. Energy consumption rates in developing Indo-Pacific economies, including India and Indonesia, are forecast to grow even faster than China. India's demand for energy is projected to increase by 110 per cent by 2030 (BP 2013), and the vast majority of this will be imported by sea. Natural gas continues to be the fuel of choice because its relatively low carbon intensity makes it an attractive option for reducing greenhouse gas emissions, the capital costs are relatively low, and it is fuel efficient (IEA 2011).

Indo-Pacific Offshore Oil and Gas Activity

The search for offshore oil and gas in the Indo-Pacific region is rapidly expanding and intensifying commensurate with increasing global and regional demands for energy, and as production from mature fields declines. Total capital expenditure commitments on offshore oil and gas development in the region was expected to exceed $US 90 billion during 2011–15, a 55 per cent increase from the previous five-year period (Infield Systems Ltd. 2014; Kliewer 2012). Projected offshore field developments for the period 2012–15, based upon industry-sourced contracted commitments, indicate the vast scale of this activity. Projections in 2014 in South Asia, Southeast Asia, East Asia and Australasia were for 441 new shallow- (less than 300 m) and deep-water (greater than 300 m) oil and gas fields involving thousands of exploratory drillings. Three hundred and eighty-seven new subsea wells were contracted, with a combined total of 70 floating production, storage and offloading vessels (FPSOs), floating production systems (FSPs), and floating storage and offloading units (FSOs), plus over 14,000 km of rigid and flexible flow lines. By far, the greater proportion of the activity, 237 fields, was occurring in the SCS (Infield Systems Ltd. 2014).

Several new areas offer potential oil and gas production. They range from the Mumbai High Basin off India's west coast and the Bay of Bengal; the North West Shelf and Timor Basin areas off north-western Australia; the SCS where Malaysia, Brunei, China, Taiwan, Vietnam and the Philippines are active in the Spratly and Paracel Island areas; Indonesian

offshore developments that are progressing in the Makassar Strait; the Gulf of Thailand; and the East China Sea that includes disputed areas, for example, around the Senkaku/Diaoyu/Tiaoyutai Islands. The competition for access to new offshore oil and gas fields is expected to intensify over the next two decades.

Offshore Oil and Gas Safety and Security Incidents

The number of major offshore safety and security incidents around the world over the past 50 years is surprisingly low, given the geographical extent, scale and expanding proliferation of activities and facilities. The safety and security implications of a global industry that operates in a high-risk environment are evident. Only 8 of 48 recorded significant incidents occurred in the Indo-Pacific region (Cordner 2013, 25–30). This can be expected to increase with the rapid expansion of activity, combined with other risk factors. Twelve incidents were attributed directly to extreme weather events (cyclones, typhoons and storms), with 35 incidents being the result of technical failures or operator error. Only incidents off Nigeria were directly attributed to security attacks. In addition, there were numerous offshore oil and gas industry incidents arising from war and armed conflict. Many offshore installations, for example, were damaged, causing oil spills at sea, during the 1990–91 Persian Gulf War.

Deepwater Horizon and West Atlas Incidents

A brief analysis of two recent offshore oil and gas incidents that have been well documented is helpful in setting the risk context: the West Atlas, Montara field incident off the northwest coast of Australia in 2009, and the Deepwater Horizon, Macondo well incident in the Gulf of Mexico in 2010. Both situations involved rig blowouts attributed to technical, operational and regulatory failures. Major systemic deficiencies were exposed, offering lessons for the offshore oil and gas sector worldwide (Cordner 2013, 13–25). Importantly, the linkages between managing risk with safety and security outcomes were clearly exposed. The Deepwater Horizon Commission Report stated (National Commission 2011, 251): “Government agencies that regulate offshore activity should reorient their regulatory approaches to integrate more sophisticated risk assessment and risk management practices into their oversight of energy developers operating offshore.”

Blowouts offshore can have major and long-lasting effects. These can include loss of human life, pollution of marine and shoreline ecosystems, substantial commercial losses and reputational damage for the companies involved, financial losses for third parties affected by the spill, impacts on the global economy primarily through oil and gas price fluctuations, and reputational damage to the nations involved and their regulators. Incidents are rare, although the likelihood must be expected to rise with the search for oil and gas in ever deeper and more remote waters that test the limits of the technological capacity, experience and resources of the industry. According to the Commissioner's Report on the West Atlas incident (Borthwick 2010, 5):

> Although the likelihood of a major blowout occurring is relatively low, the consequences can be very grave. However, the likelihood is relatively low only because well integrity is (or should be) scrupulously observed by the industry and those who regulate it. At each stage, from exploratory drilling through to production, the systems and technologies in place are designed to be fail-safe, with considerable back-up capability built in to prevent blowouts. The systems and technologies are not new; they are well proven and they do work, if correctly applied.

The Deepwater Horizon blowout produced the largest accidental marine oil spill in US history, resulting in a severe human and environmental tragedy. The conclusions drawn by a National Commission of inquiry, appointed by the US government, present sobering and compelling reading. The Commission concluded that "[w]ith the benefit of hindsight, the only question had become not whether an accident would happen, but when" (National Commission 2011, 85). The Report is written in a graphic, narrative style that paints a vivid picture of the incident, its aftermath and the causal factors involved. Importantly, it presents recommended remedies for improved prevention, response and recovery.

The Deepwater Horizon was drilling the Macondo well in 1500 m of water and over 4000 m below the sea floor (National Commission 2011, viii). The scale of the operation and the levels of complexity were immense, employing the latest technological advances in offshore drilling. Those conducting the operation were highly capable and experienced. Experience, ironically, induced a level of complacency and unwillingness to recognize and treat emerging hazards that increased the risks. It had become an inherently high-risk, high-reward venture. The scale of the environmental

disaster and the response required was also massive. An estimated 4.9 million barrels of oil spilled into the Gulf of Mexico, requiring responses directed from the highest levels of the US government (United States Government 2011).

The Deepwater Horizon oil spill, in the environmentally attractive and sensitive area of the Gulf of Mexico, had major collateral impacts. Tourism and fishing "were highly sensitive to both direct ecosystem harm and, indirectly, public perceptions and fears of tainted seafood and soiled beaches". The extent of the economic impact of the Deepwater Horizon disaster was evident when British Petroleum (BP) agreed "to place in escrow a $(US) 20 billion fund to help address financial losses" (National Commission 2011, 185), while media reports indicate that the total cost to BP will be in the order of $US 90 billion (*The Economist* 2013).

In the West Atlas incident, the Montara Wellhead Platform (WHP) blew out, producing Australia's third-largest oil spill and the worst of its kind in the history of Australia's offshore petroleum industry. For a period of more than 10 weeks, oil flowed unabated into the Timor Sea, at an estimated rate of between 400 and 1500 barrels per day, plus untold amounts of gas, condensate and water, to a total volume of around 29,600 barrels of oil. The incident occurred 250 km off the northwest coast of Australia. Patches of sheen or weathered oil could have affected, at various times, an area as large as 90,000 km^2 (Borthwick 2010, 26, 38, 52, and 301).

Unlike Deepwater Horizon Macondo well, the Montara oil field is in shallow water (defined in the industry as less than 300 m) in the western section of the Bonaparte Basin, in water depths ranging between 76 m and 90 m. The West Atlas rig was positioned over the Montara WHP, with the well drilled to a measured depth of 3796 m (Borthwick 2010, 36, 49–50). In a similar vein to the Deepwater Horizon Commission of Inquiry, the West Atlas Commissioner concluded (Borthwick 2010, 11 and 33):

> What happened … was an accident waiting to happen; the company's systems and processes were so deficient and its key personnel so lacking in basic competence, that the Blowout can properly be said to have been an event waiting to occur … The Blowout serves as an important reminder of the very real risks that come with the substantial economic benefits of petroleum developments, and the need for an effective regulatory and emergency response framework to ensure that sustainable development objectives can be achieved, whilst also ensuring well integrity and maintaining high standards of … safety … and environment protection.

The West Atlas incident highlighted the multinational aspects of offshore oil and gas activity in the Indo-Pacific. The incident occurred in Australia's jurisdiction and was perpetrated by a Thai-based company, with part of the spill extending into Indonesian waters. Indonesian government's attempts to pursue damage claims against the Thai company are ongoing. It has experienced considerable difficulty due to the multijurisdictional nature of the incident.

Summary Analysis

Both the West Atlas and the Deepwater Horizon events present relevant risk context information and there is considerable convergence. Key factors identified that will assist in developing regional and national risk approaches to offshore oil and gas safety and security include (Cordner 2013, 14–25):

- Offshore oil and gas exploration and exploitation involved risks for which neither industry nor governments had been adequately prepared.
- Lax regulation and industrial complacency, combined with driving political and commercial expediency, work together to build cumulative risks that create circumstances where systemic, organizationally induced accidents are certain to occur; it becomes a matter of when, not if.
- Effective risk management requires partnerships between the regulator and those being regulated, between government and industry, where each partner performs its role diligently and with integrity. Governance arrangements and relationships are critical.
- While the likelihood of major safety and security incidents may be low, the consequences can be very high. Consequences can include major loss of human life and environmental disasters. Significant economic and reputational damage can also result that impact commercial, national, regional and global interests.
- The rapid expansion of exploration and exploitation activities, pushing technology into deeper and more remote waters at the frontiers of human experience, means that there will be more accidents with ever greater consequences in the future.
- Safety incidents in the offshore oil and gas industry often result from systemic failures in risk management. Imposing effective risk

management processes supported by sophisticated risk analysis and governance arrangements at all levels, international, national, industry sector and individual operators, is essential to risk reduction.
- While objective-based regulatory regimes are generally appropriate and widely employed, an effective and proactive regulatory regime must also be in place.
- The technology, laws and regulations, practices, and capabilities in responding to the environmental impacts of spills lag behind the real risks associated with large-scale and high-intensity offshore oil and gas exploration and exploitation.
- Scientific understanding of environmental conditions in sensitive marine and coastal environments is generally inadequate, as is comprehension of the human and natural impacts of oil spills.
- Offshore oil and gas incidents will often have significant consequences for neighbouring littoral nations. Major human, environmental and economic security concerns are likely, resulting from damage to fisheries, tourism and marine ecosystems in adjacent jurisdictions. International cooperative engagement issues, including joint prevention, response and recovery arrangements, and issues such as boundary delimitation need to be considered, put in place, resolved and tested before major incidents occur.

Offshore Oil and Gas Strategic Objectives

Defining strategic objectives is a necessary precursor to assessing the risks to those objectives. In the offshore oil and gas organizational construct, the objectives and interests of numerous actors need to be considered, and this presents high levels of complexity. The objectives of diverse actors, or at least the priority placed upon common objectives, may vary considerably. Objectives may be contradictory and competing in some instances; 'so what for who?' is a key question that can generate a variety of answers.

The primary objective of oil and gas companies is to turn a profit for shareholders by gaining cost-effective access to resources; this will be a key driver of risk appetite. Environmental groups, tourism operators and fishermen will have objectives of maintaining pristine marine environmental conditions. Governments will (or should) endeavour to provide a regulatory context that will enable economic and environmental objectives to be progressed concurrently.

Defining strategic objectives and then assessing the risks to those objectives and identifying risk mitigation strategies requires detailed and dedicated analyses involving a range of experts. Strategic safety and security objectives for the Indian Ocean region offshore oil and gas industry include:

Objective 1. Profitably operate exploration and exploitation activities.
Objective 2. Conduct operations safely.
Objective 3. Provide a secure strategic environment, including law and order at sea, to enable operations to be conducted.
Objective 4. Administer an effective and efficient regulatory regime.
Objective 5. Conduct operations responsibly, consistent with MEP requirements, and so as not to interfere with other maritime domain users.
Objective 6. Provide effective disaster prevention, recovery and response mechanisms and capabilities.

Risk Assessment

The scale and geographical extent of offshore oil and gas activity in the often crowded waters of Indo-Pacific areas present many safety and security challenges. The strategic risks assessed here employ the generic risk criteria outlined in Chap. 4.

Man-Induced Risks, Regulatory Uncertainties, Maritime Boundary Uncertainties

The massive expansion of offshore oil and gas exploration and exploitation activity in the Indo-Pacific presents an increasing likelihood of man-induced safety incidents, which pose significant collective risks to the region. There will be more accidents, with ever greater consequences in the future, exacerbated, in areas such as the SCS and the Bay of Bengal, by ecological vulnerabilities.

Regional governments are understandably keen to exploit their offshore resources. Exercising rights to resource access should generate obligations for responsible management. The majority of offshore oil and gas safety incidents around the world have been attributed to man-induced hazards resulting from human error, technology or equipment failures, regulatory failures, or a combination of these. Pressures to increase

production are compelling the offshore oil and gas sector into deeper and more remote waters at the leading edge of human experience and technological capacity. Multinational companies operate across multiple regulatory regimes and sometimes disputed national jurisdictions; they will exploit any perceived weaknesses to their advantage. Political and commercial pressures combine to promote risk-taking and to undermine regulatory regimes that are inadequately constituted, resourced and experienced. Cumulative risks mount to present circumstances, where systemic safety incidents are certain to occur.

There have been allegations of major oil spill incidents being reported late or where an event has been denied altogether despite evidence to the contrary. For example, an offshore rig oil spill was reported to have occurred in June 2011 in China's largest offshore field in Bohai Bay, "equivalent to the disaster in the Gulf of Mexico", which spread over 320 square miles. The Chinese government reported the spill at a press conference a month after the incident and claimed that it had already been cleaned up (Chosun Media 2011). Subsequent reporting suggested further leaks and massive environmental and fishing industry damage (People's Daily Online – English 2011). A major concern was the lack of timeliness and transparency with an incident that reportedly had significant environmental impacts, serious implications for industry and, potentially, consequences for adjacent states. The inference of a culture of secrecy in such circumstances heightens the risks to multiple actors, many of whom are extremely vulnerable and have no ability to influence outcomes.

Industry may be presented with opportunities to exploit jurisdictional and regulatory uncertainties and inconsistencies, and political rivalries, between neighbouring states. Uncertainties can be used by nations and industry to avoid obligations in the event of major crises; this is clearly the case with the overwhelming evidence of anthropomorphic climate change. Many offshore oil and gas companies operate in multiple jurisdictions, and states that have poorly developed regulatory regimes are opening the way for unscrupulous operators to apply lesser standards of safety and security, thereby increasing risk. The possibility for misunderstandings between states rises if they are not operating from commonly derived legislative bases and within clearly defined geographical boundaries.

Regional cooperation is made difficult because some maritime boundaries between littoral states have not been delimited. Increasingly, offshore oil and gas activity is occurring in the South and East China Seas, where

maritime boundary delimitation disputes abound (Prescott and Schofield 2001).

An example of the ongoing difficulties this presents was illustrated by a 12 July 2016 ruling by an arbitral Tribunal constituted under the auspices of the UN Permanent Court of Arbitration (PCA), in a case brought by the Philippines against China. The case "concerned the role of historic rights and the source of maritime entitlements in the South China Sea, the status of certain maritime features and the maritime entitlements they are capable of generating, and the lawfulness of certain actions by China that were alleged by the Philippines to violate the Convention" (Permanent Court of Arbitration 2016). The Tribunal's judgements were against China's actions in the SCS, including claimed "historic rights" to the SCS (i.e. prior to United Nations Convention on the Law of the Sea [UNCLOS]), the status of various features (i.e. whether they are islands that generate territorial entitlements, or rocks that do not), lawfulness of China's policing actions and harm to the natural environment from China's construction of artificial islands. China did not recognize the Tribunal's jurisdiction, did not submit a counterclaim and has consistently refused to accept the rulings (Permanent Court of Arbitration 2016). The Tribunal's findings and awards have worldwide implications because they have defined several UNCLOS provisions. However, the Tribunal's outcomes have not resolved tensions in the SCS.

There are also problems around the Bay of Bengal, although the various littoral protagonists, Bangladesh, India, Myanmar and Sri Lanka, have mainly been submitting their claims to appropriate international forums for arbitration (Permanent Court of Arbitration 2014; Balaram 2012; Fietta 2010). In July 2014, India and Bangladesh accepted a determination by the UN PCA on the delimitation of a shared maritime boundary in the Bay of Bengal (Permanent Court of Arbitration 2014; Bateman 2014). Acceptance of the PCA judgement by the protagonists' in this case has set a very constructive international precedent.

Unresolved maritime boundary issues can present points of extreme sensitivity between regional states; they are often complex, with no easy solutions. Regional maritime cooperation dialogue and arrangements are significantly complicated by seemingly irresolvable sovereignty issues. Regional commentators continue to urge protagonists to adopt conciliatory and compromise approaches to disagreements. So far, there has been little appetite for negotiation or compromise, particularly in the SCS.

The strategic risks arising to offshore oil and gas safety and security (OOGSS) from man-induced issues are summarized as follows:

OOGSS Risk 1. Technology or equipment failures

Likelihood: Almost certain
Consequence: Major
Overall risk: High

OOGSS Risk 2. Regulatory failures

Likelihood: Almost certain
Consequence: Major
Overall risk: High

OOGSS Risk 3. Jurisdictional uncertainty, contested maritime boundaries and incidents involving multiple jurisdictions

Likelihood: Almost certain
Consequence: Serious
Overall risk: Very high

Regional Armed Conflict

As energy demand rises and the scramble to access offshore resources increases, so do tensions among countries that claim sovereignty over the region's waters. The heightened significance for regional security of increasing offshore oil and gas activities can be seen in escalating boundary delimitation disputes between states.

Competition for access to undersea resources is intense in the SCS, particularly around the Spratly and Paracel Islands. China, Vietnam and Taiwan claim all of the Spratly Islands area (called Nansha Islands by China and Taiwan), while Malaysia, the Philippines and Brunei lay claim to some islands and isolated features (Cordner 1994). There are also significant and growing tensions in the East China Sea, as evinced by numerous sovereignty disputes primarily involving China, Japan and South Korea (Hyun-kyung and Min-uck 2012; GlobalSecurity.org 2012).

Efforts to put aside sovereignty claims to facilitate mutually beneficial exploration for offshore oil and gas have been made, as proposed by the

2002 ASEAN–China Declaration on the Conduct of Parties in the SCS (DoC) (ASEAN 2002). Parties were invited to "exercise self-restraint in the conduct of activities that would complicate or escalate disputes and affect peace and stability including … refraining from action of inhabiting on … uninhabited islands … and other features and to handle their differences in a constructive manner" (ASEAN 2002). Alleged transgressions of the DoC, along with development activity on many tiny, low-lying islands and other features, plus major increases in military and naval activity in the area, are clearly at odds with the spirit and intent of the DoC.

Adding to security concerns arising from strident diplomatic exchanges between the SCS protagonists are significant and sustained increases in military expenditure by several Asian countries. China, India and Vietnam have increased military spending massively over the past decade, as have Russia and Indonesia (SIPRI 2012). Much arms expenditure is on quantitative and qualitative improvements to naval capabilities, particularly modern surface combatants, submarines, amphibious vessels and aircraft carriers, sea- and air-based missile systems, and electronic warfare systems (Ball 2011, 5).

Armed conflict risk assessments require consideration of both capability and intent. The capability of many nations to wage war at sea is improving in the SCS and other parts of the Indo-Pacific. When combined with claims over the oceans resources, valid perceptions of increasing intent to use armed force are generated. The likelihood of armed conflict at sea is increasing, while the consequences of armed exchanges are also increasing. Intense rivalry between SCS claimants has already led to tense incidents, including loss of life, between naval forces and fishing vessels (Miks 2012). West Asia has experienced major conflicts with maritime dimensions, for example, the 1984–88 Tanker War in the Persian Gulf.

The prospect of regional, or extra-regional, states using armed force to protect territorial and resource interests must be weighed against broader interests in maintaining peace and good order at sea, particularly to sustain the uninterrupted flow of maritime trade. On balance, given the mutually negative impacts of war, armed conflict between states over maritime boundary delimitation claims and alleged transgressions is more likely to be local and contained than to degenerate into a wider regional conflict. That said, the risk of armed conflict due to miscalculation by overly aggressive local commanders is increasing as protagonists in the SCS deploy naval capabilities and reinforce military garrisons on remote features. Apart from the immediate risks of damage to oil and gas facilities and

vessels, loss of life and environmental damage, and global economic impacts, the possibility of a local conflict widening into a regional conflict cannot be discounted.

The importance of global and regional conflict resolution regimes and mechanisms for managing the consequences is emphasized. The low levels of accession of regional nations to such agreements and arrangements increase the risks. The risks to offshore oil and gas are assessed as follows:

OOGSS Risk 4. Regional armed conflict

Likelihood: Possible
Consequence: Major
Overall risk: Medium

Law and Order at Sea

The impact of law and order at sea incidents on offshore oil and gas safety and security is generally slight, although the consequences could be severe. Piracy and armed robbery remain concerns, although reported incidences in the Indo-Pacific have reduced in recent years (ReCAAP ISC 2013). Of particular relevance has been a reduction in the incidence of piracy and armed robbery in Southeast Asia, including Malaysian waters and the Malacca and Singapore Straits.

The majority of oil and gas sector incidents involve petty theft, primarily against small, slow local oil tankers and vessels at anchor. Large fixed oil and gas installations are difficult targets for pirates, although significant attacks have been reported elsewhere in the world, particularly off Nigeria, where local militants have been intent upon disrupting the oil industry (Kashubsky 2008). FPSOs, FSUs and tankers, particularly when fully laden, and oil tender vessels present easier targets.

The likelihood of terrorist attacks on the global energy sector, although low, continues to be of concern. Large fixed offshore oil and gas installations present difficult targets for terrorists, although the risks must be viewed as credible, as major damage can be inflicted that will have global security and economic consequences (Bajpai and Gupta 2007). The 2008 Mumbai terrorist attacks have required governments to refocus attention upon maritime areas as presenting both potential terrorist targets and a

source for projecting terrorism ashore (Shashikumar 2009). The risks arising are assessed as follows:

OOGSS Risk 5. Law and order at sea transgressions

Likelihood: Possible
Consequence: Major
Overall risk: Medium

Increasing Maritime User Intensity

Interactions between multiple users of the maritime space can be expected to grow. A more crowded maritime environment raises the likelihood of man-induced safety incidents arising from human errors and technical malfunctions. In addition to rapidly increasing offshore oil and gas activity, Indian Ocean shipping traffic density remains high, particularly through the Singapore and Malacca Straits, and fishing activity in the region remains intense. There are large numbers of economically and strategically vital energy shipments through the Malacca Strait, Straits of Hormuz and Bab-el-Mendeb (US EIA 2011).

The increased likelihood of unauthorized activities in close proximity to oil and gas installations (e.g. fishing, diving or tourism) presents safety and security risks. The internationally mandated 500 m safety zones (United Nations 1983, Article 60) are not wide enough to provide adequate space to warn or intercept intruders. This matter was considered by the International Maritime Organization (IMO) in 2010, with guidelines to increase awareness and routing around the zones proposed, but not to increase the size of safety zones (IMO 2010). Rig operators are very limited in the enforcement powers they can legally apply; this remains an area of significant vulnerability for both safety and security. The risks arising are assessed as follows:

OOGSS Risk 6. Incidents generated by increased maritime user intensity

Likelihood: Possible
Consequence: Minor
Overall risk: Low

Natural Hazards

The Indo-Pacific region is identified as "the most hazard prone region in the [w]orld" (ADPC 2012), primarily due to the high incidence of typhoons, cyclones and seismic events. Typhoons or tropical cyclones cause costly and deadly natural disasters, affecting much of South Asia, East Asia, Southeast Asia and Australasia. Climate change–induced increases in the incidence and severity of extreme weather events are likely to have major impacts in Indian Ocean tropical and subtropical areas (IPCC 2007). Earthquakes and tsunamis also present risks, as much of the region falls within two of the world's major seismic activity areas, the Circum-Pacific Belt and the Alpide Belt, that extend east from the Mediterranean Sea through Indonesia and around the western Pacific Rim from New Zealand to Russia.

Around the world, installations have sustained significant weather damage that has caused major environmental and other hazards on numerous occasions. Much research continues on how offshore oil and gas exploration and exploitation facilities will cope with extreme weather events in waters that are deeper and further offshore. The current practice of shutting down rigs and evacuating personnel in the event of approaching typhoons or cyclones may not be sufficient to avert catastrophe in the future. Oil and gas support vessels and attending tankers are also at risk. The risks are assessed as follows:

OOGSS Risk 7. Incidents generated by natural hazards, including extreme weather events and seismic activity

Likelihood: Probable
Consequence: Minor
Overall risk: Medium

Decommissioned Platforms

The numbers of decommissioned offshore oil and gas platforms in the Indo-Pacific will increase as older platforms reach their end of life. The incidence of derelict facilities will significantly increase in the future due to the large number of new installations. Abandoned rigs present hazards to navigation for other users of the area, and increased environmental hazards. Abandoned or disused installations or structures are required to be removed under international law (United Nations 1983, Article 60) and IMO guidelines specify how this is to occur (IMO 1989). It is incumbent upon regional

governments to have regulatory regimes in place to ensure that decommissioned installations are properly dealt with, although such regimes are often either not specified and/or not policed. The risks are assessed as follows:

OOGSS Risk 8. Decommissioned and abandoned offshore installations

Likelihood: Possible
Consequence: Minor
Overall risk: Low

International Safety and Security Regimes

The low incidence of accession or ratification and therefore compliance with international regimes in some jurisdictions in the region, combined with maritime boundary delimitation uncertainties, present major risks. The readiness and willingness of some states to set regulatory standards and attend to international obligations for safety, security and environmental protection are in doubt.

Regimes intended to help internationally coordinated responses to safety and security risks at sea include the International Convention on Maritime Search and Rescue (IMO 1979), Safety of Life at Sea (IMO 1974) and the International Ship and Port Facility Security Code Amendments (IMO 2002), and the Convention for the Suppression of Unlawful Acts Against the Safety of Maritime Navigation (SUA 1988) (IMO 1988a) and related Protocols (IMO 1988b, 2005a, b) on fixed platforms and shipping.

There are numerous bilateral and multilateral security arrangements in the region. However, region-wide multilateral maritime safety and security regimes are not in place. Lack of accession or ratification of international regimes for safety and security at sea is significant for the offshore oil and gas sector because it impacts preparedness and cooperation, particularly where incidents have multilateral impacts. The risks are assessed as follows:

OOGSS Risk 9. Lack of accession or ratification of international regimes for safety and security at sea

Likelihood: Almost certain
Consequence: Major
Overall risk: High

Environmental Protection: Oil Spills

In crowded regional waters, oil spill incidents can quickly extend beyond individual national jurisdictions. The prospect of massive environmental disasters that transcend national boundaries must be considered. Food security may be profoundly affected, which is of major concern across much of Asia, where seafood is an important source of protein and where the livelihoods of coastal communities may be affected (Blinch et al. 2011). Significant financial consequences may be incurred, including increased insurance premiums, clean-up costs, compensation and impacts on world oil and gas prices, as occurred in the Deepwater Horizon incident (United States Government 2010).

The environmentally sensitive and hydrocarbon-rich SCS, and possibly the Bay of Bengal, falls under the UNCLOS definition of semi-enclosed seas (United Nations 1983, Article 122). Littoral states are encouraged to cooperate "directly or through an appropriate regional organization" to coordinate the management, conservation, protection and preservation of living resources and the marine environment (United Nations 1983, Article 123). With regard to the SCS, the DoC provides for cooperative activities, consistent with those prescribed by UNCLOS Article 123 to occur "[p]ending a comprehensive and durable settlement of the (territorial and jurisdictional) disputes" (ASEAN 2002).

In addition to UNCLOS as the overarching regime for sea law, there are conventions and protocols that specifically address marine pollution and have significance for the offshore oil and gas sector. The 1972 London Convention (IMO 1972) and the 1996 Dumping Protocol (IMO 1996), and the International Convention on Oil Pollution Preparedness, Response and Co-operation 1990 (OPRC 1990) (IMO 1990) apply to marine pollution prevention, response and recovery. The OPRC 1990 presents mandatory requirements for pollution emergency plans for vessels, offshore drilling units, production platforms and onshore facilities. States are encouraged to cooperate and establish regional as well as national systems for oil pollution preparedness and response (IMO 1990, Articles 3 and 6). The 1996 Dumping Protocol, which recently entered into force and superseded the 1972 London Convention, addresses dumping from offshore platforms and other man-made structures, including deliberate disposal of offshore platforms; it is more restrictive, as it adopts a "precautionary approach"[4] and a "reverse list approach"[5] (IMO 1996, Articles 3(1) and 4(1)).

Agreements have been struck in some regions that impose regional arrangements consistent with international treaties (UNEP 2012). These

include the Kuwait Convention (UNEP 1978a) and associated Protocols (UNEP 1978b, 1989) in the Persian Gulf, which seek cooperation in preventing and dealing with pollution of the marine environment from various sources, including "exploration and exploitation of the bed of the territorial sea and its subsoil and the continental shelf … co-operation in dealing with pollution Emergencies" (UNEP 1978a). These Agreements include formulation of regional action plans for protecting the coastal and marine environment. Similar agreements do not yet exist in the central Indian Ocean and western Pacific Ocean areas. Rectifying this deficiency should become a priority for regional governments and regional cooperative entities as they seek to mitigate environmental security risks from offshore oil and gas activity. The risks are assessed as follows:

OOGSS Risk 10. Environmental impacts of major oil spills

Likelihood: Possible
Consequence: Serious
Overall risk: High

OOGSS Risk 11. Lack of accession or ratification of international regimes and regional/subregional cooperative arrangements for MEP

Likelihood: Almost certain
Consequence: Major
Overall risk: High

Summary: Indo-Pacific Offshore Oil and Gas Risk Assessment

This analysis has identified a range of factors that need to be considered either by individual states or in concert through regional entities, and in collaboration with industry, in order to shape risk approaches in the Indo-Pacific offshore oil and gas sector. These include:

1. Offshore oil and gas activity is rapidly expanding, with massive investment in new fields and large numbers of new wells. The increasing intensity of activity in the medium term means that the likelihood of incidents is increasing.

2. The search for oil and gas into deeper and more remote waters is increasing risks by pushing the boundaries of technology, operational experience and technical extraction competence.
3. Powerful political and commercial pressures to access oil and gas drive governments and industry to either ignore or accept significant risks.
4. The efficacy of regulatory arrangements has been brought into question in numerous international incidents; getting the balance right and applying appropriate resources and controls to ensure that government–industry rights, obligations and responsibilities are met is problematic, with many uncertainties.
5. Regulatory oversight alone will not be sufficient to ensure adequate safety; the oil and gas industry will need to take unilateral steps to improve safety, including self-policing mechanisms to supplement government enforcement.
6. International experience has shown that technology, laws and regulations, practices, and capabilities in responding to environmental impacts of oil spills lag behind the real risks.
7. Scientific understanding of the marine environment in sensitive oceanic and coastal areas has been found to be inadequate in other parts of the world, as has comprehension of the human and natural impacts of oil spills.
8. Jurisdictional uncertainty, deep-seated traditional distrust and strategic competition promote secrecy and undermine the likelihood of cooperative activity between states to prevent, respond to and recover from incidents.
9. The rising intensity of sea use activities, including shipping, fishing, tourism and other sea surface, water column and seabed exploitative activities in and around areas where oil and gas activity is also occurring, increases the risk of incidents.
10. Offshore oil and gas activity largely occurs in waters that are subject to extreme weather events and seismic activity; such conditions have resulted in loss of life and damage to the environment in other parts of the world.
11. There are mounting concerns of armed conflict at sea between protagonists in parts of the Indo-Pacific; while the likelihood of major regional or state-on-state conflict remains low, the prospect of minor skirmishes that could impact on the safety and security of

oil and gas installations and vessels is real and increasing. Many regional states are investing in qualitative and quantitative improvements to their maritime forces; this increases uncertainty about intentions and raises the potential consequences of conflict at sea.

12. Incidents arising from law and order at sea problems, including maritime terrorism, piracy and armed robbery, must also be considered; attacks on associated vessels are more likely than on major oil and gas installations, which are difficult targets.
13. Offshore oil and gas incidents generate major human, environmental and economic security outcomes that are likely to affect other industries, such as fishing and tourism, and impact marine ecosystems.
14. Offshore oil and gas incidents will often have significant consequences for neighbouring littoral nations; this concern is magnified in the crowded waters of the Indo-Pacific, amplified by boundary delimitation disputes, and uncertain jurisdictional controls and responsibilities in some cases.
15. Hazards arising from decommissioned offshore oil and gas installations, including submerged wellheads, will grow as increasing numbers of wells are abandoned.
16. The low incidence of accession or ratification to international treaties designed to facilitate cooperative activity, including maritime safety, security and environmental protection, combined with the lack of regional cooperative agreements for marine pollution, dumping and environment/seabed management, reduces the likelihood of effective prevention, response and recovery arrangements.
17. While onshore disaster response arrangements and capabilities have received attention in recent years under the auspices of regional cooperative bodies, little attention has so far been paid to disaster response at sea, particularly regarding offshore oil and gas risks.

Offshore Oil and Gas Safety and Security Risk Matrix

The combined offshore oil and gas strategic objectives and safety and security risks are summarized in Tables 5.1, 5.2, and 5.3.

Table 5.1 Offshore oil and gas strategic objectives

Objective 1.	Profitably operate exploration and exploitation activities
Objective 2.	Conduct operations safely
Objective 3.	Provide a secure strategic environment, including law and order at sea, to enable operations to be conducted
Objective 4.	Administer an effective and efficient regulatory regime
Objective 5.	Conduct operations responsibly, consistent with MEP requirements, and so as not to interfere with other maritime domain users
Objective 6.	Provide effective disaster prevention, recovery and response mechanisms and capabilities

Table 5.2 Offshore oil and gas safety and security risks

Offshore Oil and Gas Risks		
OOGSS Risk 1.	Technology or equipment failures.	
OOGSS Risk 2.	Regulatory failures.	
OOGSS Risk 3.	Jurisdictional uncertainty, contested maritime boundaries, and incidents involving multiple jurisdictions.	
OOGSS Risk 4.	Regional armed conflict.	
OOGSS Risk 5.	Law and order at sea transgressions.	
OOGSS Risk 6.	Incidents generated by increased maritime user intensity.	
OOGSS Risk 7.	Incidents generated by natural hazards including extreme weather events and seismic activity.	
OOGSS Risk 8.	Decommissioned and abandoned offshore installations.	
OOGSS Risk 9.	Lack of accession or ratification of international regimes for safety and security at sea.	
OOGSS Risk 10.	Environmental impacts of major oil spills.	
OOGSS Risk 11.	Lack of accession or ratification of international regimes and regional/sub-regional cooperative arrangements for marine environmental protection.	

Risk Profile Designator	Colour Code
Very High	
High	
Medium	
Low	
Very low	

Table 5.3 Offshore oil and gas safety and security risk matrix

Offshore Oil and Gas Safety and Security Risk Matrix												
Strategic Objectives	**OOGSS Risks**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
Overall Risk												
1		x	x	x	x	x	x	x			x	
2		x	x	x	x	x	x	x	x	x		
3				x	x	x	x			x		
4		x	x	x					x	x	x	x
5			x				x		x	x	x	x
6		x	x	x	x	x	x	x	x	x	x	x

Risk Mitigation and Treatment Options

The risk mitigation and treatment options outlined below are aimed at regional and national levels. They address multiple risks across subregional jurisdictions.

Conduct a Strategic Risk Assessment

The most compelling initial requirement is to fully understand offshore oil and gas risks and establish risk management frameworks. Effective partnerships between government and industry are necessary. An initial regional strategic risk assessment should aim to establish the risk context. Risks can then be assessed, leading to the development of regional and national risk treatment strategies. Risk assessments could be coordinated by regional or subregional consultative bodies such as the Indian Ocean Rim Association (IORA), ARF, East Asian Summit (EAS) (EAS 2014) or South Asian Association for Regional Cooperation (SAARC) (SAARC 2012a).

An important part of identifying risks and vulnerabilities, and the likelihood and consequence of risks arising, is to be clear as to from whose perspective the analysis is being conducted. The outcomes of risk assessments may be quite different when coming from a regional perspective as opposed to a national perspective or an industry or company perspective. Entities will have varying priorities, stakeholders, cultures, and appetites for risk, and the implications and options for mitigating risk may be different. For example, a company may simply take out insurance to mitigate a particular risk, while a state may need to ensure that international

arrangements, regulatory regimes and response mechanisms are in place. Once a risk baseline has been established, regular and comprehensive update assessments of the strategic risk profile would be required. Adopting a consistent approach and establishing viable risk frameworks would be helpful to all parties participating in the risk management process.

Government and Industry Cooperation

An essential requirement of effective risk management in the offshore oil and gas sector is recognition of the roles and responsibilities of industry, governments and other actors. Cooperative partnerships need to be encouraged that include appropriate sharing of responsibilities for prevention, response and recovery. At a minimum, the following matters require consideration:

- A common appreciation of the risks needs to be developed.
- The responsibilities of governments and industry need to be defined so that individual and shared regional, national and industry obligations are recognized and evaluated to ensure that there are no gaps.
- Effective cooperation and consistency is required regionally, nationally and with industry in dealing with issues such as decommissioned platforms, disaster and emergency response arrangements, and safety and security cooperation.

Opportunities Developing joint strategies, arrangements, regimes and mechanisms to deal with offshore oil and gas safety and security risks presents opportunities for regional governments, in collaboration with industry, to develop mutually beneficial cooperation. Cooperation in this non-threatening context, in order to protect mutual interests, could improve goodwill and lead to wider maritime safety and security cooperation. Regional governments, with support from affected extra-regional governments, need to find ways of putting aside sovereignty disputes in order to focus upon mutual interests that include reducing the likelihood of regional environmental and economic disasters.

International Regime Adoption

The emerging Indo-Pacific offshore oil and gas situation presents an important catalyst for encouraging regional governments and entities to

make significant progress towards adopting and implementing international regimes. International regimes are based upon experiences in many parts of the world. Collectively, they reinforce objectives of enhancing maritime safety and security, and MEP. It is in the interests of regional governments to proactively engage, as this will support offshore oil and gas exploitation opportunities, while addressing responsibilities and obligations, and managing risk. Ratifications and accessions of international regimes would provide a sound basis for developing regional cooperation and setting consistent standards for industry.

Regional Cooperative Arrangements

The development of regional cooperative arrangements should be given very high priority. The potentially large scope and scale of offshore oil and gas safety and security incidents that are likely to transcend national boundaries supports this imperative. There has been qualified progress in parts of the region, although regional *non-cooperation* has been the norm. For example, the DoC (ASEAN 2002) affirmed commitment of the involved parties to pursue peaceful means and international law in settling disputes and encouraged them to undertake cooperative activities. However, there has been little practical progress so far; China and ASEAN states have alleged multiple transgressions. ASEAN's commitment to establishing a Regional Code of Conduct in the SCS (CoC), in order to operationalize the DoC, appears unlikely to be realized in the near term (Storey 2012; ASEAN 2012).

There are numerous regional mechanisms in the Indo-Pacific that engage in aspects of disaster management and emergency response either as their key focus or as part of broader regional engagement. Principal among these are IORA, ASEAN, ARF, EAS, Asia-Pacific Economic Community (APEC) (APEC 2012) and SAARC. Notably, IORA lists maritime safety and security, and disaster risk management among its six priority areas (IORA 2014).

Regional Disaster Response

There are subregional entities and organizations within the larger groupings focusing on one or more disaster management elements; for example, the Asian Disaster Response and Cooperation Network (ADRCN 2014), based in Malaysia, and the Asian Disaster Reduction Center

(ADRC 2014), based in Japan. Most regional countries have national disaster response mechanisms supported by legislation, regulations and resources, including access to military capabilities. However, extant arrangements generally do not address offshore disasters.

The scale and frequency of natural disasters and the underdeveloped status of many Indo-Pacific nations have resulted in national and regional disaster response and recovery resources often being found wanting. Resources were deployed from around the world and the region in response to the 2004 Asian tsunami in the Indian Ocean, including large-scale military support from India, the United States, Australia and other countries (Wiharta et al. 2008). In May 2008, when Cyclone Nargis devastated much of the Irrawaddy Delta area in Myanmar (Burma) and caused tens of thousands of deaths and suffering for millions, international humanitarian assistance efforts were blocked and hampered by the Burmese government and military regime (APCRP 2008). In these cases, as in many others, the inadequacies of national disaster response mechanisms and capabilities were exposed. Few Indo-Pacific countries have the independent capability to deal with disasters on land, and even fewer with disasters that will originate from offshore oil and gas incidents at sea.

There are some regional cooperative initiatives in place. The 2005 ASEAN Agreement on Disaster Management and Emergency Response (AADMER 2005) urges parties to "take appropriate measures to identify disaster risks in its respective territories covering … the following aspects: natural and human-induced hazards; risk assessment; monitoring of vulnerabilities; and disaster management capacities". An ASEAN Coordinating Centre for Humanitarian Assistance for disaster management, "the AHA Centre", has been established in Jakarta. AADMER Standard Operating Procedures for joint disaster response operations (SASOP) were promulgated in November 2009 (ASEAN 2009). Notably, AADMER does not make specific mention of offshore disaster management and emergency response—somewhat surprising, given the quintessentially maritime nature of the ASEAN region.

The Asian Disaster Preparedness Center (ADPC), established under UN auspices, is designed to assist Asian countries in formulating policies and developing capabilities in all aspects of disaster management; it provides training and advice and conducts theme programmes. Implementation is left to individual countries. There is no mention of offshore disaster management in the ADPC strategic plan or programmes (ADPC 2012).

The SAARC has been progressing cooperative frameworks for dealing with natural disasters in South Asia. A SAARC Disaster Management

Centre was established in New Delhi in October 2006, and in November 2011, a SAARC Agreement on Rapid Response to Natural Disasters was signed, with India becoming the first SAARC member state to ratify it on 21 August 2012 (SAARC 2012b).

There are some long-standing regional arrangements in place that deal with marine pollution. For example, the 'Project on Oil Spill Preparedness and Response in the ASEAN Seas Area' has the aim of improving the capability of ASEAN countries in dealing with large-scale oil and hazardous and noxious substance spill incidents (ASEAN-OSPAR Project 2011). It is based on the ASEAN Oil Spill Response Action Plan, which pools oil spill response resources. In 1994, an ASEAN Cooperation Plan on Transboundary Pollution was agreed to "enhance cooperation to manage natural resources and control transboundary pollution within ASEAN, to develop regional early warning and response system, and to improve the capacity of member countries in these areas" (ASEAN 1994). It provides for assistance to be called upon from external sources, such as Australia and Japan; it includes "transboundary ship borne pollution", but makes no mention of pollution from offshore oil and gas installations. There would appear to be potential for these arrangements to be extended to cover such incidents.

Summary: Risk Mitigation Policy Options

There is little evidence so far that regional governments and industry participants are paying attention to the rising, cumulative risks to safety and security that increased offshore oil and gas activity is generating. Similar to the Gulf of Mexico case in the United States, regional states appear to be consumed by the rush to claim and exploit valuable resources. Although the regulatory context and effectiveness will vary across Indo-Pacific maritime domains, experience elsewhere has shown that arrangements are often found to be wanting.

Indo-Pacific regional cooperative bodies and individual states, in concert with industry partners, should consider pursuing the following risk treatment actions:

1. Offshore oil and gas safety and security should feature as a discrete agenda item with regional safety, security, economic, environmental and disaster response cooperative bodies. Entities such as IORA, ARF, EAS, APEC, ASEAN and SAARC, and relevant subordinate agencies, should commission independent expert working groups

directed to recommend options to develop regional cooperative measures.

2. A significant and essential initial activity of such working groups should be to commission strategic, all-factor offshore oil and gas benchmark risk assessments to establish objective bases for individual state and cooperative risk management initiatives.
3. UNCLOS Articles 122 and 123 provide an international legislative foundation for targeted regional cooperative and national initiatives that should be acted upon.
4. States should, as a matter of priority, accede to relevant international maritime and marine safety, security and environmental protection conventions and protocols. National legislation, regulations and capabilities, and cooperative arrangements would follow. Specifically, regional states should establish and, where they already exist, enhance regional cooperative regimes to deal with:
   (a) maritime search and rescue;
   (b) MEP, including pollution, dumping and decommissioning of offshore installations;
   (c) maritime safety and security arrangements to include incidents at sea protocols;
   (d) establishing common, best-practice approaches to offshore oil and gas safety and security regulation to include industry engagement; this may include regional government–industry cooperative agencies to provide advice and coordination;
   (e) developing individual state and collective offshore arrangements and capabilities for disaster management to include offshore oil and gas incidents prevention, response and recovery; and
   (f) enhancing and sharing scientific information by including marine science, oceanographic, hydrographic, seismic and meteorology data in order to better understand and implement prevention, response and recovery arrangements to deal with the environmental impacts of incidents.
5. Encourage regional states to use international mechanisms to resolve or agree to set aside maritime boundary delimitation disputes in the interests of mutually beneficial economic, security, safety and environmental outcomes.
6. Encourage all parties involved in offshore oil and gas safety and security, including states and industry, to adopt internationally recognized and proven risk management approaches. Effective risk

management requires partnerships between regulators and those being regulated, between government and industry, where each partner performs its role diligently and with integrity.

Concluding Remarks

This offshore oil and gas safety and security case study demonstrates the utility of risk-based approaches in developing policy options. Risk methodologies provide common approaches to addressing shared risks and vulnerabilities that are understood by industry, the environmental community and other actors. The onus lies with regional governments, cooperative entities and industry, supported by extra-regional governments with interests at stake, to ensure that the risks are fully understood and appropriate mitigation arrangements are put in place. Through the efforts of the CSCAP and the ARF in this case, interest is beginning to be shown in the utility of risk-based approaches for developing regional cooperative approaches in a complex, multilateral, international context.

NOTES

1. The primary CSCAP Study Group workshop on offshore oil and gas safety and security was hosted by Vietnam in Da Nang, 6–8 October 2010.
2. The author was the Australian co-chair for this CSCAP Study Group, and the principal author of the consequent Memorandum. At CSCAP's request, the author presented CSCAP Memorandum No. 16 on 'Safety and Security of Offshore Oil and Gas *Installations*' to an ARF ISM on Maritime Security in Seoul, April 2013, and subsequently participated in an ARF MEP Workshop in Honolulu, March 2014. The author facilitated a multilateral ARF MEP roundtable workshop that resulted in the ARF co-chairs report recommending an actionable way forward that recommends risk-based approaches to regional cooperation.
3. The only Asian OECD member nations are Japan and the Republic of Korea.
4. The 'precautionary approach' requires that appropriate preventative measures be taken when there is reason to believe that wastes or other matter introduced into the marine environment is likely to cause harm, even when there is no conclusive evidence establishing a link between inputs and their effects.
5. The 'reverse list approach' prohibits dumping unless it is explicitly permitted in the approved list. This effectively limits a range of waste materials that may be disposed of at sea and presents a new approach to regulating the use of the sea as a depository of wastes.

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CHAPTER 6

Indian Ocean Maritime Security Cooperative Arrangements

A key consideration for treating maritime security risks and reducing vulnerabilities in the Indian Ocean region (IOR) is the efficacy of regional security regimes, arrangements, entities and stakeholder relationships, broadly encompassed by the term 'regional security architectures'. The need to develop regional maritime security dialogue and cooperation architectures was identified as a core strategic objective in Chap. 3. The lack of effective regional collective and cooperative security regimes impacts on the achievement of all 15 strategic objectives and was cited in the IOR strategic risk assessment in Chap. 4 as presenting significant risks to maritime security.

The offshore oil and gas case study in Chap. 5 demonstrated how the combined efforts of Track 1 and Track 2 regional dialogue entities in the Indo-Pacific, the ASEAN Regional Forum (ARF) and the Council for Security Cooperation in the Asia Pacific (CSCAP), focused attention upon a significant regional maritime safety and security issue with global implications. They have been instrumental in devising collective and cooperative policy response options. Maritime security–related regional governance arrangements and prospects for the IOR are analysed in this chapter. Conceptual aspects of governance and regionalism are explored, along with a comparative assessment between regional security governance arrangements in the Asia-Pacific and the IOR.

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IOR Security Governance Considerations

The changing nature of the security discourse is evident in the evolving and emerging IOR context. A wide range of non-traditional issues, including terrorism and piracy, along with resource exploitation, environmental degradation and climate change, generate law and order problems. Combined with traditional security concerns, they present non-traditional security challenges (Hameiri and Jones 2013, 462) that require non-traditional security responses in what has been described as "a new approach to regional security" (Rumley 2008, 36–37). Transnational security risks are particularly acute in the IOR, exacerbated by weak regional capacities; development challenges; political, religious and ethnic rivalries; vast demographic challenges; and rising security risks that undermine concepts of sovereignty and exclusive jurisdiction as effective security frameworks. This affects normative interpretations of international relations, requiring alternative approaches to be considered. Traditional and non-traditional security issues transcend national borders, particularly in the maritime domain. This requires governance arrangements to include and, in some instances, go beyond nation-states and government institutions, involving an array of actors who pursue special interests and are "not politically and popularly accountable" (Hameiri and Jones 2013, 463).

Security governance has become increasingly complicated, particularly for non-traditional security matters, primarily due to "structural constraints and the ideologies and interests of historically specific coalitions of agents … across time and space" (Hameiri and Jones 2013, 472). A classic dilemma of regionalism interacting with globalism exists that particularly affects governance in the IOR maritime domain (Cordner 2010, 79; Hong 2012, 407). The converging interests of littoral and external user states interact with non-traditional security concerns, resulting in the need for cooperative and collective maritime security mechanisms that encourage and facilitate the sharing of responsibilities and resources. Both regional and external actors *must* be involved in IOR maritime security arrangements (Cordner 2010, 79).

Relevant here, as a driver for regional governance, is the concept of "de-bounded security risk … not bounded by political borders or calculable time frames" with "potentially cataclysmic" consequences (Hameiri and Jayasuriya 2011); for example, environmental and climate change–related risks. Beck's (1999, 20 and 93) notion of reflexive societal responses that encourage cooperation towards a "cosmopolitan society" to address mutually confronting and potentially existential risks is salient. We are

witnessing an "age of uncertainty and ambivalence, which combines the constant threat of disasters on an entirely new scale with the possibility and necessity to reinvent our political institutions and invent new ways of conducting politics".

Oceans governance presents special challenges due to the combination of international maritime regimes, along with regional, national, functional and sectoral factors needing to be considered. New ocean regimes endeavour to combine "development, environment and peace-enhancing aspects into concepts of the common heritage of mankind". The "power to govern the sea" is beyond the capacity and remit of individual states, thereby stressing the need for regional cooperation that presents political will and leadership challenges (Gupta 2010, 5, 265–266 and 271).

There are increasing demands from a range of actors for transparency and accountability, with rising expectations that 'good governance' will include greater stakeholder involvement to ensure that security policies primarily serve the interests of affected groups rather than essentially the state and non-state actors that implement them. Good governance requires the "transformation of … norms and processes" into effective, implementable security policies (Krahmann 2005, 209–210).

Governance processes need to be dynamic, flexible, sustainable and effective. They need to be underpinned by the "creation of a shared vision, identification of issues and priorities of local concern", with adherence to "generally accepted rules of law and standards", and applied with "persistence and optimism"; this requires strong, coherent leadership and political will (Kullenberg 2010, 418–419). Addressing common risks and shared vulnerabilities that impact the achievement of common objectives presents a practical means by which shared visions and coordinated actions can be developed.

The scale of the challenges to idealistic aspirations for regional governance is highlighted in the IOR case. These challenges include the lack of a recent history of security cooperation and related mechanisms,[1] lack of effective regional leadership and the lack of capacity to provide security responses by many individual states, exacerbated by extreme vulnerability to a range of threats in the face of increasing security risks.

Regionalism Conceptualized

A discussion of the conceptual parameters of regionalism is necessary in considering its application in the IOR context. The notion of regionalism as primarily a "state-led project that promotes a definable geographic

area" with specific institutional arrangements (Beeson and Stubbs 2012, 1) is increasingly contested by counterarguments that there is an "over-emphasis on formal regional institutions", with regionalism being "much more multifaceted and multidimensional than in the past" (Jayasuriya 2004, 2; Naidu 2012, 28). Nation-states remain central to regionalized notions of a "sustainable and just oceanic future", with non-state partners also involved (Doyle 2008, 305).

There is no single, internationally accepted definition of regionalism. Definitions abound; they generally encompass several ideas that include: constructed entities designed for functional purposes, usually within a geographically bounded context; interdependence of interests, including "a mixture of agreements and disagreements" about those interests; recognition of shared commonalities; intentionally drawing together "proximate states, societies or economies" for "common purposes" to address shared problems, and in the process, developing senses of identity and destiny (Bhattacharyya 2010, 74). Notions of "risk sharing" and risk communities "that share the burden" (Beck 1999, 16) are also relevant, with regionalism "understood as part of a project of establishing a particular kind of political rule that frames the boundaries of risk management" where "risk depictions are a kind of territorial politics designed to rescale social and political conflict to arenas where these can be managed" (Hameiri and Jayasuriya 2011).

Non-traditional security concerns, in particular, are driving "a new era of regional cooperation" in the Asia-Pacific (Caballero-Anthony 2010, 14). At the same time, traditional security concerns are re-emerging as central to regional security. An increasingly assertive China and a relatively declining but still powerful United States, along with an emergent India, Russia, Japan and other Indo-Pacific middle and smaller powers, are fuelling "hedging security dynamics" and driving the emergence of an "Asian supercomplex" (Buzan 2011, 16–17; Scott 2012, 101) with a "predominately maritime dimension" (Mohan 2011, 302–308; 2012, 1–6). Into this milieu can be added projections of "radical shifts in future conceptions of maritime sovereignty", with the global commons potentially regarded as a "common domain belonging to everyone". The high seas need to be managed as "a huge area of shared sovereignty and agreed regulation" (Till 2013, 344), although this global and regional maritime domain cooperative 'nirvana' remains aspirational.

There is a widening security agenda apparent in the IOR and the Indo-Pacific more broadly (Naidu 2012, 34–35). The situation is fluid and

evolving, which presents risks and also opportunities for enhanced regionalism. More than 30 years ago, Kothari (1983, 17–24) observed strongly emerging evidence of a common sense of insecurity driven by the struggle for human and institutional survival, underpinned by the moral dimensions of "unity in diversity". A "widening gap between imminent but still unclear mutations" of regionalism and "old and obsolete institutional mechanisms … of decision making" was noted. According to Chellaney (2010, 176), the "imperative to improve Asian geopolitics by building cooperative politic approaches is obvious". However, progress towards establishing regionalism in the IOR has been very slow.

Notions of shared maritime security risks and common vulnerabilities offer the potential for encouraging greater progress towards regional unity. There are considerable tensions between trends towards enhanced regionalism, with new forms of "regional multilateralism" likely to emerge that move beyond national sovereignty (Hettne 2008, 403–412), conflicting with traditional state and national interest–centric security models. As Wesley (2014) observed, the great powers are "using the region's institutions as instruments in their rivalry". Diverse and often conflicting conceptions and notions of regionalism, and competing issues and agendas (Hameiri and Jayasuriya 2011) lie behind the need to consider alternative approaches to regional security based upon common perspectives of shared and overlapping risks and vulnerabilities.

Towards IOR Security Regionalism: Factors

Prospects for IOR security regionalism need to be contextualized within a "recent history of colonialism and domination" and "deeply hierarchical" social constructs, combined with the need to suddenly adjust to "wealth and power" and with a "rapid expansion in the external dependence and vulnerabilities" of Asian societies (Wesley 2014, 203). States' practice in the Indian Ocean reflects current and historical tensions. For example, geostrategic imperatives and political difficulties are evident in attempts by several Indian Ocean states to impose restrictions in exclusive economic zones, directed at foreign military activities, which go beyond those permitted under the United Nations Convention on the Law of the Sea (UNCLOS) (Dutton 2013, 290–294). Spending on security in the Indo-Pacific has focused increasingly on external, rather than on internal, security (Wesley 2014, 7). There is increasing evidence of a naval arms race across the Indo-Pacific region. According to Prakash (2011, 10–11), this

contributes to an "environment of general insecurity", with the "chances of an incident between naval units" increased, making risk management a "vital requirement".

Until recently, there have been relatively low levels of functional cohesion and convergence of interests among IOR actors. According to Rumley (2008, 25 and 40), "orientation to the ocean creates a degree of common interest", presents "the basis for a potentially greater degree of functional interaction" and offers considerable scope for constructing security regimes in the future. The idea of a coherent IOR has been described as "an emergent reality" (Bouchard 2004, 94–95), with the oceanic domain presented as the "core element of the region … its fundamental unifying factor, and … its main interface with the rest of the world" (Bouchard 2004, 102–104). A related concept of a "Maritime Asia" that is "flourishing" in a "globalized and internationalized" context has been mooted in recognition of the linking properties of the Indian Ocean that facilitate trade and cultural exchanges (Frost 2008, 63 and 100).

While there is considerable agreement among governments and analysts about the *need* for enhanced IOR regional security cooperative arrangements, the *how*, *what* and *by who* remains elusive. Chaturvedi and Rumley (2004, 300–308 and 311) suggested that the Indian Ocean needs to be "re-imagined" as an area of "spaces of flows", generating a need to "cooperate on issues of common maritime security concern". This requires a "normative vision of ocean governance and management" underpinned by an "adaptive *regionalism*, which is outward looking" and based upon "functional-sectoral" cooperation. An "inclusive" network of cooperation is needed to "*confront* uncertainty" based upon addressing primarily oceanic risks. Indian Ocean maritime security dialogue needs to extend "far beyond state-centric preoccupations" so that a "truly Indian Ocean vision can be generated and sustained". While the need for enhanced regionalism is clear and conceptually sound, making real progress in the diverse IOR presents significant and so far largely unsolvable challenges.

East Asia–Western Pacific Regional Security Arrangements

In order to provide contrast, against the background of concepts and idealism for enhanced regional maritime security cooperation in the IOR, the performance of extant regional security architectures in the western Pacific

and Indian Oceans are briefly considered. The most obvious comparative feature is the abundance of strategic, security and defence dialogue entities on the western Pacific/East Asian side of the Indo-Pacific confluence and the paucity of similar IOR-wide entities. East Asia/western Pacific is far advanced of the IOR in the development and application of regional security dialogue and cooperative architectures. This does not mean that relationships and cooperative endeavours are necessarily as effective as they need to be; there are many factors that support and inhibit regional security cooperation.

The two central pillars of evolving regional security architectures in the western Pacific and East Asia since the Second World War have been the creation of the Association for Southeast Asian Nations (ASEAN)[2] and a web of mainly bilateral alliance arrangements, led by the United States,[3] established in the West versus Soviet Union Cold War context (Sukma 2010, 109–110). ASEAN was created with the focus primarily upon economic and social cooperation. The initial ASEAN "six principles of cooperation" specifically advocated avoiding sensitive issues, such as security. ASEAN has developed a unique cooperative style that recognizes its diverse political and ethnic composition. This style includes bilateral, rather than multilateral, approaches to political and security matters, accompanied by "quiet diplomacy"; a preference for informal approaches to managing conflict and settling disputes; the formation of close personal ties between leaders; and "a gradual approach to cooperation". Notably, political and security cooperation did not appear on the ASEAN agenda until 1992, 25 years after inception (Sukma 2010, 114–117). Notably also, the Indian Ocean Rim Association (IORA) Charter was not ratified until 1997, and progress has been even slower.

Despite announcing a strategy of "regional resilience" and being assessed as "instrumental" in "creating a multilateral security framework in the Asia-Pacific" (Sukma 2010, 112–113), ASEAN has been described as remaining "at best a nascent 'security community'…characterised by multiple stubborn internal disputes" and political differences. ASEAN's flexible and 'consensus-based' ways of operating, plus the recent focus upon maritime security as a vital regional cooperative issue, suggest that the ASEAN journey provides some valuable lessons for progressing Indian Ocean regionalism (Lin and Grundy-Warr 2012, 56–57 and 67), although differing contextual factors need to be carefully considered. External pressures on ASEAN, particularly from an emergent China seeking to

consolidate what it sees as historical territorial 'rights' in the SCS, have exposed significant dissonance among member states (Singh et al. 2016).

Track 1/Track 1.5 entities that primarily involve East Asian/western Pacific states include: the East Asia Summit (EAS),[4] ARF,[5] ASEAN-Plus Defence Ministers' Meeting (ADMM+),[6] the Shangri-La Dialogue,[7] Expanded ASEAN Maritime Forum (EAMF),[8] ARF Inter-Sessional Meetings on Maritime Security (ARF ISM on MS), Western Pacific Naval Symposium (WPNS),[9] ReCAAP[10]; the Track 2 entity: CSCAP.[11]

Regional security relationships in Asia are becoming increasingly dynamic and complex. While US bilateral security agreements and arrangements are important, there is "an emerging, complicated web" of bilateral and multilateral intra-Asian security ties, some involving the United States and some not (Ratner et al. 2013). The emergence of China and India as major economic and security powers, plus economic, social and military advancement in many Asian states, including Japan, Indonesia, South Korea and Singapore, has both strengthened and complicated regional security scenarios. For example, in 2016, the Philippines president Rodrigo Duterte declared that his country was shifting away from the United States and towards China for security and economic support (Bodeen and Wong 2016). This announcement surprised many analysts following an Arbitral Tribunal Ruling, sought by the Philippines, that largely found against Chinese claimed jurisdiction in the SCS (Permanent Court of Arbitration 2016). It typifies the evolving complexity of relationships in Southeast and East Asia.

Other examples of deepening complexity in the Asia-Pacific include a 2013 announcement by the United States and India that "underscored their continued support for enhancing regional connectivity … through existing regional dialogue mechanisms", including the EAS, ARF and ADMM+, and expressed a "commitment to continue to consult closely" on regional issues, particularly "maritime security, unimpeded commerce and freedom of navigation, and the peaceful resolution of maritime disputes in accordance with international law" (US Department of State 2013). Australia and Japan have also pursued closer security ties, formalized in 2007 through a joint declaration on security cooperation (Japanese MOFA 2007). India and Japan have increased security interaction, including issuing a joint declaration on security cooperation (Japanese MOFA 2008), although this has not evolved into a security pact, despite expectations in some quarters that Indian prime minister Modi would announce such an arrangement during his inaugural visit to Japan in September 2014.

Specific to regional maritime security operational cooperation, ReCAAP has proven to be a worthwhile initiative in coordinating regional responses to piracy. Malacca Strait Patrols (MSP),[12] involving maritime surveillance and security patrols in the Malacca Strait coordinated between the key littoral states, Malaysia, Singapore, Indonesia and Thailand, have also been credited with significantly reducing piracy and sea robbery in the area (Banlaoi 2009, 264–265).

Much of the changing security dynamic in East Asia revolves around what has been described as 'Chinese hubris', with China depicted as a revisionist power versus the United States, Japan, India and others, including most ASEAN states and Australia, wanting to maintain the status quo. This has resulted in hedging security policies and postures likely to engender a "more confrontational atmosphere in Asia" (Horimoto 2014). A classic realist, state-centric contest has emerged where, it is asserted, "China will protect its sovereignty interests through … assertive behaviour", although employing "crisis management rather than irredentist intent". A developing China versus the United States (and allies) security environment makes a workable regional maritime regime hard to sustain (Ji 2014, 25–27).

The Asian maritime security environment is becoming increasingly competitive, with the United States, China, Japan, South Korea, India, Vietnam, the Philippines and others variously engaged in so far low-level security conflicts and disputes, primarily over maritime boundaries and access to resources in the East and South China Seas. Many disputes involve China, which has repeatedly indicated a preference for bilateral rather than multilateral approaches, which although often criticized as seeking to 'divide and conquer' ASEAN states, is consistent with ASEAN's principles for conflict resolution. In this evolving context, regional security dialogue and cooperative forums are active and well supported by participating states, including China.

Given the circumstances, analysts have been understandably cynical about the usefulness of Asia-Pacific regional dialogue forums. The EAS, for example, has been described as a "one-off event in which the photo-op is the message" (Camroux 2012, 376). However, the annual EAS gathering of significant regional leaders provides regular opportunities for multilateral and bilateral dialogue; the importance of such interaction should not be understated.

The ARF has been criticized for not making progress despite great efforts taken by activist states (such as Australia) to move beyond dialogue.

Conversely, the ARF has been credited with making "useful contributions to the maintenance of regional stability … by maximally leveraging its multilateral dialogue process" (Yuzawa 2012, 338) and being central to promoting regional cooperative approaches to non-traditional security challenges, although these have been assessed as "uneven in offering a sustained response". National and subregional efforts have "mattered most", with multilateral responses asserted to have "restricted" other options (Chang 2011, 142 and 148).

Despite opposition from China and some ASEAN states to improved military transparency, the ARF has contributed to regional security dialogue by enhancing the predictability of the US presence and engagement in the region. Also, collective pressures have been imposed on states that "display behaviours inconsistent with international norms and rules", such as North Korea, and China in the SCS. The ARF has improved diplomatic engagement by providing regular opportunities for bilateral and multilateral discussions between regional leaders (Yuzawa 2012, 343–347).

ADMM+, established in 2010, has been described as a tangible expression of the "open and inclusive regionalism that ASEAN has long espoused" and a "significant development in the use of defence diplomacy by the region" (Singh and Tan 2011, 10 and 15). Importantly, the advent of ADMM+ is seen as recognition of the mounting transnational and "trans-boundary" nature of non-traditional security challenges. States increasingly need to cooperate and to "draw upon each other's resources" in a security environment where non-traditional security concerns can "complicate traditional regional security challenges, such as territorial disputes" (Singh and Tan 2011, 16). The regional offshore oil and gas safety and security risks case study, presented in Chap. 5, outlines an example of this.

As Tan (2011, 40) observed, against the "historical circumspection over formal ASEAN-based defence arrangements", ADMM+ is a "unique" formulation that "builds upon … efforts of defence diplomacy" developed through various forums over many years, including the non-official Shangri-La Dialogue and multinational military exchanges and exercises to produce "principally functional enterprises" aimed at building regional security capacity and confidence. Between 2000 and 2009, ASEAN and the ARF held, on average, 15 formal and informal meetings each year involving defence and security officials (Laksmana 2011, 71). Other policy and operational entities such as the ARF ISM on MS, EAMF, WPNS and

ReCAAP add to this. Importantly, the ARF and other entities have helped build *habits of regional dialogue and cooperation*, and have *promoted a growing sense of a regional collective security community in the western Pacific and East Asia*. Although much of the security discourse comprises non-legally binding declarations and statements, multilateral defence diplomacy has been greatly enhanced to the extent that at least Southeast Asia is deemed to be "heading … towards a norms-based community" (Laksmana 2011, 72).

The complex array of regional strategic and security dialogue forums has also posed regional coordination problems (Chalermpalanupap 2011, 21 and 27). Taylor (2011, 54 and 61) noted, in regard to the ongoing viability of the Shangri-La Dialogue with the recent advent of ADMM+, that "one of the great ironies of the remarkable growth in regional multilateralism" is that the "burgeoning in multilateral institutions and activities has raised as many problems as it has potentially addressed in terms of forging an Asian architectural consensus". ASEAN foreign ministers acknowledged these concerns in their 2014 Joint Communiqué. While they reaffirmed commitments to enhanced "political and security cooperation" and stressed the importance of maritime security cooperation, they "underscored the need for the ARF to continue pursuing synergy and effective coordination with the ADMM-Plus and other ASEAN-led mechanisms" and "reaffirmed the importance of the ARF as a primary forum to foster constructive dialogue, consultation, and cooperation on political and security issues of common interest and concern" (ASEAN 2014).

Although there is some overlap between various Asia-Pacific multilateral dialogue forums, there are hierarchical and functional demarcations, with many common members and some variations. For example, the EAS is an annual summit for ASEAN and other regional leaders for strategic dialogue and cooperation; it is attended by presidents and prime ministers, and is the 'peak' regional forum. The ARF, on the other hand, is the key forum for strategic dialogue attended by foreign ministers; ADMM+ concentrates on regional defence cooperation and is attended by defence ministers, ARF and ADMM+ meetings are sometimes held in tandem; and the Asia-Pacific Economic Cooperation (APEC)[13] focuses upon economic development. Other, subordinate forums have specific functional purposes; the EAMF, for example, is a Track 1.5 dialogue forum that brings regional actors together to discuss non-security maritime issues. The ARF

ISM on MS is also a Track 1.5 entity that focuses specifically on regional maritime security and safety issues; it has several subordinate working groups addressing specific issues, for example, marine environmental protection.[14]

The Track 2 entity, CSCAP, has been credited with making a significant contribution to a sense of regional identity and community beyond governments. CSCAP has studied many sensitive security issues and made useful representations to the ARF and regional political leaders through a "steady consolidation" of engagement (Ponappa and Huong 2014, 47–49).

Indian Ocean Regional Security Arrangements

In comparison with the East Asia/western Pacific region, efforts to develop regional security architectures are very much at a nascent stage in the IOR. There is no overarching regional leaders' forum similar to the EAS, and no forum for regular dialogue between regional defence ministers and officials such as ADMM+ or the informal Shangri-La Dialogue. The only Indian Ocean–wide forums[15] are the Track 1/1.5 entities IORA, which does not have security in its Charter (IORA 2014a), and the Indian Ocean Naval Symposium (IONS) (IONS 2014).

There is no equivalent to CSCAP in the IOR. The Indian Ocean Research Group (IORG)[16] or perhaps a subset of the Indian Ocean Rim Academic Group (IORAG)[17] could emerge as Track 2 security dialogue entities in the future. IORG has a strong peace and security, including maritime security, focus. Research into security, maritime security or regional strategic matters is not mentioned in the IORAG Charter, although a "[f]ocus on matters of common concern" could be interpreted to include maritime security, if directed by IORA (IORA 2014a).

There are also several subregional IOR multilateral dialogue regimes in place, most of which are economic and development focused and do not include security in their charters. An incomplete list of the principal subregional entities with some and potential relevance to maritime and marine matters includes the South Asian Association for Regional Cooperation (SAARC),[18] Southern African Development Community (SADC),[19] East African Community (EAC),[20] Gulf Cooperation Council (GCC),[21] the dormant Indian Ocean Marine Affairs Cooperation (IOMAC),[22] the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC),[23] and the Djibouti Code of Conduct

concerning the Repression of Piracy and Armed Robbery against Ships in the Western Indian Ocean and the Gulf of Aden (DCoC).[24]

Indian Ocean Rim Association (IORA)

Since its inception in 1997, IORA (formerly IOR-ARC[25]) has struggled with relevance and has been frequently criticized by participating foreign ministers, particularly Indian, for its lack of progress with concrete projects (Ahamed 2008). Ironically, it was essentially India's insistence about the structure and purpose of IORA that contributed to its limited effectiveness. India wanted the membership to be limited and exclusive (specifically, not to include Pakistan), with a narrow charter focused upon economic, business and cultural interaction (not to include security dialogue), whereas Australia and others preferred a more inclusive IOR membership and a broader charter. The outcome was a compromise, with India essentially prevailing (McPherson 2004).

The contrasting maturity and status of IOR security forums compared with other Asia-Pacific forums is perhaps exemplified by joint communiqués issued from IORA and ASEAN leaders meetings. The IORA communiqué from the 2013 meeting in Perth, Australia, is one page long, with little indication of substantial progress (Bishop et al. 2013). The ASEAN communiqué from its 2014 meeting in Myanmar runs to 48 pages and covers a wide range of regional cooperative initiatives and activities, including many that have maritime security aspects (ASEAN 2014). A significant positive factor evident in the 2013 IORA communiqué is that it was issued jointly by the Australian, Indian and Indonesian foreign ministers, representing emerging efforts from a proactive 'troika'[26] that is endeavouring to invigorate IORA and provide leadership in the IOR.

Committed leadership of IORA from significant IOR middle powers post 2010, with India being the chair in 2011–13, Australia 2013–15 and Indonesia 2015–17, to be followed by South Africa then United Arab Emirates (UAE), has arguably placed IORA in a stronger position to become an effective regional cooperative entity (Ishak 2014, 1; Sakhuja 2014). Naidu (2012, 28–33) suggested that IORA's "open regionalism" approach, along with "the broader global trend" towards regionalism, supports a judgement that "there are reasons to be optimistic because conditions are far more propitious now than ever before". There are counterarguments that IORA has a "validity question" because it has not, so

far, been able to satisfy the fundamental requirements of a regional organization. IORA has not established, or been established around, a "common identity or shared vision" and does not deal with "specific functional issues" due to the absence of a "common narrative" (Wagner 2013, 7–14). The IOR has not yet developed a common sense of identity (Bhattacharyya 2010, 86–87) as a "political community" with a shared history (Luke 2010, 1–2), perhaps apart from the common experience of being colonized. There is no equivalent to ASEAN to form a regional core, US leadership is less dominant and strong, coherent regional leadership has been notably lacking.

Importantly, from a maritime security perspective, IORA was specifically *not* intended to be a regional security dialogue forum, and multilateralism has not yet emerged as a "dominant security system" in the IOR, although the utility of developing cooperative security arrangements is being increasingly recognized (Paul 2011, 43–44). There are calls for enhanced Indian Ocean regional and subregional security arrangements as "potentially significant mechanisms" to help minimize the risks of "intrastate and intra-regional conflict". This particularly applies to the need for a regional "cooperative maritime security regime" driven by energy security needs, plus ecological risks that generate requirements for a "holistic security paradigm" that is "ocean-based" (Rumley 2013, 97–98 and 101–104).

Largely due to the absence of other dialogue forums, with regional security risks becoming increasingly apparent, and despite the word 'security' not appearing in its Charter, IORA is increasingly seeking to address a security agenda, specifically maritime security. The November 2013 IORA Council of Ministers' Communiqué reiterated the "six agreed priority areas … maritime safety and security; trade and investment facilitation; fisheries management; disaster preparedness; academic, science and technology cooperation; and tourism and cultural exchange", all of which have direct or indirect maritime security dimensions. The Communiqué stated that "IORA can contribute to the peaceful, productive and sustainable development" of the IOR by "focussing on these key areas". IORA (Bishop et al. 2013) noted that the "common threat of piracy poses a considerable challenge" and announced:

> We wish to broaden and deepen through IORA efforts to bolster maritime security and safety, particularly in light of threats to commerce, and freedom

> of the high seas, consistent with the UN Convention on the Law of the Sea (UNCLOS), as well as on the safety of sea farers.

IORA has gradually embraced a broadening maritime agenda. The October 2014 IORA Council of Ministers' Perth Communiqué announced, for the first time, the idea of

> strengthening the blue economy—maritime related economic activity—as a common source of growth, innovation and job creation. Expansion of trade and investment within the region, including fisheries activities, minerals exploration, development of renewable energy and coastal tourism, will stimulate growth and improve our food and energy security.

The concept of an Indian Ocean blue economy could be seen as an attempt by IORA member states to avoid potentially controversial security issues, although non-traditional maritime security–related matters also featured strongly in the Perth Communiqué. It was recognized, for example, that the Indian Ocean "plays a major role in the security and prosperity of the region as a crucial conduit for global trade, with half the world's container traffic and one-third of bulk cargo traversing its surface". IORA's commitment towards working with IONS and "other relevant organisations to address shared maritime and security challenges that threaten sea lines of communication and transportation in the Indian Ocean, notably piracy and terrorism" was announced. Support for UNCLOS was also affirmed, particularly as it pertains to "countering piracy and armed robbery at sea". Maritime search and rescue and the need to strengthen "regional cooperation on disaster risk management in cooperation with the Disaster Response Dialogue and other regional and global platforms" were also emphasized (IORA 2014b). Maritime security–related matters are now very squarely on the IORA agenda.

However, a major shortcoming of IORA in the recent past has been assessed as "the lack of political will to create a distinct identity" and "allow it to play a major role" (Naidu 2012, 35). Whether or not IORA can deliver on its ambitious new agenda remains to be seen; such organizations, as demonstrated in the Asia-Pacific and often evinced in the UN, can only be as effective as the participants will allow them to be. Although the rhetoric appears promising, so far there is little tangible evidence of progress with real IOR maritime security projects through IORA.

Indian Ocean Naval Symposium (IONS)

IONS is primarily an operational and technical naval cooperative dialogue entity modelled along the lines of the WPNS (Ghosh 2012, 354). IONS was an initiative of the Indian Navy (IN) and first met in New Delhi in 2008. IONS formally convenes every two years, and meetings include a 'Conclave of Chiefs',[27] with rotational chairmanship and hosting. The second meeting of IONS was hosted by the UAE in Abu Dhabi in 2010; the third meeting, in 2012, was hosted by South Africa in Cape Town; the fourth meeting, in 2014, was hosted by Australia in Perth[28]; and the fifth meeting was hosted by Bangladesh in Dhaka in January 2016.

IONS progress could best be described as 'glacial' and support from regional navy chiefs has been patchy. The IONS Charter of Business was not agreed until the fourth meeting in Perth, primarily due to diverse views about IONS purpose and composition, including debates about issues such as the IONS 'official language'.[29] The IONS membership is broader and more inclusive than IORA's, with the Pakistan Navy, for example, invited from inception. The Pakistani Navy chief attended his first IONS seminar in Perth in 2014, which was considered to be a positive advancement by the Australian Navy host. Unfortunately, for a variety of reasons, several key regional navy chiefs were unable to attend IONS 2014, including India, South Africa, Indonesia and Malaysia,[30] which gave rise to perceptions of lack of commitment and priority.

The focus of IONS has been on regional navies and other maritime forces developing cooperative approaches against non-traditional threats to maritime security. The themes of IONS 2010 and IONS 2014 were fundamentally about good order at sea and security of the maritime trading system.[31] IONS activities have mainly been confined to low-key, operational and tactical matters, including several regional workshops on non-controversial issues such as humanitarian assistance and disaster relief, plus an essay competition for junior naval officers and the creation of a website hosted by India. Maritime security–related policy issues are discussed, but IONS is not the appropriate forum for decisions to be made; this remains the purview of regional political leaders (Cordner 2014).[32] By way of contrast, WPNS took many years to evolve to the stage where it now hosts multilateral exercises and training. However, IONS lacks an overarching regional political and policy framework, as provided for WPNS by the ARF and ADMM+ (Mohan 2012, 216–227). Understandably, there is reluctance in the fledgling IONS to move too quickly and get ahead of regional political agendas (Cordner 2011, 80–81).

There is no direct or formal link between IORA and IONS, although the IORA Perth Communiqué stated (IORA 2014b):

> All IORA Member States have a stake as invited participants in the Indian Ocean Naval Symposium (IONS). We consider it important that IORA's work on maritime security and safety and disaster management align with and complement possible IONS initiatives in these areas, including in information-sharing and other activities with both civilian and non-civilian dimensions.

With Australia being the chair of both IORA and IONS during 2014–15, some observers perceived an opportunity for a formal connection to be forged between the two entities, or at least to correlate and coordinate their efforts. The Australian Chair of IONS 2014 made clear that he felt proposing a formal involvement with IORA would potentially undermine the development of IONS as a collaborative operational and largely non-political professional dialogue between navies.[33] The membership of IORA and of IONS are not completely concordant and each has specific functions; navies of the world have special relationships because of their shared affinity as seafarers. IONS will continue to struggle with relevance, influence and scope of activities without a concordant political framework within which to progress collective and cooperative regional maritime security policies.

IOR Subregional Forums and Maritime Security

The involvement with and the impact of IOR subregional forums on maritime security have generally been minimal. SAARC, for example, has avoided being involved in security matters due to regional sensitivities. It has been described as "hostage to the temper of the Indo-Pak political equation", with its relevance frequently being subject to question (Rao 2012, 47 and 53; Sharma 2012, 17–18). Progress in SAARC has been described as "slow", with achievements "modest at best" due to the underlying atmosphere of "mutual hostility and trust deficit among South Asian countries" and the lack of a common perception of security threats, with many subregional countries seeing India as their main security concern (Dash 2012, 406 and 418). As Gautam (2011, 175) observed, "political boundaries pale in comparison to the ecological and civilisation overlap between South Asian countries", yet issues of sovereignty on land are the "dominant discourse" in SAARC.

In the Persian Gulf subregion, the GCC was constituted as a subregional collective security arrangement, but not a military bloc. However, progress has also been slow due to ongoing discord, competition and aspirations for regional dominance in West Asia between Iran and Saudi Arabia (Pasha 2012, 91–97).

East African subregional maritime security cooperative arrangements are also largely deficient. The piracy crisis off Somalia that resulted in "multilateral maritime intervention on a global scale" was reported to have exposed "a wide range of African vulnerabilities", including "Africa's utter lack of capacity to secure its maritime portion of the global commons" (Kornegay 2012, 72). The African littoral has an acknowledged vested interest in working towards mutually beneficial maritime security and oceans governance (Kornegay 2014, 2). Despite reports, in 2009, that SADC was working to produce "a more focussed … maritime security strategy" (Kornegay 2012, 80), Africa's security agenda is primarily "marginalized" in being "focussed upon … continental sovereignty". The overriding problem is that there is no common security architecture governing the subregion's oceanic interests (Kornegay 2014, 3). In addition to the chronic lack of African maritime security force capacity, there is no history or habits of cooperation.

The anti-piracy entity DCoC has been described as "the most promising venture" so far towards maritime security governance in the western Indian Ocean (Lehr 2013, 112). Modest progress has been made with information-sharing arrangements, facilities and training supported by funding from mainly shipper nations external to the Indian Ocean (IMO 2012). However, DCoC lacks the dynamic support that ReCAAP receives from powerful western Pacific nations, and unlike the Pacific, the region does not have a prior history of maritime security cooperation.

IOR Cooperative Maritime Security Governance Prospects

The IOR maritime security risk assessment mounted a strong case for enhanced regionalism in identifying the need for security architectures and dialogue arrangements. The forecast profound impacts on the Indian Ocean marine environment, combined with the lack of capacity in much of the region to effectively police maritime zones and deal with impending natural disasters on a vast scale, should present compelling reasons for enhanced regional engagement. Similarly, common interests in ensuring

the unfettered flow of maritime trade should present powerfully persuasive arguments for enhanced regional cooperative maritime security arrangements. However, progress so far has been slow and disjointed. There are many factors working against enhanced regional security cooperation. These include the extended and diverse Indian Ocean geography; the lack of recent history and habits of cooperation following the colonial era; disparate political, racial, ethnic and religious composition, combined with historical antipathy and distrust; and the lack of capacity.

The IOR has been lacking in a sense of regional identity and common purpose. A predominant factor concerns political will and regional leadership. There is no central, coalescing agency in the IOR, such as ASEAN in the western Pacific. The major powers, including the United States and China, have so far mainly adopted a distant role, primarily engaging to protect their narrow self-interests. Building an understanding of commonly held objectives and the common risks and shared vulnerabilities that impact their achievement presents a practical means by which shared visions can be developed. Such understanding should act as a catalyst for improved cooperative and collective actions to treat transnational risks and reduce communal vulnerabilities that are beyond the ability and mandate of any single regional (or extra-regional) nation-state or other entity to address.

The region can take lessons from elsewhere, both positive and negative, particularly the western Pacific. These lessons can be selectively applied to devise regional security arrangements uniquely tailored to the IOR geopolitical context. The current dearth of IOR cooperative and collective security arrangements presents opportunities. It is in the maritime domain where the need clearly exists and prospects for progressing cooperative regionalism are most evident. Realizing those prospects poses major challenges and risks, both of underachievement and of mismanagement. Risk treatment prospects involving specific regional and extra-regional states are explored in the next chapter.

Notes

1. During the post-colonial era and until the Second World War, the IOR was predominantly a "British Lake" (Panikkar 1944, 1; 1945; Alpers 2014, 97–99); primarily, colonial forces provided maritime security in the Indian Ocean.
2. ASEAN was established on 8 August 1967. Its stated aims are to accelerate economic growth, social progress and cultural development, and promote regional peace and stability through the rule of law and adherence to the

principles of the UN Charter. The ASEAN Charter, which entered into force on 15 December 2008, provides a legal and institutional framework to support ASEAN's objectives, including regional integration. ASEAN comprises ten countries: Brunei Darussalam, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Vietnam. ASEAN has ten dialogue partners: Australia, Canada, China, the European Union, India, Japan, New Zealand, Republic of Korea, Russia and the United States.

3. These include the ANZUS Treaty between the United States, Australia and New Zealand; Philippine Treaty; Japan Treaty; and Republic of Korea Treaty. Notably, on 4 September 2014, the Southeast Asia Treaty between the United States, Australia, France, New Zealand, the Philippines, Thailand and the United Kingdom still appeared on the US State Department website despite being disbanded in 1977; see http://www.state.gov/s/l/treaty/collectivedefense/ and https://history.state.gov/milestones/1953-1960/seato
4. The EAS is a regional leaders' forum for strategic dialogue and cooperation on key challenges facing the East Asian region. EAS members are the ASEAN countries plus Australia, China, India, Japan, New Zealand, the Republic of Korea (RoK), the United States and Russia.
5. ARF was established in 1994. It comprises 27 countries: the ten ASEAN member states, the ten ASEAN dialogue partners, one ASEAN observer (Papua New Guinea), as well as the Democratic People's Republic of Korea (DPRK), Mongolia, Pakistan, Timor-Leste, Bangladesh and Sri Lanka. ARF is a key forum for security dialogue in Asia.
6. ADMM+8 comprise the ten ASEAN states plus China, Japan, the RoK, India, Australia, New Zealand, Russia and the United States. It commenced in 2010.
7. The Shangri-La Dialogue is an informal forum initiated and hosted by the International Institute for Strategic Studies (IISS). According to the IISS website (https://www.iiss.org/), the first meeting was held "in 2002 in response to the clear need for a forum where the Asia-Pacific's defence ministers could engage in dialogue aimed at building confidence and fostering practical security cooperation".
8. The first EAMF was convened in response to the EAS in November 2011, which encouraged a "dialogue involving EAS participating countries to utilize opportunities and address common challenges on maritime issues building upon the existing ASEAN Maritime Forum (AMF)". Governmental and non-governmental delegates from EAS countries and the ASEAN Secretariat attended. The first meeting, in Manila, October 2012, focused on the ongoing relevance of UNCLOS, maritime connectivity and capacity building, infrastructure and equipment, seafarers' training, protecting the marine environment, promoting ecotourism and fishery regimes in East Asia, and identifying best practices of cooperation.

9. WPNS comprises the leaders of regional navies. The focus is upon naval cooperation and capacity building. It was inaugurated in 1988, meets biennially and includes numerous workshops and naval exercises. Participants include Australia, Brunei, Cambodia, Canada, Chile, France, Indonesia, Japan, Malaysia, New Zealand, Papua New Guinea, China, the Philippines, RoK, Russia, Singapore, Thailand, Tonga, the United States and Vietnam, with observers from Bangladesh, India, Mexico, Peru and Pakistan.
10. Nineteen states are contracting parties to ReCAAP: Australia, Bangladesh, Brunei, Cambodia, China, Denmark, India, Japan, RoK, Laos, Myanmar, the Netherlands, Norway, the Philippines, Singapore, Sri Lanka, Thailand, the United Kingdom and Vietnam. A ReCAAP Information Sharing Centre was established that facilitates exchanging information on incidents of piracy and armed robbery, support for capacity building and cooperative arrangements.
11. CSCAP provides an informal mechanism for scholars, officials and others in their private capacities to discuss political and security issues and challenges facing the region. It provides policy recommendations to various intergovernmental bodies such as the ARF. CSCAP membership includes most of the major countries in the Asia-Pacific. It has 21 full members of the Council (Australia, Brunei, Cambodia, Canada, China, Europe, India, Indonesia, Japan, DPRK, RoK, Malaysia, Mongolia, New Zealand, Papua New Guinea, the Philippines, Russia, Singapore, Thailand, the United States and Vietnam) and one associate member (Pacific Islands Forum Secretariat).
12. MSP was formalized as the collective term to describe the combined Malacca Strait Sea Patrol (formerly MALSINDO), 'Eyes-in-the-Sky' (EiS) and an Intelligence Exchange Group operating under a Joint Coordinating Committee, with Malaysia, Singapore, Indonesia and Thailand participating.
13. APEC was established in 1989. Its primary purpose is to facilitate economic growth and prosperity in the region, with the vision of creating a seamless regional economy. APEC has 21 *member economies*: Australia, Brunei, Canada, Chile, China, Hong Kong, China, Indonesia, Japan, RoK, Malaysia, Mexico, New Zealand, Papua New Guinea, Peru, the Philippines, Russia, Singapore, Chinese Taipei, Thailand, the United States and Vietnam.
14. For example, the author represented CSCAP at an ARF ISM on MS in Seoul, South Korea, in April 2013. The presentation on offshore oil and gas safety and security regional strategic risk management led to the author's participation in an ARF Working Group on Marine Environmental Protection held in Honolulu, March 2014, co-chaired by the United States, China, Japan and Brunei. The outcome included recognition that offshore oil and gas safety and security needs to be addressed as a common regional safety and security issue, and that risk-based concepts offer viable

mechanisms for developing cooperative approaches to regional maritime security risks.

15. Several IOR states, including Australia, India and Indonesia, are participants in both Indian Ocean and Asian-Pacific entities.
16. The key objective of IORG is to initiate a policy-oriented dialogue among governments, industries, NGOs and communities, towards realizing a shared, peaceful, stable and prosperous future for the IOR. IORG encourages research on geopolitical, economic, sociocultural, environmental, scientific and technological issues.
17. The IORA website states, with regard to IORAG: "In recent years, there has been a call to reinvigorate the Academic Group with a need for a more dynamic link between policy and projects ... IORAG ... needed to pay greater attention to ... Develop a stronger Indian Ocean Research environment; Foster a culture of "Indian Oceanness"; Focus on matters of common concern; Research aimed at enabling better regional policy outcomes; Develop a stronger regional policy foundation; and Enhance collective regional awareness."
18. The stated objectives of SAARC are to accelerate economic growth, social progress and cultural development by promoting active collaboration and mutual assistance in economic, social, cultural, technical and scientific fields. Member states are Afghanistan, Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan and Sri Lanka.
19. The objectives of SADC are to achieve peace, security and economic growth to alleviate poverty, enhance the standard and quality of life of the peoples of Southern Africa and support the socially disadvantaged through regional integration and sustainable development. Member states are Angola, Botswana, Congo, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, the Seychelles, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe.
20. EAC is the regional organization for Burundi, Kenya, Rwanda, Tanzania and Uganda. Its mission is to widen and deepen economic, political, social and culture integration in order to improve the quality of life of the people of East Africa through increased competitiveness, value-added production, trade and investments.
21. Formally known as the Cooperation Council for the Arab States of the Gulf, GCC's objectives are coordination, integration and interconnection between member states in all fields in order to achieve unity, including economic and financial affairs, commerce, customs and communications, education and culture, and scientific and technological progress. Member states are the UAE, Bahrain, Saudi Arabia, Oman, Qatar and Kuwait.
22. The focus of IOMAC was marine and oceans management. Initiated by Sri Lanka, India and other Indian Ocean states did not support it and it ceased effective operations in 1997.

23. BIMSTEC's focus is economic, with member states participating in the BIMSTEC Free Trade Area Framework Agreement. Member states are Bangladesh, Bhutan, India, Myanmar, Nepal, Sri Lanka and Thailand.
24. DCoC was signed on 29 January 2009 and initially adopted by Djibouti, Ethiopia, Kenya, Madagascar, the Maldives, the Seychelles, Somalia, Tanzania and Yemen. Comoros, Egypt, Eritrea, Jordan, Mauritius, Mozambique, Oman, Saudi Arabia, South Africa, Sudan and UAE have since signed.
25. IORA was formerly known as the Indian Ocean Rim – Association for Regional Cooperation (IOR-ARC).
26. In 2013, a 'revised IORA Charter' came into effect that replaces the earlier IOR-ARC Charter. The revised Charter includes formal recognition of the role of a 'troika' comprising the current 'Chair, the Vice Chair and the previous Chair', which will meet more frequently than the wider 'Council of Ministers'.
27. The term 'Conclave of Chiefs' refers to a formal meeting of naval and other maritime security agency heads that occurs biennially as a key part of biennial IONS Seminars.
28. The author participated and presented papers at IONS in Abu Dhabi in 2010 and in Perth in 2014.
29. The Iranian Navy chief reportedly insisted that Farsi be the official language of IONS. This remained a stumbling block to the Charter until the Perth meeting, when English was mutually agreed to be the official language of IONS.
30. The IN Chief, Admiral D.K. Joshi, had resigned a few weeks before the IONS meeting in Perth, and the South African Chief was reported to be in the process of handing over command. There were no publicly stated reasons for non-attendance by the Indonesian and Malaysian Navy chiefs.
31. These points were emphasized by Vice Admiral Ray Griggs, Chief of Navy – Australia and Chair of IONS 2014, in his opening remarks on 25 March 2014. IONS 2010 theme was 'Together for the Reinforcement of Maritime Security in the Indian Ocean'; IONS 2014 'Protecting the Ability to Trade in the IO Maritime Economy'.
32. For example, the author was invited to present ideas on working towards a coherent and cooperative IOR maritime security strategy at IONS 2010, and spoke on IOR maritime security risks and risk-based approaches at IONS 2014. Both presentations were well received and generated considerable discussion, but no formal acknowledgement or decisions resulted from the 'closed-door' Conclave of Chiefs; IONS is the wrong forum for such policy matters to be progressed.
33. This information was provided during an interview by the author with Vice Admiral Ray Griggs, Chief of Navy – Australia, on 8 August 2013.

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CHAPTER 7

Maritime Security Risk Treatment: India; Indian Ocean Region Middle, Small and Developing States; Major External Powers

Individual nation-states remain the primary actors in the international system. The prospects for regional and selected extra-regional nation-states contributing to treating risks and reducing vulnerabilities to Indian Ocean region (IOR) maritime security are evaluated. Concomitantly, individual states' exposures to risks and vulnerabilities are briefly considered. The primary focus is on two commonly held risk and vulnerability areas: maritime trade and the Indian Ocean sea lines of communication (SLOCs), and the oceanic environment impacted by climate change, marine resource exploitation and pollution.

A predominant factor is political will and the capacity to exercise regional leadership. India, as the major regional power, along with IOR middle powers, such as Australia, South Africa, Indonesia, Saudi Arabia, Iran and Pakistan, should play a central role. Less developed and smaller states also have important functions in facilitating and encouraging regional cooperation and contributing to risk mitigation and vulnerability reduction. Many states are extremely vulnerable and at high risk from forecast rising sea levels, for example, Bangladesh and the Maldives. Others are at risk and vulnerable to disruptions to maritime trade, for example, Singapore and Australia. Many states are vulnerable to the impacts of both climate change at sea and maritime trade disruptions, for example, India and Indonesia. External powers, such as the United States, China, Japan, Russia and France (both an internal and an external Indian Ocean state),

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also have significant and legitimate interests at stake. External states that have objectives in the IOR and the capacity to assist need to be constructively engaged in risk treatment and vulnerability reduction efforts.

India as a Regional Maritime Security Leader

India is the major regional power and an emerging global power. It has the largest regional maritime security forces and occupies a central geostrategic position. India's performance and prospects as a regional leader is vital to IOR maritime security cooperation.

The importance of maritime security has long been advocated by Indian strategists. Panikkar (1944, 9) observed that it is "a pre-requisite of India's … freedom that she should share in the responsibility of guarding in the Indian Ocean … as her interest in this area is predominant". Contemporary India has been described as a "reluctant superpower" (Mattoo 2012) that is uncomfortable with the "Great Power" label and lacks "clarity in strategic thinking" (Prakash 2009). There have been allegations of "strong vested interest among the Indian political class to discourage development of strategic thinking" due to a "total preoccupation with domestic politics" (Subrahmanyam and Monteiro 2005, v–vi). Whether or not these assertions stand today are matters of contention (Bhatia and Sakhuja 2014). Western strategic analysts typically approach attempts to comprehend India's strategic perspectives and culture with considerable trepidation and frustration (Tanham 1992, v). Formal strategic policy statements are difficult to find. This leads to potentially inaccurate assumptions that either India does not possess coherent strategic policies and is therefore disorganized and weak in its thinking, or it is particularly devious and secretive.[1]

The lack of overt and coherent Indian strategic declarations over many years was lamented by the late K. Subrahmanyam, the "doyen of Indian strategic thought" (Subrahmanyam and Monteiro 2005, xii–xv and 6–7), and echoed by others (Prakash 2014). In an incisive analysis, a (no doubt) frustrated Subrahmanyam (Subrahmanyam and Monteiro 2005, 8–9), in the twilight of his illustrious career,[2] assessed:

> In India, in spite of our functioning democracy for five decades, there is no system of government coming out with white papers and documents, sharing its assessments, spelling out goals and objectives and our policies to achieve them … The annual reports of the ministries are not only pedestrian,

> but just recount the developments of the previous year and give no clues to future policy. Our ministers' speeches in Parliament rarely contain precisely formulated policy inputs … In the absence of well-formulated government policy and relevant documentation, there are wide variations in the perceptions and understanding among our politicians, bureaucrats, media persons and academia.

According to Subrahmanyam (2012, 13–15 and 25–27), there is the "great irony" of an India that "started with a comprehensive grand strategy". It has emerged as a pluralist, secular and industrializing democracy that is today beset with endemic political corruption exercised by inept and pernicious political elite that gain power by "partisan patronage politics" and is sustained by an equally corrupt bureaucracy that resists change in order to maintain power. Allegations of a "lack of strategic vision and higher direction" (Dahiya 2012, 81–82) persist, along with assertions that Indian strategic culture is evident with "two ideational influences" that impose a "complex structure … on Indian strategic preferences". These involve "realist aspirations for Great Power status based on military power projection but tempered by Nehruvian ethos of dialogue and international cooperation" (Goswami 2013). The political and bureaucratic leadership has remained largely focused upon domestic socio-economic development—understandably given the significant internal challenges faced by India.

India is said to be "happy with ambiguity as it does not want to be tied down" (Menon 2014). As India moves towards great power status, desired or not, there will be increasing pressure to develop "appropriate institutions" and to articulate "an appropriate national vision" (Tellis 2004, 2012). Uncertainties fuelled by lack of clarity about what India stands for and where it is trying to head have, in the recent past, undermined its cooperative leadership credibility and aspirations. However, this appears to be changing. In June 2014, Prime Minister Narendra Modi came to power, promising a more confident and assertive posture for India that included a higher profile in regional and international affairs.

Modi has led an increasingly proactive approach, including a renewed focus upon the Indian Ocean, with strong attention to maritime affairs. Modi declared, in November 2014, that India's former 'Look East' policy had become an 'Act East' policy (Saint-Mézard 2016, 178). Much greater strategic importance has been placed upon the Bay of Bengal (Brewster 2015a) and soft power engagement with South Asian and Association for Southeast Asian Nations (ASEAN) states (Cordner 2016b).

India is reported to be following a "five-prong strategy toward its Maritime South Asian neighbours". This involves targeting the Seychelles, Mauritius, Sri Lanka, the Maldives, Bangladesh and Myanmar. Specific programmes are aimed at strengthening these countries' maritime security capacities, joint patrols against piracy and terrorism, providing humanitarian assistance and disaster relief (HADR), framing common goals as part of a wider security agenda and developing 'blue economy' partnerships (Pattanaik 2016, 134–138).

A revised strategy for the Indian Navy was publicly released in 2015. It signifies maturation and growing confidence in approaches to maritime security, and India's role in the region. The strategy recognizes India's "quintessential maritime character" and need to develop an "outlook towards the seas and maritime domain". It asserts that there has been a shift in India's "worldview from a *Euro-Atlantic* to an *Indo-Pacific* focus" towards Asia in a "more complex and unpredictable" maritime security environment (Indian Navy 2015, i–ii). The signs of an emergent India that is willing to assert regional leadership are promising, which bodes well for maritime security risk treatment prospects. However, India's past track record as a strategic leader has been patchy. Whether reality will match the new rhetoric remains to be seen.

India's National Security Policies

The Government of India (GoI) does not have a history of producing defence or foreign affairs white papers or the like. Indian Annual Defence Reports, for example, contain uninformative, trite pronouncements.[3] The essence of India's enduring foreign policy has been stated as ensuring "India's security, promoting its socio-economic development, maintaining the country's strategic autonomy and working towards a more just global order". India aspires for good relations with its neighbours, wishes to share mutually beneficial trade and investment, and seeks "a peaceful and secure periphery … cordial and balanced relations with major powers and mutually beneficial partnerships with developing countries". Multilateralism is often emphasized (GoI 2013, i).

There is no official definition of "strategic autonomy", an oft-cited defining philosophy that underpins India's strategic posture (Monsonis 2010). Anecdotally, it is taken to be an extension of the earlier Non-Alignment policy during the Cold War, whereby India wished to

avoid formal and binding security alliances so as to maintain strategic flexibility (Menon 2014). How strategic autonomy sits with India's engagement in regional maritime security cooperation is unclear. India's strategic autonomy aspirations have not prevented it from entering into a widening web of bilateral defence agreements with a disparate array of countries.[4] Notably at the subregional level, India is developing Maritime Security Cooperation arrangements with the Maldives and Sri Lanka, to which Mauritius and the Seychelles have been added (GoI 2014), as part of India's self-appointed "net security provider" role to small island states (GoI 2011; IDSA 2012). India's propensity for strategic ambiguity and pragmatism remains (Tharoor 2012, 426–427).

India's Strategic Paradox: Civil–Military Relations

Fundamental to an assessment of India's capacity to provide regional leadership is the nature and functioning of the national politico-military establishment. The concept of civilian control of the military is fundamental in parliamentary democracies, and India is no exception. In most states that inherited the British model, civilian control is exercised by politicians, the elected representatives of the people.[5] In India, civil control is applied by bureaucrats, with the military leadership largely isolated from the politico-strategic national security leadership (Prakash 2014). The 'Unified Headquarters' of Defence in New Delhi exists in name only, with the Service staffs largely working separately from each other, and separate from the Defence civilian bureaucracy. An extraordinary circumstance continues where uniformed officers are occasionally appointed to work for civil servants, always in a subordinate capacity, but civil servants are never subordinated to uniform officers.[6] The need for significant change to the Indian higher defence organizational arrangements has been proposed for more than 50 years (Maxwell 1970; Subrahmanyam 1970; Revi 2014) yet little change has occurred.

India's armed forces rate only brief mention in the 471 pages of the Constitution of India (GoI 2007), and there is no national defence act or similar legislation.[7] References to the armed forces in the Constitution reflect India's founding pacifist outlook and indicate the armed forces place in India's polity and society. The civilian Secretary for Defence[8] exercises executive authority to the Government for India's defence. The Secretary's authority is defined in *Business Rules* (GoI 1961, 33–38), a

bureaucratic document that describes the structure of national departmental arrangements. The Secretary has sweeping responsibilities for the "[d]efence of India and every part thereof including preparation for defence and all acts as may be conducive in times of war to its prosecution and after its termination to effective demobilisation" (GoI 1961, 33).

In the Indian higher defence structure, Army, Navy and Air Force headquarters sit outside and subordinate to the central Defence civilian bureaucracy. This arrangement has been described by retired admiral Arun Prakash[9] (Prakash 2014) as imposing a situation where "a layer of civilian bureaucracy has interposed itself between the political leadership and an isolated military establishment" and has produced a "three-cornered relationship". He asserts this has "evolved into a triangle of discord, tension and indifference; whose most damaging impact has been a stasis in national security affairs".

There is ongoing disquiet among (at least former) senior Indian military leaders about the function and structure of the higher national security arrangements. The need for reform has frequently been mooted (Revi 2012, 11–12; Dahiya 2012; Sawhney 2014, 46–47). The *Kargil Review Committee Report* (GoI 1999, 215, 220–221 and 227) observed:

> The Findings bring out many grave deficiencies in India's security management system … There has been very little change over the past 52 years despite the 1962 debacle, the 1965 stalemate and the 1971 victory, the growing nuclear threat, end of the cold war … The political, bureaucratic, military and intelligence establishments appear to have developed a vested interest in the status quo … India is perhaps the only major democracy where the Armed Forces Headquarters are outside the apex governmental structures … Most opposition to change comes from inadequate knowledge of the national security decision-making process elsewhere in the world and a reluctance to change the status quo and move away from considerations of parochial interest … There is both comfort and danger in clinging to any long established status quo. There will be many who counsel the most (read prolonged) deliberation. Procrastination has cost nations dear.

In 2000, consequent to the Kargil Review, a Group of Ministers was tasked with undertaking a national security review. The Group's 2001 report, which contained "some critical recommendations relating to reforms in higher defence management", produced little action (Prakash 2014). The report from a 2011 Task Force on National Security Reform,

submitted to the Prime Minister in May 2012, has also not generated action. Admiral Prakash's (2014) reflections are telling:

> As the only individual to have been a member of both the 2000 and 2011 Task Forces, it was my personal observation that the security conundrums and lacunae confronting both bodies remained, substantially, the same; nor had the mindsets and attitudes of bureaucrats as well as politicians undergone any change over the past decade.

In 2013, then Prime Minister, Dr. Manmohan Singh, six months before a national general election in which he had already announced he would not be standing, appeared to acknowledge these concerns but did not mention the civil service interposition. He offered platitudes and directed no substantial way forward (Singh 2013). The Modi government has not shown any intent to reform national security institutions. The ongoing stasis affecting vital components of India's national security establishment, defence and external affairs casts doubts upon India's ability to provide politico-strategic cooperative leadership in a complex international context (Tharoor 2012, 316–360 and 410–413).

The paradox evident with India's higher defence arrangements is staggering. India has the fourth largest defence force in the world, with 1.2 million men and women in uniform. Beleaguered by chronic land border security concerns, India has fought several wars since Partition in 1947 and has militarily intervened regionally on several occasions.[10] India has also been a stalwart supporter of international collective security as the largest troop contributor to UN peacekeeping missions.[11] Contemporary India is reliant upon a stable security environment, particularly in the maritime domain, to ensure domestic economic growth can be sustained. The need for enhanced maritime security capabilities is recognized, as evinced by India's ambitious naval "capability accretion", which, in 2012, included "46 ships under construction, Acceptance of Necessity for 49 more ships and submarines" (Verma 2012). Sizeable military capabilities and the capacity to deploy significant military force are integral to modern India's identity.

The lack of engagement and alignment between India's civil bureaucracy and senior military leadership raises doubts about the quality of advice provided to India's political leadership and the coherency of India's national security establishment. There is a chronic lack of political will and administrative capacity to impose reform. International partners remain

uncertain about the veracity, integrity and consistency of Indian policy and operational engagement being projected by various levels of government; the bureaucracy and the military are apparently disconnected and uncoordinated.

The Indian political elite appear to have largely relegated their responsibilities for national security policy to generalist civil servants whose main interest is preserving the status quo. The picture that emerges is one of weak political leadership and lack of political will, with power centralized among career bureaucrats impervious to change. Prime Minister Modi is presenting a more confident and assertive external posture for India. Whether this will be matched by coherence and alignment within India's strategic establishment is unclear; a considerable degree of uncertainty persists.

India's Leadership in Maritime Security Operations

The Indian Navy is an important national maritime security tool. From modest beginnings, it has developed into a capable and balanced force that is the largest regional navy. It has been proactive in promoting cooperation between IOR naval and other maritime security forces; the Indian Ocean Naval Symposium (IONS) was an Indian Navy initiative (Ghosh 2012). The Indian Navy regularly participates in bilateral and multilateral exercises and exchanges with other navies, including, for example, the *MILAN* series of exercises hosted by India.[12] It also actively participated in the multinational anti-piracy effort in the Gulf of Aden.[13] India chose not to assign units to the combined naval task forces, instead operating independently, as did naval forces from some other countries, including China and Russia.

India's growing maritime hard power supports regional leadership credentials, although capabilities fall short of aspirations to "dominate the Indian Ocean region" advocated by some Indian analysts (Khilnani et al. 2012). India's capacity and willingness to manage effective cooperative partnerships with regional middle powers, such as Australia, Indonesia, South Africa, Saudi Arabia, Iran and Pakistan, will be important. Where autarky was a central policy choice for India in the past, "its growing interdependence with the rest of the world" demands "more supple and complex military strategies" and will require evolution from "a 'lone ranger' to a 'coalition partner'" (Mohan 2011b, 303, 308). Building habits of cooperation at the political and operational levels requires energy,

persistence and a carefully coordinated approach, which the Modi government appears to be moving towards.

India has made major efforts to reach out to its immediate neighbours and assert influence in South Asia, aimed at countering any Chinese expansionary ambitions (Chandramohan 2014). India will also need to encourage the involvement of external powers in the IOR instead of being bound by "narrow, regional" approaches (Mohan 2010, 11–12). Collective security in the IOR will be fraught with challenges and India will have to "deal with the imperatives of changing the balance of power, rather than the notion of a regional security architecture that we can create". Flexibility is required, including working with coalitions and acting independently as situations dictate (Mohan 2011a, 14–15).

India's Cooperative Maritime Security Risk Treatment Prospects

A definitive assessment of India's willingness and capacity for regional maritime security cooperative leadership is elusive. The need to ensure a secure maritime domain is well understood by India, as demonstrated by significant investments in maritime capabilities. The Indian military, including the navy, have evolved capable, professional and well-led forces with considerable experience in multinational operations.

The quality and alignment of the Indian politico-military establishment are relevant to India's capacity to lead in complex international contexts. The apparent lack of coherence and ongoing allegations of dissonance (Prakash 2014; Revi 2012) between India's politico-bureaucratic and military leadership raise strategic competence questions. Mounting frustration among a capable and demonstrably apolitical and non-partisan military establishment removed from contributing to national security decision-making appears to have created a climate where critical public commentary, primarily by former senior military officers, is the norm.

All the arms of government need to be aligned, mutually supportive, 'in step': political, diplomatic and defence—including the armed forces. Persistent perceptions of a lack of alignment between the Indian political, bureaucratic and military establishments generate uncertainty and present strategic risks to regional maritime security cooperation.

Strategic policy ambiguity and lack of transparency mean that external observers can be unclear about India's strategic direction, priorities and competence. The need to build trust and confidence is undermined. The lack of willingness to impose serious reform, to bring the senior military

leadership into the national decision-making framework as part of a cohesive national security construct, raises concerns about political will and strategic acumen.

Indian leadership is needed particularly in the maritime domain. Littoral states and other actors, along with extra-regional actors, need to cooperate to address growing risks in the medium term. Others in the region will increasingly look to India, as the major regional power, to provide strong, proactive and coherent leadership, engendering a spirit of cooperation and shared destiny. Based upon performance over the past 60 years and despite a more confident and assertive stance by the Modi government, indications are that India's IOR-wide leadership prospects will remain wanting. This risk must be factored into regional security thinking (Cordner 2014b).

IOR Middle Power Risk Treatment Prospects

The capacity and willingness of the IOR middle powers to work with India, each other and key external states to enhance regional maritime security is important in evaluating risk treatment prospects. Australia, Indonesia, Iran, Saudi Arabia, Pakistan and South Africa have roles to play in the systemic, risk-based approach advocated here. While diversity typifies the middle powers, as for IOR states writ large, the need to deal with shared risks and common vulnerabilities that transcend national borders in the maritime domain presents potential catalysts for enhanced security cooperation.

Australia

Australia, a developed, western 'island-state' is hugely dependent upon maritime trade. The integrity of the Indian Ocean SLOCs is vital to Australia's prosperity and security. As well as being a major exporter of coal and natural gas, Australia is heavily dependent upon imports of oil from West Asia and of refined petroleum products from Singapore. The environmental health of the Indian Ocean is also of great importance to Australia. This not only pertains to the proximate eastern Indian Ocean. The wider Indian Ocean impacted by climate change and resource exploitation will generate ever increasing requirements for HADR and burgeoning regional problems, including massive transmigration and rising law and order at sea challenges.

Australia's approach to the Indian Ocean in the past has been appropriately described as "inconsistent and often neglectful" (Weigold 2011, 33). This is changing, with Australia's natural tendency to focus eastwards and northwards towards the Pacific Ocean gradually broadening westwards. In 1987, the Australian government recognized the need to be able to sustain naval forces from both the east and west coasts when it directed development of the *HMAS Stirling* naval base (Australian Government 1987, 63). The 2009 Australian Defence white paper announced: "Over the period to 2030, the Indian Ocean will join the Pacific Ocean in terms of its centrality to our maritime strategy and defence planning" (Australian Government 2009, 37). By 2013, the Pacific and Indian Oceans were moving to being given shared strategic importance, with a focus upon a "new Indo-Pacific strategic arc" (Australian Government 2013, 7). This was followed in 2016 by the announcement that a "stable Indo-Pacific region and rules-based global order which supports Australia's interests" was a key "Strategic Defence Interest" (Australian Government 2016, 70). Australia's strategic focus extends into maritime Asia and includes the Indo-Pacific SLOCs (Cordner 2016a, 112).

After India, the Australian Defence Force (ADF) is the next most capable regional maritime security force in the Indian Ocean. It is modest in size and technologically advanced. In addition to modern surface and submarine forces, and aviation capabilities able to operate in the maritime environment, the ADF is developing a strong amphibious element. Options are provided for contributions to SLOC control, HADR and other maritime security missions.

Australia is a close ally of the United States under the ANZUS Treaty,[14] while China has become Australia's major trading partner, and trade with India is growing. There are many positive aspects to this circumstance; however, managing these relationships will continue to present difficult strategic choices for Australia. Australia also has long-standing practices of collaboration with a range of security partners, while India prefers to not join multilateral security cooperation unless clearly under the UN banner (Rumley 2013, 90–91). Closer security ties between Canberra and New Delhi have often been advocated (Brewster 2014a, 2016); however, the relationship remains distant while mostly respectful.

Australia has a strong capacity to make significant contributions to IOR maritime security risk treatments, and political will is growing in that direction. A closer partnership between Australia and India would be highly beneficial to wider IOR security. The prospects of that occurring

appear unlikely in the near term due to fundamental differences in strategic culture and outlook.

Indonesia: ASEAN's Major Power

Indonesia is the world's largest archipelagic state, with a population approaching 260 million and comprising more than 18,000 islands with 7.9 million km^2 of territory, including land, internal waters and exclusive economic zone (EEZ). It occupies a central geographical position at the confluence of the Indian and Pacific Oceans, and strategically sits astride four maritime choke points, including the vital Malacca Strait. Indonesia's geopolitical perspectives are said to have been dominated by three traits: its large maritime domain; a focus upon internal security, political and economic problems; and the influence of persistent great power rivalries due to its strategic location (Laksmana 2011, 96–97).

In maritime security terms, Indonesia presents contradictions and paradoxes. The vast maritime domain, combined with "convoluted centre-periphery relations between Jakarta and the outer islands", along with social, religious and economic diversity, is seen as presenting major vulnerabilities and weaknesses. Concerns over national unity and capacity to control this complex domain, along with suspicion towards extra-regional powers, have tended to dominate Indonesia's strategic thinking. After decades of internal stability based upon moderate Islam, with religious and ethnic tolerance, rising Islamic radicalism is of increasing concern. There exists an enduring military focus upon land forces and internal stability despite the threats and opportunities afforded by the vast maritime geography, which includes significant offshore oil and gas resources, and fisheries (Laksmana 2011, 98–110).

Maritime matters are beginning to feature more prominently in Indonesia's strategic thinking. President Joko 'Jokowi' Widodo's announced vision, in 2014, for Indonesia to become a 'Global Maritime Nexus' raised national and regional expectations (Neary 2014). However, indications are that little real progress has been made towards Indonesia becoming a regional and global maritime hub (Sambhi 2015). Related optimistic aspirations of TNI AL[15] working towards becoming a "world class navy" (Marsetio 2014, 15–17) are slow to be realized.

Indonesia, along with other developing IOR states, is exposed to risks from maritime trade disruptions, environmental degradation and climate change. Significant progress had been made over the decade from 2005

onwards in reducing piracy and armed robbery at sea in and around the Indonesian Archipelago. Collective maritime security efforts by Indonesia in collaboration with regional neighbours, primarily Singapore, Malaysia and Thailand, in the Malacca Strait (Storey 2016) have been an important factor. In 2016, increased piracy incidents were being reported, including instances of ships' crew abductions (ReCAAP 2016), indicating the reducing effectiveness of local anti-piracy efforts. Low-lying Indonesian coastal areas are highly vulnerable to extreme weather events, sea level rise and seismic disruptions.

Indonesia's capacity and political will to contribute to wider IOR maritime security risk treatment efforts remains very modest. Indonesia has limited capacity to control its immediate maritime domain and respond to HADR crises. Indonesia is more likely to be a recipient of such support from other states in the foreseeable future.

West Asia: Iran and Saudi Arabia, and Other States

The two major West Asian states, Iran and Saudi Arabia, are in many respects competitors for subregional influence and control. In what has been described as 'proxy wars', predominantly Shia Iran and mainly Sunni Saudi are involved in supporting several regional conflicts that typify the worsening Islamic schism. These include Iran's direct military support for President Bashar Al-Assad's regime in the Syrian civil war and Saudi's direct intervention in the Yemeni civil war. Iran remains fiercely independent and politically isolated, although increasingly connected to Central Asia. Iran openly aspires to be a dominant Indian Ocean power (Morady 2011, 77–89). Saudi Arabia is pro-Western, with close ties to the United States.

Both countries have large populations, significant oil-based wealth and economic interests, and significant military capabilities; they occupy strategically important geographical locations. Iran's position on the northeastern side of the Persian Gulf includes the Strait of Hormuz, which has been described as "the world's most important oil chokepoint" (McDevitt et al. 2012, 2). Iran also provides a sea access corridor for landlocked Central Asia. These factors make Iran a major strategic actor,[16] as it potentially controls access to significant global energy supplies (Morady 2011, 86–89). Saudi Arabia has huge oil reserves and occupies a central West Asian location, with access to both the North Red Sea and the Persian Gulf. Maintaining domestic stability is a major challenge for both Saudi

Arabia and Iran with their burgeoning and youthful populations; continuing to improve or at least sustain economic well-being is a core focus that underpins the survival of ruling regimes (Doyle 2012).

Iran and Saudi Arabia are major oil suppliers and thus maintenance of the IOR SLOCs is central to their interests. Major risk exposures are presented by ongoing and potentially worsening subregional conflicts, mostly involving non-state actors but also drawing in regional and extra-regional nation-states. As primarily religion-fuelled instability prevails across West Asia, and strategic competition between the two major subregional powers mounts, uncertainty rises. In addition to economic and 'access to energy' risks, there are escalating human security and law and order at sea risks from transmigration of large populations that are victims of various conflicts.

Both Iran and Saudi Arabia have small, relatively modern and capable coastal maritime forces that offer maritime security risk treatment prospects. They are likely to be able to impose effective local sea control. Iran could potentially disrupt trade in the vital Strait of Hormuz if it chose to do so for politico-strategic reasons. However, such disruptions would negatively impact the Iranian economy, along with the global economy, and would therefore unlikely be sustained; other nations would soon intervene. Saudi Arabia has a recent history of contributing to and supporting collective security operations, primarily those led by the United States, while Iran has chosen to operate independently.

Other West Asian states, including United Arab Emirates (UAE), Oman, Qatar, Bahrain, Kuwait, Jordan, Israel and Iraq, mostly have small, relatively modern, coastal maritime forces that are able to exercise local maritime security risk treatment. Yemen also has a modest local patrol capability with its navy and coast guard, although the current Yemeni civil war and internal political turmoil cast doubt on likely effectiveness.

Pakistan

Pakistan is a nuclear-armed South Asian middle power, with a Muslim-majority population of approximately 196 million. Geographically wedged in a volatile and difficult strategic location between Iran, Afghanistan and India, it is beset by political instability and uncertainty, and a declining economy with a rapidly growing population (Chowdhury 2015, 1). Much security effort is focused internally against rising Islamic extremism and terrorism.

Pakistan's geostrategic context is incredibly complex; it has been described as a "crisis-prone country … passing through a perfect storm" (Burki 2015, 1–2). The security relationship with India continues to be fraught due to ongoing tensions over the contested state of Jammu and Kashmir, allegations of Pakistan hosting state-sponsored terrorist attacks against India and Pakistan's growing relationship with China. Pakistan has developed a close association with China as a key part of the 'One Belt, One Road (OBOR)' initiative. This includes the proposed and developing China–Pakistan Economic Corridor that will reportedly "connect the port of Gwadar with the western provinces of China through road, rail and fibre-optic links" (Burki 2015, 28). China is providing significant support for modernization of the Pakistani Navy, including submarines that are potentially nuclear weapon capable, and assisting with the development of port facilities that can be accessible to the People's Liberation Army (PLA) Navy (PLAN).

Pakistan has endeavoured to maintain a positive strategic relationship with the United States and the West. Pakistan has been described in the United States as a "joiner" state. It participated in the Cold War alliance system against the Soviet Union and committed naval forces to the US-led anti-piracy coalition off Somalia (Schaffer 2014, 161). Then incoming US President Donald J. Trump was alleged to have showered glowing praise on Pakistan and its prime minister, Nawaz Sharif, during a widely reported (by Pakistan) telephone conversation on 30 December 2016.[17]

Along with endeavouring to manage a sensitive strategic balancing act between China, the United States and India, Pakistan is reported to be the target of Islamic extremists, who are seeking to "establish an Islamic State in Afghanistan and Pakistan". In addition, Al Qaeda is said to be working with "factions of the Pakistani Taliban" to create "Al Qaeda in the Indian Subcontinent (AQIS), also known as Al Qaeda in South Asia", with Pakistan and India as the main targets (Gunaratna 2015, 8).

Pakistan's IOR maritime security risk treatment prospects are mixed. Pakistan has capable maritime forces that have been successfully employed in multinational anti-piracy operations. Similarly, Pakistani naval forces joined HADR efforts (alongside India) in assisting the Maldives following the 2004 Asian tsunami. Pakistan's ongoing antipathy with India is problematic. Allegations of Pakistan supporting (or at least not stopping) the 2008 Mumbai maritime terrorism attacks, rising domestic Islamist extremism and potential for harbouring terrorists, and a demonstrated lack of ability to control maritime borders are of concern. The

potential for deploying nuclear weapons at sea would also significantly contribute to regional maritime security risks. Facilitating China's strategic engagement and maritime operations in the IOR adds to tensions with India (and potentially the United States). Further, low-lying areas of Pakistan are vulnerable to forecast sea level rise and extreme weather events.

South Africa

South Africa is the major power in Africa. It accounts for approximately 25 per cent of Africa's gross domestic product (GDP) and 33 per cent of Sub-Saharan Africa's GDP (Sendall 2016, 77; South African Government 2014, 1–3). South Africa has 3924 km of coastline and a 1,553,000 km^2 EEZ. In May 2009, South Africa tabled a claim to the UN Commission on the Limits of the Continental Shelf (CLCS) for an extension of the continental shelf. If CLCS recommends the claim for adoption, the maritime territory over which South Africa will exercise some level of state authority will extend to over 4,340,000 km^2 (South African Government 2014, 0–4 and 1–2).

In 2014, the South Africa government–initiated "Operation Phakisa (Sesotho for 'Hurry up')" focused upon "harnessing the socio-economic benefits of South Africa's vast maritime area" (Wyk 2015, 153–154). Aspirations to expand the 'blue economy' in Africa must be seen in light of the massive population growth on the continent, projected to more than double between 2010 and 2050[18] (Christie 2016, 65–70). Oil and gas production, including from exploration in new offshore fields, is also expected to increase markedly (Christie 2016, 71–72). South Africa relies heavily on maritime trade, with more than 90 per cent in volume and 80 per cent by value being transported by sea, primarily in foreign-owned and foreign-operated vessels (Potgieter 2014, 183).

South Africa's maritime security forces are modest despite extensive and growing maritime interests, the significant maritime domain and the country's important leadership role in Africa. The South African Navy (SAN) is the best equipped and most capable in the subregion. However, it is inadequate to the range of tasks. The SAN was unable to provide a contribution to the anti-piracy effort off Somalia. Instead, the SAN demonstrated its capabilities during Operation Copper, which commenced in 2011. It participated in an anti-piracy operation in collaboration with Mozambique and Tanzania (Tanzania later withdrew) in the southern

Mozambique Channel off East Africa. The SAN maintained one vessel on station, rotating a frigate, an offshore patrol vessel and a replenishment tanker (Vrey 2014, 212–215).

South Africa had been largely reliant upon the British Royal Navy for maritime defence until Britain withdrew its frigates in 1967 and cancelled a basing agreement in 1975. What followed was a series of ineffectual defence reviews and mostly failed naval procurement projects. National defence expenditure remained low, with priority on socio-economic development and internal and land border security (Potgieter 2011, 2014). The current SAN is small and comprises mainly ageing and obsolescent vessels.[19]

A 2014 Defence Review observed that "South Africa at present spends less than 1.2% of GDP on defence … The Defence Force is in a critical state of decline … at present funding levels, this decline will severely compromise and further fragment the defence capability" (South African Government 2014, ix). The Review presented a comprehensive plan to arrest the decline and, over time, rebuild a South African National Defence Force designed to meet "core defence responsibilities". Proposals for significant maritime capability enhancements are included (Christie 2016, 78–86 and 91–95). The responsible South African government minister is reported to have acknowledged defence funding as being inadequate and has "set a future target of 2.0% GDP spend on defence". She was quoted as stating: "[W]e can no longer afford to neglect the needs of our Defence Force" (Christie 2016, 77–78). The timeline of funding increases and naval procurement programmes will provide a clearer indication of the South African government's commitment.

Consistent with other East African states, South Africa's maritime security risk treatment prospects are limited. South Africa does not currently have the capacity to effectively control its maritime domain; it lacks surveillance and patrol capabilities. The SAN's capability to deal with higher-intensity conflict and to contribute forces to assist regional or subregional crises remains low.

Small and Developing IOR States' Risk Treatment Prospects

The maritime security risk treatment prospects and risk exposure/vulnerabilities of smaller and developing IOR states are briefly evaluated. A subregional grouping approach is used.

South Asia: Bangladesh and Sri Lanka

According to one observer, "Bangladesh is the most likely spot on the planet for the greatest humanitarian catastrophe in history" (Kaplan 2010, 140). Hyperbole aside, much of Bangladesh is highly vulnerable to sea level rise and other forecast effects of climate change. Bangladesh has been the recipient of non-government organization support over many years, designed to lessen this vulnerability in what has been described as "a showcase of climate adaptation projects" (Palmujoki 2010, 197–202). The politics of climate change remain complex, and exactly how the impacts will manifest is not clear. Some estimates suggest that Bangladesh will lose 17 per cent of its total land and 30 per cent of food production by 2050 (Chellaney 2010, 162). There is likely to be a massive influx of climate refugees into surrounding countries, perhaps 30–40 million people, which will present a massive regional humanitarian and political problem (Chaturvedi and Doyle 2010, 213–218). The prognoses are very challenging and, as the affected areas are largely coastal and river deltas, there will be significant maritime security risks.

Bangladesh has recently focused upon 'blue economy' prospects, particularly offshore oil and gas potential in the Bay of Bengal. Concomitantly, a concerted programme to enhance maritime security capabilities has been underway for several years. The Bangladesh Navy has upgraded and expanded its surface fleet, created a small naval aviation force and was due to take delivery of two coastal submarines from China in 2017. In addition to improving capacity for local maritime security risk treatment, particularly in the Bay of Bengal, the Bangladesh Navy is able to provide limited aid to others (Samaranayake 2016). However, if major climate change–related disasters arise (and there have already been some), massive HADR efforts will be required. Bangladesh will not be able to cope alone; regional and extra-regional assistance, probably on a vast scale, will be necessary.

Along with other Bay of Bengal states that have become known as the 'Bengal Tigers',[20] Sri Lanka has been experiencing strong economic growth, particularly following the end of its 26-year civil war with the Tamil Tigers. The possibility of developing offshore energy resources in the Bay of Bengal is central to an increasing focus on the 'blue economy' and the maritime domain (Brewster 2015a, 89–90). After periods of distant and distrustful relations, Sri Lanka is now strategically close to India and an active participant in maritime security arrangements that include the Maldives. Activities include maritime domain awareness, information

sharing and capacity building (Pattanaik 2016, 136). Sri Lanka's maritime security risks and treatment prospects are moderate.

Indian Ocean Island States

The Indian Ocean island states of Mauritius, the Seychelles, Madagascar, Comoros and the Maldives are geographically diverse, with common attributes of very large EEZs[21] in relation to small land areas and small economies. The Indian Ocean islands have major exposure to marine environmental risks exacerbated by climate change, with the low-lying Maldives facing existential risks from rising sea levels.

The idea of the 'blue economy' has been embraced by several island states, with Mauritius and the Seychelles being reported to be at the forefront (Bateman 2016, 8–9). They have been proactive in marine and maritime development. For example, Madagascar, Mauritius, the Seychelles and Comoros joined with France (the islands of Mayotte and Reunion), South Africa, Mozambique, Tanzania and Kenya in a long-term cooperative fisheries management partnership with the South Western Indian Ocean Fisheries Commission (Elst et al. 2009, 258–259). The Seychelles, as chair of the Contact Group on Piracy off the coast of Somalia in 2016, has also been active in promoting anti-piracy and in focusing attention on the scourge of illegal, unreported and unregulated (IUU) fishing in the waters off Somalia (Sakhuja 2015).

Another common attribute of the Indian Ocean islands is the very limited capacity to assert control over their maritime domains. Mauritius, the Seychelles, Madagascar and the Maldives have small maritime security forces, with the Comoros reliant upon the French Navy to perform a coast guard function (Bateman 2016, 11). France provides advice on training and security to Madagascar (formerly a French colony), while the Maldives, Mauritius and the Seychelles receive significant and increasing maritime security support from India (Berlin 2011, 13; Pattanaik 2016, 136–137).

The maritime security risk treatment prospects of the Indian Ocean island states are very limited. They will remain heavily reliant upon external support for the foreseeable future.

East Africa

The East African littoral states considered here include Mozambique, Tanzania, Kenya, Somalia and Djibouti. They share a common history of

domination by colonial powers that used the sea for access and provided maritime security without developing local capabilities (Woldeyes 2015, 123–127). African countries have been primarily land focused until recently. There are reports of a "rising maritime consciousness" with realization of the potential value of offshore mineral (including oil and gas) and fishing resources. There are also increasing maritime security threats, including piracy, maritime terrorism, smuggling, IUU fishing and other criminal activities (Vrey 2014, 208–210).

Maritime zones in the western Indian Ocean are mostly wide open to exploitation because East African states lack the resources required to enforce their maritime sovereignty. They lack the ability to provide maritime domain awareness and patrols (Potgieter 2012, 3, 9). Multinational maritime security cooperation in the subregion, for example, anti-piracy operations off Somalia, has mainly involved external maritime forces. The Djibouti Code of Conduct was implemented with the aim of enhancing and coordinating subregional anti-piracy responses; however, the chronic lack of capacity means that local efforts will remain meagre.

Djibouti rates special mention because of its strategically important location on the southwestern side of the Strait of Bab el Mandeb, which connects the Red Sea with the Gulf of Aden. Relatively politically stable, the small Djibouti economy is largely dependent upon providing military basing services to several overseas forces. These forces have long included France and more recently the United States, several European countries and Japan. In 2016, China announced that it would establish its first permanent overseas military base in Djibouti (Goche 2016). Other littoral African states that border the Red Sea, Egypt, Sudan and Eritrea, have very limited maritime security capabilities.

The maritime security risk treatment prospects of the East African littoral states remain very limited for the foreseeable future (Woldeyes 2015, 130–131). They will continue to be heavily reliant upon external maritime security assistance. Their maritime domains are prone to exploitation by external actors; piracy, sea robbery and IUU fishing will continue.

Southeast Asia

In the northeast corner of the Indian Ocean, several Southeast Asian states have vital interests in IOR maritime security. Singapore and Malaysia border one of the world's most important maritime choke points, the Malacca Strait. Singapore and Port Klang, Malaysia, are important mega ports. Both

countries are heavily dependent upon the unfettered flow of maritime trade for their economic well-being. Singapore and Malaysia, along with Indonesia and Thailand, are parties to Malacca Strait Patrols (MSP). MSP anti-piracy operations are seen as an exemplar of regional maritime security cooperation (Koh 2016). The Regional Cooperation Agreement on Combating Piracy and Armed Robbery against Ships in Asia (ReCAAP) is also credited with successfully coordinating regional counter-piracy activities.

Singapore, Malaysia and Thailand have small, capable and modern naval forces. All three countries have contributed naval forces to anti-piracy operations off Somalia as part of the US-led Combined Maritime Forces (CMF), coordinated from Bahrain, in recognition of the importance of maintaining the uninterrupted flow of maritime trade across the entire Indian Ocean. They have also provided forces in response to natural disasters that frequently beset the region.

Myanmar has a modest coastal navy, with a mix of modern and ageing technologies, mainly drawn from China, India and Russia. Myanmar has extensive low-lying coastal areas in the Irrawaddy Delta that are prone to natural disasters from extreme weather events.[22]

Southeast Asian Indian Ocean states are vulnerable to disruptions to maritime trade and also natural disasters from extreme weather and seismic events. For the most part, they offer good maritime security risk treatment capabilities. They are also able to provide moderate assistance to others in the IOR.

Major External Powers' Involvement

Major external powers have significant maritime interests in the Indian Ocean and capacity to assist maritime security risk treatments. They can also exacerbate regional maritime security concerns through rivalries that can impact the regional strategic balance. As the major regional power, India is sensitive to incursions by foreign navies into the Indian Ocean, particularly from China (Singh 2011, 242–246; Pattanaik 2016, 134–135).

France

France is both an external power and an Indian Ocean state. France's Indian Ocean territories include the inhabited islands of La Réunion and Mayotte, and the uninhabited Crozet, Kerguelen, Amsterdam and Saint-Paul Islands, plus the tiny, uninhabited Scattered Islands, Glorioso Islands,

Juan de Nova Island, Europa Island and Tromelin Island. Together, these islands have a population of around 1 million people. They generate combined EEZs of 2.7 million km^2 (greater than that of India) (Bouchard and Crumplin 2011, 163–165). France maintains a permanent Indian Ocean military presence of 4500 personnel based at Abu Dhabi in the UAE and Djibouti, in addition to small naval forces[23] based at La Réunion and Mayotte Islands. France has participated in regional cooperative activities, including IONS, and as a dialogue partner of the Indian Ocean Rim Association (French Government 2016, 12).

With the rising importance of the Indo-Pacific in the 'Asian Century', France has placed increasing strategic emphasis upon the Indian Ocean as part of its eastward-looking policy (Rogers 2013, 71–74). France has significant maritime security forces and is capable of deploying them into the region to augment locally based forces for specific maritime security missions when required. France has been a strong supporter of anti-piracy and counterterrorism operations in the Gulf of Aden and Persian Gulf regions, providing forces for the CMF and the European Union's Operation Atalanta (Saint-Mézard 2013, 58–62).

France offers strong maritime security risk treatment prospects for the IOR. In addition to asserting sovereign control over its Indian Ocean maritime jurisdictions, France has the capacity and demonstrated political will to contribute to SLOC control and HADR. France continues to seek an active role in the region as a supporter of regional cooperative regimes and in endeavouring to build strategic partnerships with India, Australia and other regional states. One of the challenges for France in the IOR and elsewhere is strategic overstretch due to its global commitments and ambitions (Saint-Mézard 2013, 62–67).

United States

The United States continues to be the world's preeminent maritime power. Since the end of the Cold War, its forces have quantitatively declined while improving qualitatively. The US 'Sea Services', the combined US Navy, Marine Corps and Coast Guard, provide comprehensive maritime security risk treatment prospects, with capabilities to conduct the full spectrum of maritime operations independently or in collaboration with others.

The United States has practised a global maritime strategy since the Second World War that has underpinned US leadership and the globalized

economy. Supporting an open economic system facilitated by freedom of maritime navigation and keeping the global maritime 'commons' open for all have been hallmarks. In 2015, the revised *A Cooperative Strategy for 21st Century Seapower* outlined the rationale for and intended employment of the Sea Services. Commitment to sea power was reiterated, along with a priority focus upon the "Indo-Asia-Pacific" (United States Navy et al. 2015, 1 and 11) in support of the Obama government's 'pivot' to Asia. A key feature of the Strategy was an intent to work ever closer with "allies and partners" to "ensure stability" through a "global network of navies concept" (United States Navy et al. 2015, i, 1–2 and 9–18).

At the time of writing in early 2017, President Donald J. Trump had just taken office. There have been mixed strategic messages that are fuelling rising global uncertainty. Trump announced that there would be protectionist measures intended to enable US industry to become competitive, including imposing large tariffs on 'economic adversaries', specifically China and Mexico (and possible others?). He signalled withdrawal of the United States from the globalized economy that it largely created. At the same time, Trump proclaimed an intent to significantly enlarge the US military, including expanding the naval fleet from less than 300 ships to 350. Withdrawing from the global economy and, at the same time, expanding naval forces that are designed to enhance the US global role are profoundly contradictory notions. It remains to be seen how the Trump 'agenda' will play out.

The United States does not have a coherent geopolitical vision of the IOR. This is exemplified by the division of responsibilities for protecting US interests in the Indian Ocean between three unified combatant commands. The US Pacific Command, US Africa Command and US Central Command boundaries converge at sea in the northwest Indian Ocean (Winner and Dombrowski 2014, 7–9; Hastings 2011, 183 and 190–192). US commitment to the 'war on terror' in West Asia is likely to continue and may ramp up under the Trump administration. However, US dependence upon West Asian oil has reduced due to increased access to domestic supplies. The imperative for the United States to support IOR energy security is declining, while the strategic stakes for China and India continue to rise (Cordner 2014a, 11–12).

Some US strategists argue that the United States should develop a coherent strategy for the IOR that focuses upon transnational security issues and therefore supports US interests (Winner 2014, 180–184). Others suggest that US interests in the IOR are likely to continue to

decline and there is no clear incentive to extend commitments, especially when there is a pressing need for fiscal restraint (Preble 2014, 67–77). The complexities of the IOR security context, combined with declining US means to meet diverse, global strategic ends, seem to support a view that the Indian Ocean may be "an ocean too far" for the United States (Yoshihara 2013, 94–96, 100–102). US maritime security risk treatment efforts in the IOR are likely to remain selective and intermittent in the foreseeable future.

China

The emerging Asian great power, China, is rapidly developing maritime security capabilities as it transitions from a local to a global maritime power. China's maritime security priorities and aspirations were clearly and concisely enunciated in the Chinese government document 'China's Military Strategy', released in 2015. It stated that "the PLA Navy (PLAN) will gradually shift its focus from 'offshore waters defense' to the combination of 'offshore waters defense' with 'open seas protection'". It highlighted "Critical Security Domains", with the observation that "[t]he traditional mentality that land outweighs sea must be abandoned, and great importance has to be attached to managing the seas and oceans and protecting maritime rights and interests". The need was identified to "develop a modern maritime military force structure commensurate with its national security and development interests … protect the security of strategic SLOCs and overseas interests, and participate in international maritime cooperation, so as to provide strategic support for building itself into a maritime power" (People's Republic of China 2015). In other words, the PLAN is to be developed to become a blue water navy capable of operating anywhere Chinese interests are at stake.

The Chinese military strategy noted that the "growth of China's national interests" meant that it is "more vulnerable to international and regional turmoil, terrorism, piracy, serious natural disasters and epidemics, and the security of overseas interests concerning energy and resources, strategic sea lines of communication (SLOCs)". China's armed forces are to continue active support for HADR and fulfil "China's international obligations … continue to carry out escort missions in the Gulf of Aden and other sea areas as required … and jointly secure international SLOCs" (People's Republic of China 2015). Ongoing viability of the Chinese state is dependent upon continued economic well-being and growth; a decline

would present existential risks for the ruling Chinese Communist Party. The Chinese economy is enormously reliant upon assured access to vast volumes of imported raw materials, particularly West Asian oil, and hydrocarbons and minerals from Africa, South Asia and Australia, that travel by sea along the Indian Ocean SLOCs.

China is highly strategically vulnerable to possible disruptions to the Indian Ocean SLOCs. These SLOCs extend for more than 4000 nautical miles, include vital international choke points (Straits of Bab el Mandeb, Hormuz and Malacca) and pass close to the Indian subcontinent. Little wonder that China is heavily investing, financially and politically, in the OBOR initiative and the Maritime Silk Road concept, including developing connections to land routes via Pakistan and Myanmar and seeking access for the PLAN to port facilities.

China is endeavouring to reduce its vulnerabilities and mitigate risks. Rather than seeking hegemony, the growing Chinese Indian Ocean presence appears to be driven by an essentially mercantilist agenda: satisfying commercial needs to support domestic requirements. The suggestion that China is competing with India for influence in the IOR has limited validity. The politico-economic imperative is the key to understanding Chinese behaviour in the IOR (Upadhyaya 2017, 2–3; Brewster 2014b, 143–146; 2015b, 49–57; Holslag 2013).

While China is unlikely to be a major security provider in the IOR, it is developing the capabilities, supported by strategic priorities and political will, to be a useful contributor to Indian Ocean maritime security (Brewster 2015b, 57). Regional states and cooperative entities need to engage China to that end.

Russia

Russia's engagement with the IOR has been described as "long, complex and often confusing". Particularly during the Soviet era, Russia sought influence in parts of Africa, West Asia and South Asia (Muraviev 2011, 214). Russia continues to be an important supplier of cheap arms to the region and has developed strong relationships in South Asia, particularly with India and also Pakistan. Russia continues to be an active promoter of its military technology and remains the biggest supplier to India's defence modernization (Muraviev 2011, 207). However, India is trying to reduce what has been described as "overdependence" upon and a "lingering legacy" with Russia (Dash 2014, 259–266 and 278). India aspires to become

self-reliant as it develops domestic defence industries and is actively seeking alternate international suppliers.

Russia contributed naval forces to operate independently in support of anti-piracy operations off Somalia. In September 2015, Russia intervened directly in the Syrian civil war in support of the Al-Assad regime; this included deploying a naval task group with an aircraft carrier in the Mediterranean Sea.

Russia is reported to be revitalizing and expanding its naval capabilities as it aspires to become a leading global maritime power again, although funding constraints may be a limiting factor (Mendiolaza and Saxon 2013). Russia has interests in the IOR and can deploy sizable maritime security risk treatment capabilities. It will likely be a selective provider of maritime security forces.

Japan

Japan is heavily reliant upon West Asian oil and other raw materials that transit the Indian Ocean SLOCs (Paiva 2011). Similar to other Northeast Asian countries, Japan's economy is extremely vulnerable to maritime trade disruptions. Japan has a formal security alliance with the United States and is enhancing strategic cooperation with other Western-aligned powers in the Indo-Pacific, particularly Australia and South Korea, as they hedge against an expansive and assertive China (Kotani 2011, 232). Japan and India have also been developing closer security ties, primarily in response to shared concerns about China (Jaishankar 2016).

Japan is becoming increasingly active in the IOR. The Japanese Maritime Self Defence Force participated in anti-piracy operations off Somalia as part of the US-led CMF and Japan opened a support base in Djibouti. Japan has sound maritime security risk treatment capabilities and has demonstrated willingness to selectively deploy forces in the Indian Ocean to support cooperative SLOC control and HADR efforts.

IOR Nation-States: Risk Treatment and Vulnerability Reduction Prospects

This brief analysis of Indian Ocean littoral nation-states and some major external states confirms the diverse nature of the regional geopolitical context. The lack of regional coherence and common identity presents significant challenges for engendering cooperative and collective

approaches to support maritime security efforts. The convergence of objectives and interests around ensuring an uninterrupted flow of maritime trade and around the impending impacts of natural and man-made disasters, exacerbated by climate change, is also highlighted.

IOR states are exposed to considerable and rising maritime security risks. Most regional and extra-regional states are vulnerable to disruptions to maritime trade that present economic and energy security risks. Most states are also vulnerable to the forecast impacts of climate change on marine and coastal environments, with some states being extremely vulnerable and likely to face existential risks. Human, food, economic and environmental crises on grand scales will overwhelm the response and recovery capacities of regional states, and externally provided HADR efforts are likely to be inadequate.

Regrettably, the overall conclusion to be drawn is that maritime security risk treatment and vulnerability prospects in the IOR will remain grossly deficient to meet mounting challenges in the foreseeable future. As assessed in Chap. 6, regional and subregional cooperative security arrangements are either poorly developed or non-existent. This circumstance presents a great opportunity for enhanced Indian Ocean regionalism. India and the regional middle powers need to recognize their shared risks and common vulnerabilities and collectively act. This requires leadership, political will, energy and cooperative approaches so far lacking. India's security leadership initiatives with its smaller subregional neighbours are steps in the right direction. However, given the interconnectedness of the maritime domain and the scale of the growing risks, much more needs to be done.

Littoral and extra-regional states with interests in the Indian Ocean need to be effectively engaged in order to keep vital maritime trade flowing and respond to the maritime security implications of environmental security crises. Nation-states remain the central actors in the international system; they need to combine and take the lead in treating maritime security risks in the IOR.

Notes

1. In India, for example, extraordinary measures are applied in order to control information and access to defence officials. Foreign defence attachés have to formally apply before they can meet with Indian military officers.
2. Krishnaswamy Subrahmanyam passed away on 2 February 2011.

3. See GoI (2013, 3–5) for bland statements: "India continues to pursue a robust defence strategy that involves both, the strengthening of its own capabilities as well as engagement in regional and global efforts to promote peace and stability"; "A secure, peaceful and prosperous neighbourhood is central to India's economic prosperity and security"; and "The Indian Ocean ... is critical to India's maritime interests and concerns."
4. Including, for example, the United States, Japan, Australia, Russia, Saudi Arabia, the Chabahar Port Project with Iran and a Border Defence Cooperation Agreement with China in October 2013.
5. This is the case in Britain, Australia, Canada and New Zealand.
6. This information was provided to the author during discussions in New Delhi, early 2014. Senior military officers are appointed to work for Deputy Secretaries, for example, but the reverse never happens. Even junior civil servants are not assigned in roles where they will be subordinate to military officers.
7. Key references to the armed forces in the Constitution of India include a statement that the President exercises "supreme command of the Defence Forces" (Article 53) and the Parliament has "exclusive powers to make laws about any matter on List I Seventh Schedule" (Article 246), which includes the "Defence of India" and naval, military and air forces. An insight into the priorities of the Constitution drafters is provided, whereby the "[p]romotion of international peace and security" (Article 51) comes after the protection of wildlife and monuments (Articles 48A and 49).
8. In line with the 'Westminster' system of government inherited by India from the British, the Secretary for Defence is a career bureaucrat, not a politician or a political appointee. He or she is very unlikely to have a military background.
9. Admiral Arun Prakash was Chief of Naval Staff of the Indian Navy and Chairman, Chiefs of Staff Committee from 31 July 2004 to 31 October 2006. He is a prolific and highly respected strategic commentator.
10. Indian military interventions include those in East Pakistan (Bangladesh) in 1971, Sri Lanka in 1987–90, the Maldives in 1988 and Nepal in 2005.
11. In January 2014, India had 7837 uniformed personnel deployed on UN peacekeeping missions. India has been a leading contributor to UN peacekeeping operations since their inception in 1950.
12. MILAN 2014 involved 17 countries and focused upon HADR training. Participating nations included Australia, Bangladesh, Cambodia, India, Indonesia, Kenya, Malaysia, the Maldives, Mauritius, Myanmar, New Zealand, the Philippines, the Seychelles, Singapore, Sri Lanka, Tanzania and Thailand.
13. Anti-piracy operations were conducted in support of UN Security Council Resolution 1816 (2008) and subsequent Resolutions.

14. See the security treaty between Australia, New Zealand and the United States (ANZUS Treaty), signed at San Francisco, 1 September 1951, and entered into force on 29 April 1952.
15. Tentara Nasional Indonesia-Angkatan Laut, that is, Indonesian Navy.
16. See Hughes (2016), which cites the Chabahar Agreement between Iran and India, which will provide India access to Afghanistan and Central Asia via the port of Kalantari in the Iranian city of Chabahar, which is located on the coast of the Gulf of Oman, thus bypassing Pakistan.
17. Many, mainly Western media outlets wrote of then president-elect Trump's reported conversation with Prime Minister Sharif in derisive terms. Trump was widely criticized as being naïvely obsequious in his praise of Pakistan and its leader.
18. See Christie (2016, 69–70). The population of the African continent is forecast to increase from "1.031 million people in 2010 to 2.393 million people in 2050 … some African countries will treble their numbers".
19. See Potgieter (2011, 2014) for detailed reviews and analyses of the history and status of the South African Navy.
20. India, Bangladesh, Myanmar and Sri Lanka experienced economic growth of around 7 per cent in 2015 and have collectively been referred to as the 'Bengal Tigers'.
21. See Bateman (2016). Madagascar, Mauritius, the Maldives and the Seychelles all have maritime zones of around 1 million km^2 or more.
22. Cyclone Nargis in 2008 reportedly caused 84,500 deaths, with 53,800 people missing and as many as 2.4 million people dislocated.
23. The French forces comprise two surveillance frigates, one light landing ship, two patrol vessels, two tactical transport aircraft and two helicopters, along with around 1900 personnel.

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CHAPTER 8

Prospects for Collective and Cooperative Maritime Security in the Indian Ocean Region

After centuries of being perceived as a strategic backwater, the Indian Ocean region (IOR) has emerged as a vital geopolitical arena in the Asian Century. The global economic and strategic balance has swung towards Asia. Focus on the Indian Ocean has magnified as India, Indonesia and other Indian Ocean states emerge, and as an increasingly powerful China looks south and west. The strategic interests and objectives of regional and extra-regional states overlap and converge at sea in the IOR. The sea is the common medium where diverse and disparate Indian Ocean actors come together. Universal maritime domain security is a common interest for multifarious Indian Ocean participants.

The Indian Ocean sea lines of communication (SLOCs) have become the world's most important, vital to global energy security and extra- and intra-regional trade. However, it is the oceanic environment impacted by climate change that generates the greatest Indian Ocean security concerns in the medium term. Profound regional challenges are portended to human, food and economic security that will have global consequences. Massive humanitarian and ecological crises will overwhelm regional adaptation and response capacities. External assistance and intervention capabilities are also likely to be exceeded with huge stressors placed upon international institutions, and political will.

Enhanced maritime security cooperation in the Indian Ocean is a rapidly emerging necessity. However, the evolving IOR security context

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presents perplexing conundrums. The vast and disaggregated maritime geography, combined with a lack of recent history or habits of cooperation, presents significant obstacles to mounting effective collective security initiatives. Many developing, and in some cases developed, Indian Ocean states lack the capacity to effectively control claimed maritime areas and meet international obligations. No regional or extra-regional nation-state or other entity has the mandate or capability to provide security for the entire Indian Ocean maritime domain. The need for comprehensive cooperative and collective maritime security is clearly evident. However, progress towards an improved, workable regional maritime security paradigm has so far proved elusive.

A proposed way ahead is to conceptualize the IOR as an integrated *maritime system* that functions as a component of and is connected to the global maritime system. The Indian Ocean maritime system can be viewed as a *virtual organization* in which the participants have *common and shared objectives*. There are numerous *common risks and shared vulnerabilities* that conspire to threaten the achievement of common objectives in the maritime domain. Understanding common objectives and recognizing mutual risks and vulnerabilities can accentuate the need for cooperative and collective risk treatment and vulnerability reduction efforts. A *risk-based approach* can present practical evidence to support arguments for enhanced regional maritime security architectures and regimes.

Risk-based approaches to developing organizational solutions at enterprise and strategic levels have long been successfully employed in the worlds of finance and industry. The need for structured approaches to understanding and treating risks was reinforced during the global financial crisis. Intergovernmental Panel on Climate Change (IPCC) considerations of environmental degradation exacerbated by climate change, resource exploitation and pollution also extensively employ the concepts and language of risk and vulnerability. Governments and their agencies, mainly in the West, increasingly utilize risk-based analyses as vehicles for developing public policies that seek to accommodate multiple and competing agendas. However, exploring risk and vulnerability, as core analytical approaches, has rarely been embraced to formulate collective and cooperative approaches to international security. In Asia, risk-based approaches tend to be less understood and applied than by Western governments and businesses. Recent work on offshore oil and gas safety and security, through the Council for Security Cooperation in the Asia Pacific

(CSCAP), confirmed rising interest in and appetite for understanding and applying risk approaches in the Indo-Pacific.

In advocating risk-based approaches, it must be recognized that no single approach is likely to be entirely successful on its own. All the options in the international relations toolkit need to be considered and selectively applied. In the complex and dynamic Indian Ocean context with its diverse geography and lack of effective regionalism, known for divisions and dissonance rather than for unity and coherence, formulating realistic, workable approaches to providing effective maritime security presents major challenges.

A central consideration in the Indian Ocean, with its dearth of mechanisms for cooperation, is how to devise non-confrontational means for highlighting common and shared concerns that can deliver mutually beneficial outcomes. Regionally relevant policy proposals are required that are likely to encourage decision-makers to act in order to enhance maritime security. Risk-based approaches offer prospects for facilitating mutually beneficial, non-provocative dialogue that can lead to action: cooperative strategies for maritime security.

Towards an Analytical Framework: Central Concepts

Risk and Vulnerability

Ulrich Beck's (1992, 1999, 2009a, b) theories about growing global risks being largely manufactured constructs resulting from man's increasing cosmopolitanism, uncontrolled technological intervention, and resource exploitation resonate strongly with the Indian Ocean context. Exploring risk, according to Beck, provides a hitherto unrequited opportunity in international affairs to understand and, in turn, commence addressing mounting and profound global uncertainties chiefly spawned by man's activities. Risks transcend national boundaries and present shared existential challenges to world society. Developing effective treatment options is beyond the purview and capacity of individual nation-states; collective action on global and regional scales involving multiple and diverse actors is required.

Theoretical treatment of risk in international studies currently lags behind its practical application across a range of circumstances in other areas of endeavour. The language of risk features prominently in IPCC considerations of climate change impacts upon the global environment,

and it is here that Beck's theories have particular resonance (Brauch 2011; Brauch and Spring 2011; Christensen and Kanikicharla 2013; Stocker et al. 2013). The environmental literature also recognizes the need to add vulnerability as a central consideration in risk contexts where likelihood and consequences are profoundly unquantifiable. In circumstances of extreme uncertainty, vulnerability considerations inform practical approaches for mitigating risks—for hedging against the undeterminable.

In the Indian Ocean, there is a growing need for multifarious regional and extra-regional actors to acknowledge common and shared objectives, understand the risks that may impede achievement of those objectives and develop strategies to treat, mitigate, accept or ignore the risks, or to reduce or adapt to vulnerabilities. So far, risk and vulnerability approaches are infrequently used in international relations. However, they offer non-threatening and non-confrontational *means* for considering common and shared security concerns, and for developing collective and cooperative *ends*.

The globalization of communication, trade, finances and education has massively impacted international security risk paradigms. A key question in risk calculation is 'so what for whom?' For example, the impacts of climate change in marine and coastal environments present risks that have different consequences for different nation-states within a region depending upon factors such as geography and the ability to adapt. How industry is affected will depend upon the nature of the enterprise. Other actors such as environmental groups, tourist organizations, coastal residents and seagoing communities will be variously impacted. Disruptions to maritime trade will pose economic and security risks, with a variety of global, regional and national consequences; impacts will differ for states, industry, shippers and other entities.

While risk and vulnerability considerations offer considerable utility in complex international contexts, there are also limitations and constraints that must be recognized. General systems and contingency theories are relevant here. There are many actors, processes, relationships and a variety of risks. Changes or events in any part of a complex system, such as the IOR maritime system, will be felt in other parts of the system. While the nature, form and overall systemic impact of risks can be agreed, consequences will differ for various actors within a system; and appetite and tolerance for risk will vary. What may present an existential risk for one actor may be simply an annoyance to another; however, risks will be shared.

Importantly, understanding risks and recognizing vulnerabilities helps identify *opportunities*. In a regional context, *understanding common risks and shared vulnerabilities*, even where the potential effects for different actors are uneven, can provide a catalyst and an impetus for *enhanced regionalism*. Risk and vulnerability considerations can change conversations in international affairs from predominately self-interest to focusing upon mutual interests. Risk (and vulnerability) approaches can provide useful frameworks that can help provide the bases for building consensus through collaborative processes.

Security

Security is a broad, nebulous concept that has generated considerable debate and produced diverse perspectives in international relations academic discourse. What should or should not be included under the banner of security is contentious. The epistemology of security has been challenged, and its ontology has expanded in line with the everyday overuse of the term. Extant theoretical treatments of security are significantly deficient because they fail to adequately address the grinding reality of a world beset by great *uncertainty* and therefore rising perceptions of *insecurity*. Security, combined with and informed by concepts of risk and vulnerability, offers a viable way forward.

Some theoretical treatments of security in Western literature suggest that it is a *manufactured concept* designed for political impact: to generate fear and uncertainty, and support aspirations for power and control by ruling elites based upon the pretence of providing security. This implies that society has latitude or at least some degree of freedom to *choose* the security circumstance, and the level and extent to which citizens need to *feel secure*. This may be the case in pluralist, developed, democratic Western societies. However, these notions fail to adequately address the physical and psychological effects of profound *insecurity* experienced in many developing world societies, particularly evident in parts of the Indian Ocean.

For individuals and populations whose daily existence is dominated by oppression, fear and hardship, *the need for security is palpably real*. While aspirations for domination, power and control remain central issues, nothing about the need for security is contrived and there exists little freedom of choice for the majority. An old axiom applies: the human condition

craves security in order for society to function effectively; without security, there is chaos, anarchy and human tragedy.

Security should be perceived as a normative construct fundamentally based upon the need for rules-based societies where the rules are democratically determined and the rule of law is applied equally to all. This notion should prevail within the sovereign boundaries of nation-states and, increasingly, internationally in a networked, globalized world. Institutions such as the United Nations (UN) and international arrangements such as the law of the sea and the numerous subordinate conventions, treaties and agreements that have maritime and marine applications become increasingly important, as do regional cooperative entities able to support local applications.

In this evolving security milieu, recently devised conceptual divisions between what does or does not qualify as a traditional or non-traditional security concern are becoming *less* relevant. In the Indian Ocean, for example, where the numbers of refugees and internally displaced persons (IDPs) are vast and increasing, whether the mass migration of people is forced or voluntary and caused by state-on-state conflict, failing or failed states, or by economic, environmental, political or religious conflicts and pressures becomes less important than the dire security outcomes that are generated. Circumstances are presented where law and order problems become endemic and transcend national boundaries. Ostensibly, traditional security problems have non-traditional security consequences and vice versa. Objective analyses of contemporary and emerging security circumstances in the IOR dictate the necessity to comprehend security as a broad, all-encompassing concept that embraces notions of comprehensive, cooperative and collective security, and includes both traditional and non-traditional aspects.

One factor that has stood the test of time is recognition of the need to understand the *context* or the *nature* of the circumstances in which security is being considered. The connection between *security* and *strategy*, in its traditionally conceived sense, also remains, with strategy fundamentally concordant with planning to provide security. Critical questions of 'from what', 'for whom', 'to what extent', 'what is to be secured' and 'how can security be provided' require answers. In considering security and strategy, clarity about the *ends* being sought and the viable, acceptable *means* that can be employed is essential to security outcomes. The nexus between and convergence of concepts of risk, vulnerability and security is apparent, although not often explicitly identified. Providing security can be

reasonably aligned with treatment options designed to address risks and vulnerabilities.

Maritime Security

The maritime domain is the major arena of common attention in the otherwise largely incoherent Indian Ocean. Providing maritime security is important to achieving the objectives and protecting the interests of numerous internal and external IOR actors, who are stakeholders in a safe and secure maritime operating environment. The Indian Ocean Rim Association (IORA), for example, has identified maritime security as the first of six priority areas for regional action, although advancement of cooperative and collective security approaches is slow and difficult, with claims of progress largely specious.

Conceptually, maritime security is defined by the need to protect the *maritime system*. The fundamentally interconnected and interdependent nature of the maritime context, including the marine environment and the broad range of maritime activities, compels a requirement for systemic factors to be understood. This also drives the need for collective and cooperative approaches and arrangements to address common and shared risks and vulnerabilities to the integrity and effective functioning of interconnected global, regional and local maritime systems. Disruptions or discontinuities of the maritime system have multifarious direct and indirect impacts. These include, for example, economic, if maritime trade is disrupted; environmental, if marine pollution, resource exploitation and climate change factors are allowed to proceed unimpeded; and social and political, if law and order at sea is not effectively maintained.

Systemic maritime security challenges transcend national boundaries into the high seas and extend beyond the geographical confines of the Indian Ocean. No single international entity, nation-state, global or regional institution has the remit, capability or capacity to impose universally effective maritime security; cooperative and collective approaches are essential. In the IOR, which harbours the *contemporary world's most important maritime trade routes*, where oceanic and coastal *environmental concerns* are emerging as the *greatest existential challenges* in the history of mankind, and conflict on land engenders *increasing law and order at sea problems*, the need for comprehensive, cooperative and collective maritime security is pressing.

Definitions

Agreeing, or at the very least acknowledging, definitions of core concepts is an essential precursor to developing cooperative activities between diverse actors with varied agendas in the Indian Ocean or elsewhere. A lexicon of commonly understood terms is necessary to facilitate constructive dialogue. Definitions of risk, vulnerability and maritime security are proposed that can be used to assist Indian Ocean regional security discourse.

An internationally accepted definition of *risk* provided by *ISO 31000:2009 Risk Management – Principles and Guidelines* (AS/NZS 2009) and related documents is adequate for the purposes of maritime security analysis. Risk is simply defined as the "effect of uncertainty on objectives" (ISO 2009, 1–2). Notably, this definition implies that there is some kind of *organization* in existence that has *objectives*, the achievement of which can be at *risk*.

There are numerous definitions of *vulnerability* to be found in international literature. Drawing upon various concepts of vulnerability, primarily those in IPCC reports, a useful definition proposed for maritime security analysis is as follows:

> Vulnerability is the state of susceptibility to harm from exposure to risks posing unquantifiable uncertainty combined with insufficient capacities to prevent, prepare, respond or adapt.

The need for an all-encompassing approach to security in the Indian Ocean maritime domain is a chronic regional issue. However, like broader notions of security, maritime security can be described as an imprecise concept with many meanings for different purposes. There is no single, internationally or regionally accepted definition, which hinders cooperative approaches (Bateman 2011). Drawing upon the analyses presented and to facilitate IOR security dialogue, the following definition is proposed:

> Maritime security is an inclusive concept that derives from the systemic nature of the maritime domain presenting multiple and inter-related requirements for security cooperation between state and non-state actors; it addresses traditional and non-traditional security challenges. Maritime security involves coordinating collective and cooperative risk mitigation and vulnerability reduction efforts in order to protect and promote national,

regional and global vital interests, objectives and core values including those relating to state sovereignty, freedom of navigation, economic development, environment and ocean resources, human and social development, and political stability.

Summary Analyses: Indian Ocean Maritime Security Risks and Vulnerabilities

The geostrategic significance of the IOR is increasing, with the ocean itself of central importance. Asia is emerging as a global economic powerhouse hugely dependent upon maritime trade for importing natural resources and exporting manufactured products. Concomitantly, the Indian Ocean has become a focal area for strategic competition among major powers, chiefly China and India, as they seek to establish regional spheres of influence and protect their interests. Seaborne trade, particularly in energy (oil, gas, coal and uranium), is essential for the globalized economy and much of it traverses the Indian Ocean. SLOC security is vital to economic and energy security, and is a major concern for regional and extra-regional actors. However, it is the forecast environmental implications of climate change on vast and vulnerable coastal populations and marine resources that present the greatest IOR security challenges in the medium term.

Developing and implementing risk treatment and vulnerability reduction strategies requires a comprehensive understanding of the context. A credible assessment of common risks and shared vulnerabilities involving multiple and diverse actors and factors is necessary. The IOR maritime security risk assessment presented in this work underscored the systemic nature of the maritime domain. The converging importance of non-traditional factors, including economic, human, energy and environmental security, along with traditional state military security issues, was demonstrated (Rumley 2013; Brauch and Spring 2011).

Analyses under the headings of international law; globalization, economy and trade; energy; social cohesion and development; state competition and potential for interstate conflict; regional security architectures; and environment and ocean resource security exacerbated by climate change identified 15 strategic objectives that are shared, to varying degrees, by the majority of Indian Ocean states, external states and other actors. The risk assessment process identified 19 generic risks to maritime security. These risks affect the achievement of strategic objectives, with complex and overlapping relationships between objectives and risks.

Factors were identified that *threaten* the achievement of organizational objectives, and importantly, *opportunities* were highlighted that can be pursued towards achieving objectives.

The interconnected, *systemic* nature of the regional and global maritime construct was emphasized. The most concerning risks to IOR maritime security in the medium-to-longer term arise from transgressions of maritime sovereignty and freedom of navigation, along with impacts upon the marine environment and ocean resources from climate change, overexploitation of resources and inadequate regulation and control.

The Indian Ocean SLOCs are vital highways for commerce essential to national, regional and global economies important to both developed and developing nations. Systemic maritime security risks are manifest if disruptions occur to any part of the vast maritime supply chains. These SLOCs span the Indian Ocean from the Suez Canal, Straits of Bab-el-Mendeb and Hormuz, and Cape Agulhas in the west to the Malacca, Sunda and Lombok Straits, and Australia to the east. Interruptions to maritime trade will have profound and multiple impacts, whether caused by non-traditional law and order infractions or traditional state conflicts. Systemic responses to treating the risks are required in order to keep vital trade flowing.

Effective management of oceanic areas within national jurisdiction and the high seas presents systemic maritime security concerns that affect multiple actors. Forecast climate change impacts for the Indian Ocean, particularly for coastal zones and low-lying islands, present existential risks that will require responses beyond the capabilities of IOR states, individually and collectively. Epic human tragedies are forecast. Transmigration on vast scales along with requirements for frequent and massive humanitarian assistance and disaster relief will exhaust and overwhelm regional capacities. External assistance and interventions are likely to be late and inadequate to the scale of the disasters. Regional cooperative efforts to prevent, respond to and recover from chronic environmental impacts and extreme weather events must be progressed. The global implications of climate change and environment, combined with the lack of capacity in many Indian Ocean states to adapt and treat the risks, underscores the need for cooperative involvement of external actors.

The possibility of conflict at sea between major powers seeking influence and to protect their interests cannot be discounted. Involvement of external powers also presents opportunities for enforcing freedom of navigation and responding to other risks, such as those arising from law and

order at sea transgressions and natural disasters. External powers have interests at stake and the capacity to provide maritime security responses; they need to be engaged.

The assertion of unreasonable sovereignty claims by some states can raise prospects of state-on-state conflict at sea, although such claims are generally being effectively managed in the IOR. The need to impose law and order at sea consistent with international regimes and norms presents common risks and aspirations. The need for collective approaches to safety at sea is also highlighted.

The importance of the United Nations Convention on the Law of the Sea (UNCLOS) in setting the governance parameters employed by the multifarious actors involved in the Indian Ocean is emphasized. The law of the sea is central to freedom of navigation, access to oceanic resources and the need to protect the marine environment. It presents a significant common medium in the IOR. The preponderance of developing states and the lack of regional cooperative institutions and maritime domain surveillance and response capacities, and therefore the ability to impose maritime security and meet UNCLOS aspirations and obligations, are highlighted. Some Indian Ocean states, for example, have lodged extended continental shelf claims with the Commission on the Limits of the Continental Shelf (CLCS),[1] yet many states lack the capacity to effectively manage existing exclusive economic zones. States are eager to pursue their perceived rights under UNCLOS, often without attendant priority placed upon meeting the obligations this entails. This circumstance presents risks and vulnerabilities to the entire IOR maritime system; the need to progress *maritime regionalism* is underscored.

The limited utility of defining precise boundaries between national, regional and global issues was highlighted in the IOR maritime security risk assessment. The risks and vulnerabilities that beset common objectives in the maritime domain often transcend jurisdictional boundaries. Collective and cooperative responses are required that involve regional and extra-regional powers.

Aspects of IOR maritime security risk and vulnerability that are particularly difficult to comprehend and portray are those arising from cumulative and aggregated impacts. They span the spectrum of international law, economy, social development, regional and extra-regional interstate competition, and environment and ocean resources, and affect traditional and non-traditional security. The longer-term consequences of compounded risks to safety, security and good order at sea are profoundly relevant to

regional oceans governance and to maritime security (Gupta 2010; Rumley 2013).

Risk Treatment Considerations and Options

Treating the risks and addressing vulnerabilities that impact Indian Ocean maritime security present complex and perplexing challenges. Among a range of specific options for action, one that stands out and applies to all the strategic objectives and risks identified is the need for and potential benefits of enhanced, comprehensive and effective regional cooperative and collective maritime security arrangements.

A Compelling Case for Regionalism in the Indian Ocean?

Dealing with maritime security in the IOR is particularly difficult because of the immaturity of *regionalism*. There is little history of regional coordination, habits of cooperation or sense of common identity. Regional security architectures are either non-existent or at a nascent stage; subregional entities are weak, dominated by traditional enmities, and rarely address security matters; local differences and conflicts abound. Many regional states lack the capacity to protect their maritime interests, let alone contribute to regional efforts, and external actors often pursue narrow self-interests.

Requirements to husband the Indian Ocean environment, protect freedom of navigation, support maritime territorial sovereignty and impose law and order at sea across the entire maritime expanse provide the primary coalescing incentives. These maritime security factors underpin the interests of all regional stakeholders, internal and external. However, processes, institutions and, in many cases, capacity are lacking. This includes the ability of key decision-makers to understand the need to treat emerging risks and reduce or adapt to vulnerabilities. A defining conundrum is as follows: what conditions are necessary to generate the kind of urgency and commitment to collective action to deal with massive security concerns caused by climate change and other issues that the risk of nuclear annihilation engendered for Western and Eastern blocs during the Cold War?

Emergent common risks and shared vulnerabilities in the maritime domain present a compelling case for IOR actors to develop cooperative and collective approaches to security. The need for maritime security, in its

many dimensions, should offer forceful motivation for collaboration among states and other entities, and provide the catalyst for advancing regional cooperation more broadly.

A significant task is to find a medium that will encourage and facilitate a common understanding of the threats and challenges that can define the foundations for collective and cooperative action. A composite risk and vulnerability framework, with widespread engagement and expert participation utilizing logical deductive processes, can assist by presenting key decision-makers with credible evidence that will compel concerted action. This includes identifying options for treating risks and reducing vulnerabilities. Comprehensive risk-based analyses involving many perspectives are required to inform and build a cumulative case for action, as has been the case with environmental challenges exacerbated by anthropogenic climate change globally.

An additional hurdle exists in the IOR. Unlike the Asia-Pacific, the Indian Ocean does not currently have a network of regional institutional arrangements necessary to build consensus and develop coordinated ways forward. The lack of mechanisms for cooperation is a major problem. However, this circumstance can also be viewed as presenting an opportunity. Experiences from the Asia-Pacific and elsewhere can be drawn upon to devise regional security architectures tailored to the unique Indian Ocean strategic context.

Regional security dialogue arrangements are required and strong leadership and political will are essential. Taken together, notions of power and guarding national interests, and the interests of multiple actors, combined with collective and cooperative approaches to mitigating risks and reducing vulnerabilities to common objectives, invoke prospects for a hybrid or composite regionalism—a form of *maritime regionalism*. However, Indian Ocean regionalism is at a nascent stage—weak and underdeveloped. In order to flourish, collective and cooperative security fundamentally needs a common perception of threat: a common 'enemy'; this compelling notion has been difficult to identify.

Globalization and the universal dependence upon maritime trade and associated global energy security, and the risks of trade being disrupted, present a pervasive need for maritime security. So far, this has not been enough to galvanize cooperative, collective regional action. Maintaining the integrity of the globalized maritime trading system provided necessary justification for commitment of multinational naval forces to deal with relatively minor disruptions caused by piracy off the Horn of Africa and in

the Malacca Strait. Action involving regional and extra-regional states was stimulated. However, responses to piracy off Somalia did not present a model of collective action. Mainly Western governments, supported by some small and medium Asian governments, worked cooperatively and committed maritime forces to coalitions operating under UN and International Maritime Organization mandates. However, several major states with significant maritime trading interests chose to operate independently, including India, China, Russia and Iran.

Environmental security concerns in the Indian Ocean resulting from resource depletion and marine pollution exacerbated by climate change present vast common risks and shared vulnerabilities—existential risks for some actors and severe consequences for others. There is a high likelihood of profoundly dire outcomes that will impact all IOR stakeholders. The *problem* is that the risks are slowly evolving and the likely outcomes difficult to determine with accuracy. The emergence of a mutual, ubiquitous threat that disparate actors from diverse ideological perspectives can agree to deal with, ironically, presents an *opportunity*. Environmental security represents the metaphoric 'other' actor that threatens everyone's interests to some extent. The 'enemy' is amorphous: a largely intangible, insidious, common threat without human form or political identity.

Political and/or religious extremism and state-on-state or internal-to-state conflicts pose rising security risks that also have maritime security consequences. Direct maritime security concerns include disruption or closure of vital seaways and attacks on maritime trade. Less direct outcomes include maritime terrorism or piracy, enhanced conditions for criminal activities to prosper due to the breakdown of civil order and the generation of massive numbers of refugees and IDPs seeking to flee by sea.

In summary, common security objectives in the maritime domain revolve around protection of the marine environment within national jurisdiction and the high seas, and associated disaster responses; freedom of navigation; and the need for law and order at sea. Law and order at sea problems are exacerbated by environmental degradation and pose human security risks that impact multifarious actors. Globalization and maritime trade attract international criminal activity, including piracy, slavery and human trafficking, illegal immigration, illegal, unreported and unregulated fishing and smuggling of drugs, weapons and wildlife (Cordner 2014). Future security in the IOR necessitates a holistic approach in the maritime domain. Connections and interrelationships between several

areas of activity need to be recognized and accommodated, for example, economic, environmental, energy, food and human security.

Maritime Security: A Driver for Regionalism

There is an urgent requirement for a separate security-focused entity in the Indian Ocean driven by the scale and scope of the maritime security challenges in the medium term. The extreme risks to the interests and objectives of regional *and* extra-regional actors, combined with the inability of many in the region to adapt and the lack of regional response and recovery capacities, present imperatives for developing cooperative arrangements. IOR security regionalism needs to evolve to protect the interests of regional and extra-regional parties. Developing a shared understanding of the risks to regional objectives, combined with aspirations for embracing international norms and the rule of law, presents the most constructive opportunity for progressing towards a holistic IOR maritime security paradigm.

Nation-states remain the central actors in the international system, and the IOR is no exception. India, the major regional power, has begun to demonstrate a more confident and assertive stance under the Modi government. India has proactively embraced the 'net security provider' tag in its immediate region. There is targeted Indian security engagement with smaller subregional neighbours, particularly the Seychelles, Mauritius, Sri Lanka, the Maldives, Bangladesh and Myanmar. Despite some rhetoric to the contrary, India has so far been reticent to provide wider IOR strategic leadership and has not effectively engaged the regional middle powers such as Australia, South Africa, Indonesia, Saudi Arabia and Iran towards greater regional security cooperation and collaboration. Strong and consistent Indian leadership is needed, particularly in the maritime domain. In order to become an effective regional leader, India needs to build trust and confidence. Regrettably, ongoing strategic ambiguity, lack of transparency and the unwillingness to commit to cooperative security partnerships has undermined India's regional leadership potential and credentials.

In a similar vein, the Indian Ocean middle powers' efforts to promote and embrace cooperative regional security leadership have been patchy and inconsistent. The need to collectively deal with the emerging maritime security risks and vulnerabilities presents a great opportunity for enhancing regionalism if the nation-states wish to embrace it. Smaller and developing Indian Ocean states also have important contributions to make. Many have limited maritime security capacities and are very

vulnerable to maritime security risks. It is in their interests to support and cooperatively contribute to regional maritime security efforts. Major external states such as China, the United States, France, Japan and Russia, along with European and Asian middle powers, also have significant stakes in effective IOR maritime security. They have interests to protect and the capacity to assist. They need to be effectively engaged by the regional states in cooperative and collective security endeavours and regimes.

There are no easy answers, no 'silver bullets' for progressing cooperative and collective approaches to maritime security in the IOR. Strong leadership and political will are required. India, as the major regional power, and medium powers such as Australia, South Africa, Indonesia, Pakistan, Saudi Arabia and Iran have so far exhibited little desire or determination to effectively cooperate in order to shape their region's destiny. Regrettably, massive loss of human life, environmental damage and economic catastrophes from frequent and prolonged disasters are the most likely scenarios, and ineffectual crises responses the most likely norm.

Maritime Security Governance Options

A vital question to be considered for the Indian Ocean is as follows: what collective and cooperative security governance mechanisms are desirable, and what is realistically achievable? A comparative analysis of security dialogue arrangements in the Indian Ocean and Asia-Pacific regions highlights the relative paucity and immaturity of IOR security architectures and dialogue forums. Although the two regions abut and overlap to a significant degree, they have different histories and different imperatives have driven the need for regional cooperation.

IORA and the Indian Ocean Naval Symposium (IONS) are a start, but both are at relatively early stages of development, and have been justifiably criticized for being inept. IORA's membership and charter are limited; IORA was specifically designed *not* to deal with controversial security matters. IONS is a dialogue forum for maritime security operational authorities, a commendable and useful initiative. It was not, however, intended to address security policy, which remains the purview of political leaders. There were suggestions in 2014 that Australia, as then chair of both IORA and IONS, should push for a formal connection between the two entities (Rumley 2015, 202). However, this did not occur; such a proposal was unlikely to receive wide support. The two entities have different purposes and memberships, and this presents practical difficulties.

Lacking in the Indian Ocean is a regional security dialogue forum where heads of government—presidents and prime ministers—regularly meet, similar to the East Asian Summit (EAS). Notably, in Jakarta in March 2017, Indonesian President Joko 'Jokowi' Widodo hosted the first IORA summit for national leaders rather than for just foreign ministers. While this initiative was observed to be raising the profile of IORA, it remains to be seen if a precedent has been set (Panda 2017). An EAS-type forum is urgently needed so that regional states, along with selected external major powers with significant interests in the IOR, can develop regular and productive high-level discourses about regional security matters, with maritime security being an obvious area of shared interest that should be at the top of the agenda.

A regional forum with a specific mandate for foreign ministers to consider security matters, along the lines of the ASEAN Regional Forum (ARF) (with its many subordinate groups), is also necessary. This forum could be derived from IORA, with an expanded charter and membership, or a separate, new entity specifically designed to consider regional strategic issues, and without the negative historical baggage of IORA. A forum for defence ministers/ national security political leaders to focus upon security policy and practical defence cooperation, similar to ASEAN-Plus Defence Ministers' Meeting, is also needed.

The most pressing and obvious regional collaborative requirement is for a security dialogue regime, with related political forums and structures, dedicated to discussing, promoting, coordinating and enacting cooperative and collective Indian Ocean maritime security. The massive forecast impacts from climate change on the maritime environment will present enormous challenges that the IOR is poorly equipped to address. Much greater attention needs to be paid to oceans governance and maritime security governance, underscored by rising interest in the 'Blue Economy' (Bateman 2016, 18–20). The growing realization of the importance of the Indian Ocean maritime domain to the common interests and objectives of regional and extra-regional actors should be the driving motivation. Understanding the communal need to address common risks and shared vulnerabilities provides a catalyst.

Rumley (2015, 185, 195–197 and 200–202) proposed an "Indian Ocean Maritime Security Regime (IOMSR)". He suggested that an IOMSR would need to be an inclusive entity that seeks to accommodate internal and external Indian Ocean stakeholders; this notion has merit and requires further investigation. Such a regime might begin as a dialogue

forum, but would need to quickly progress to a practical regional cooperative action entity. This would require strong and focused political leadership, along with commitment of significant resources. In addition to funding for administration, policy coordination, research and the like, commitment of maritime security forces would be required, including fusion and integration of IOR maritime domain awareness, information and intelligence. A genuine Indian Ocean regional maritime security regime would require cooperative policies and intent, and should have collaborative 'teeth' to act.

The highest initial, short-term priority is to create a regional Track 2/Track 1.5 entity similar to CSCAP. The primary focus would be on researching and developing policy proposals for enhanced regional maritime security. The research subject areas of the current Indian Ocean Rim Academic Group are too broad and its membership too narrow to effectively deal with security matters, and in line with IORA, it does not have a mandate to do so. The Indian Ocean Research Group (IORG) could provide the basis for developing a CSCAP-like Track 2 dialogue and research forum. However, IORG currently lacks resources and, although it has observer status with IORA, there is no tangible political or financial support from IORA member states. A separate, new and purpose-designed maritime security forum needs to be created.

Establishing a viable, well-resourced IOR Track 2 strategic security dialogue and policy research body, modelled along the lines of CSCAP, would help put a coordinated spotlight on security matters, provide a forum for considering sensitive and controversial issues that national political leaders are unwilling or unable to discuss, and explore policy options for enhancing regional security cooperation. The first task should be to conduct a formal, appropriately resourced IOR maritime security risk and vulnerability assessment. Developing proposals for creating political-level regional security dialogue forums should be a priority. The proposed Track 2 forum needs Track 1/1.5 political decision-makers' forums to work with—the evolving relationship between CSCAP and ARF could be an exemplar.

Priorities for Further Research

The profile of the Indian Ocean as a region of significant global interest has been heightened in recent years. Despite the growing importance, IOR marine domains and maritime matters remain under-researched. IORA has listed maritime safety and security as the first of its six priority

areas, and the recent 'Blue Economy' Declaration should add further weight to the need to build comprehensive knowledge bases to underpin maritime security and other oceanic policy development.

Subregional and narrow or specific discipline research approaches can make important contributions to knowledge. However, the complex connectivity between diverse and disparate common and shared regional factors needs to be better understood. It is here that policy researchers, drawing upon contributions from many fields, including science, economics, environment, sociology, politics and security, can help to build a composite picture of the challenges that require enhanced regional cooperative and collective responses in the future.

Further policy research is required that looks at the interrelationships, connections and overlaps of maritime security–related outcomes resulting from diverse factors in a multilateral, region-wide context that involves the objectives of regional and extra-regional actors. The convergences and interfaces between geoeconomic factors and geoenvironmental issues in the emerging and evolving IOR geostrategic context, with that context itself requiring investigation, as they combine to impact region-wide maritime security require considerably greater multidisciplinary and multinational efforts.

The nexus between maritime security and oceans policy and oceans governance requires further research. Similarly, the nexus between maritime security and trade and economic development, along with environmental and sociological factors, needs to be better understood. Issues such as energy security and the relationships with environmental, economic and human security as they impact upon maritime security need to be further explored. Complex governance architecture options need to be explored and developed that take account of the multiple strata of actors that are involved, or should be involved, in governance. These actors include nation-states, regional cooperative entities, international organizations, NGOs, multinational corporations and individuals.

Comprehensive, aggregated and integrated approaches to oceans governance are not generally implemented in areas within national jurisdiction in the IOR, and efforts to promote integrated oceans governance in the high seas are at an embryonic stage. There is much scope for further *policy research* that explores connections between oceans governance and maritime security in the Indian Ocean.

The interests and objectives of many and varied actors converge in the Indian Ocean maritime domain. Providing effective maritime security

presents, or should present, a major shared aspiration. The emerging maritime security context should present a compelling case for enhanced Indian Ocean regionalism, with collective maritime security cooperation at its core. Further research is required that assists policy developers and key decision-makers to understand the circumstances and implications, postulate policy options and their potential utility. The requirement for concerted action exists—it just needs to be explicitly and lucidly articulated.

Specific factors and areas of research that require greater attention include exploring regionalism options for the Indian Ocean. This should involve investigating the efficacy of potential regional dialogue forums, with a focus upon strategy and security, and particularly maritime security as a major area of common interest. A fulsome examination could usefully look at existing regional and subregional arrangements and their effectiveness, regional security dialogue and cooperative entities in other regions to derive lessons for the IOR, and the unique and peculiar circumstances, with a view to developing proposals for maritime-focused regionalism.

Other specific maritime security–related policy matters that require further research include understanding what maritime security really means for different actors in the Indian Ocean context. The effectiveness of current maritime domain awareness needs to be fully understood, compared with what is necessary, in a region-wide cooperative sense, to provide a reasonable level of domain visibility to underpin regional cooperative and collective maritime security efforts. Related matters that need to be further studied include regional maritime and coastal/island state disaster prevention, response and recovery, and safety at sea arrangements. IOR states have obligations under international conventions to cooperate in imposing law and order at sea against issues such as piracy, slavery and other illegal activities, along with safety at sea; at this stage, these obligations are often not being met.

Regional maritime security–related needs, strengths and weaknesses, compared with available maritime security capabilities and capacities, require much more research. Allegations of suboptimal maritime surveillance, reconnaissance and intelligence or information sharing are often made. However, aspects such as what is really needed in a holistic regional context and what is actually available, and what impediments exist to cooperative efforts require more investigation.

In line with Blue Economy initiatives, the relationships between oceanic resources, including on and below the seabed, and in and above the water column, and the natural environment, need to be comprehensively researched. Scientific research will better inform technical knowledge of the seabed and the water column for areas within national jurisdiction and the high seas.

The population of the IOR is projected to increase significantly fuelled by the rapid rise of Africa and South Asia. By 2050, almost half of the global population will live around the Indian Ocean. Improved scientific knowledge needs to be considered in the context of these and other human factors, and the emerging IOR political economy in order to develop policy proposals and frameworks for the future.

The outcomes of policy research can be instrumental in promoting an understanding of the challenges and offering policy options. Risk and vulnerability approaches and frameworks offer avenues and processes for developing a common understanding and informing perspectives on interrelated issues. Developing clarity and agreement upon common and shared regional objectives utilizing the risk context approach, as proposed, would be an important first step. Although it has taken many years, while operating in an international context of suspicion and denial, the cumulative and aggregated efforts of the IPCC are beginning to make persuasive headway in difficult international environmental debates.[2] Similar integrated and coordinated research approaches that focus upon IOR maritime issues, risks and vulnerabilities are necessary.

Public and international policy will always demand compromises and trade-offs between competing agendas. Analyses of complex policy matters require both quantitative and qualitative assessments; risk- and vulnerability-based approaches can provide decision-makers with a methodology for making comparative priority judgements, including costs versus benefits of various options. Decision-makers and leaders, particularly those who rely upon societal support in democracies, need to be provided with clearly enunciated and evaluated policy options, underpinned by evidence.

There is a great need for individual researchers to explore specific aspects of IOR maritime security. There is an even greater need for integrated and holistic research that draws together the outcomes of specific and specialists' research to formulate strategic, related and connected

implications and options for the future. *A major, overarching research project and agenda, with numerous supporting and inputting research projects, is necessary to support regional maritime security.* The research agenda should preferably be coordinated under the auspices of a regional entity, perhaps a Track 2 arrangement similar to CSCAP.

Developing comprehensive and credible understandings of the emerging and evolving risks and vulnerabilities to common and shared maritime security objectives and interests has the potential to coalesce the disparate, diverse and increasingly important IOR. Researching Indian Ocean maritime security risks and vulnerabilities has the potential to create opportunities for enhanced regionalism.

The Need for Action

How to persuade regional and extra-regional political and other key leaders to deal with the massive IOR security challenges emerging in the medium term is a particularly vexed question. The diversity of the Indian Ocean sociopolitical environment presents enormous challenges: different ideologies, various stages of economic development, variable and often inadequate capacity, and the immediacy of short-term, local concerns. Creating a shared understanding of the gravity and extent of the security context is an essential prerequisite to galvanizing cooperative, collective action.

The peculiar IOR political composition means that unique, regionally relevant approaches must be developed. Lessons can be derived from arrangements elsewhere, such as the Asia-Pacific; however, the distinctive Indian Ocean geopolitical context requires tailored solutions. Major challenges are presented by the lack of regional great powers or a regional coalescing entity, such as Association for Southeast Asian Nations (ASEAN), that can provide leadership. In the Asia-Pacific, for example, the United States and China have, on occasion, jointly provided constructive leadership.[3] Great powers can also dominate, bully and exhibit intransigence, for example, China's stance with the ASEAN states and others on the SCS '9 dashed line' and so on.

India is gradually moving to accept the mantle and provide leadership as the major Indian Ocean power. However, India is beset with structural divisions in its politico–civil–military complex, and there are huge domestic challenges. India's regional leadership aspirations are not universally accepted by other regional states.

In the IOR geopolitical context, the middle powers need to become far more proactive in providing regional leadership. This means that they will need to set aside local and subregional differences in order to *work closely together*, and with India and the major external powers, to build consensus and develop collective and cooperative security mechanisms.

There are some positive signs of changing regional dynamics based around maritime and marine matters. For example, one of the first major international policy announcements by Indonesian President Joko 'Jokowi' Widodo, presented at the EAS in November 2014, was a new "maritime doctrine" that sees "Indonesia as a maritime fulcrum, the power between two oceans", with "opportunities for Indonesia to develop regional and international cooperation for the prosperity of the people" (Witular 2014). IORA endorsed the concept of a "Blue Economy" in 2014 (IORA 2014a, b), and prospects for an enhanced 'Blue Economy' for Pakistan are being advocated (Humayun and Zafar 2014), although India is reported to be slow to place real policy emphasis upon oceanic development and security (Sakhuja 2014a, b).

However, exactly what is meant by the term 'Blue Economy' in the IORA context is unclear. The IORA 2014 Economic Declaration stated (IORA 2014b): "The blue economy – marine economic activity including fishing, renewable energy, mineral exploration and coastal tourism – is emerging as a common source of growth, innovation and job creation for the Indian Ocean region." This implied a fundamentally economic resource development focus on oceanic activities without explicitly recognizing the nexus with maritime security, a vital enabler to economic activity. Notably, the greatest area of maritime economic activity, maritime trade, was not specifically mentioned in the Declaration, although "[e]xpansion of trade … (to) stimulate growth and improve our food and energy security" was mentioned in the separate IORA Perth Communiqué (IORA 2014a). The other glaring omission is a lack of stated connection between economic and environmental security.

The connections between security, economy and environment are profoundly evident in the maritime domain. They need to be explicitly addressed in regional strategic discourses; significant economic progress will not be realized unless related security and environmental risks and vulnerabilities are addressed, and vice versa. Compartmentalized approaches to regional economic, environment and security development are short-sighted and unsound; they are likely to exacerbate, rather than mitigate, risks.

Until Indian Ocean governments and regional entities, such as IORA, make explicit strategic connections between security, economy and environment, and other factors such as social development and political stability, progress will be aspirational and specious. Policy development and research activities need to be directed towards encouraging those connections; otherwise, the 'Blue Economy' approach will lack substance. The reality remains: Indian Ocean states are yet to comprehensively embrace regional maritime security challenges.

A core, initial objective for enhancing maritime security in the IOR should be to commission a sophisticated and appropriately resourced maritime security risk analysis. A cooperative research project utilizing an approach that elicits, collates, synthesizes, assesses and analyses, with inputs from many sources and involving many experts, would provide decision-makers with evidence and policy options. An approach similar to that taken by the IPCC with regard to climate change, with a focus upon Indian Ocean maritime issues, security policies and strategies, would inform collective and cooperative maritime security discourses.

There is a pressing need for progress—for concerted and decisive action. Procrastination will exacerbate risks, deepen vulnerabilities and likely result in a succession of unmitigated and uncontrolled disasters with cumulative and aggregated consequences beyond current experience on scales difficult to envision. Regional capacities to respond will be quickly and completely overwhelmed. There will be economic hardship and failure, environmental degradation and resource depletion, breakdown of law and order at sea, and human misery on massive scales.

Urgent action is required to address maritime security risks and vulnerabilities that affect common and shared regional objectives in the Indian Ocean. Developing a comprehensive understanding of emergent maritime security risks and vulnerabilities presents a constructive way forward. Credible risk assessments can provide compelling bases for cooperative, collective regional action plans: strategies to treat risks and reduce vulnerabilities. A secure regional maritime domain is required to enable opportunities to be fully realized. The approaches and frameworks advocated here need to be embraced and implemented: establishing a cooperative and collective Indian Ocean regional maritime security architecture requires early and serious attention. The idea of a shared destiny in the Indian Ocean and the need to put aside traditional enmities to deal with existential risks to humanity should compel decision-makers to act.

Notes

1. See http://www.un.org/depts/los/clcs_new/commission_submissions.htm, accessed 8 March 2015. On 17 December 2014, there were numerous CLCS submissions from IOR states awaiting consideration.
2. At least until the Trump administration came to power in the United States. The future of the global response to climate change now looks less certain—the risks have increased.
3. On the margins of the 2014 EAS (EAS 2014) and the 2014 Asia-Pacific Economic Cooperation meeting, significant joint US- and China-supported announcements on global climate change were made. Although, in 2017, the Trump administration has announced that it will reverse its support for global action on climate change.

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Appendix: IOR Littoral States and Significant External States—Accession and Ratification of Key Maritime Treaties

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Grouping	*State*	*UNCLOS 1982*[a]	*SOLAS 1974*[b]	*Search and Rescue 1979*[b]	*London Convention 1972*[b]	*London Protocol 1996*[b]	*SUA 1988*[b]	*SUA Protocol 1988*[b]	*OPRC 1990*[b]	*UN Fish Stocks Agreement 1993–95*[a]
IORA members	Australia	1994	1983	1983	1985	2000	1993	1993	1992	1999
	Bangladesh	2001	1981	2011			2005	2005	2004	2012
	Comoros	1994	2000				2008	2008	2000	
	India	1995	1976	2001			1999	1999	1997	2003
	Indonesia	1986	1981	2012						2009
	Iran	[c]	1994	1995	1997		2009	2009	1998	1998
	Kenya	1989	1999	1992	1976	2008	2002	2002	1999	2004
	Madagascar	2001	1996				2006	2006	2002	
	Malaysia	1996	1983						1997	
	Mauritius	1994	1988	1999			2004	2004	1999	
	Mozambique	1997	1996	1996			2003	2003	2005	2008
	Oman	1989	1985	1993	1984		1990	1990	2008	2008
	Seychelles	1991	1988	2010	1984		1989	1989	2002	1998
	Singapore	1994	1981	1997			2004		1999	
	South Africa	1997	1980	1987	1978	1998	2005	2005	2008	2003
	Sri Lanka	1994	1983				2000			1996
	Tanzania	1985		2006	2008				2006	
	Thailand	2011	1984						2000	
	UAE	[c]	1983	1993	1974		2005	2005		
	Yemen	1987	1979			2011	2000	2000	2013	
IORA dialogue partners	China	1996	1978	1985	1985	2006	1991	1991	1998	
	Egypt	1983	1981		1992	2004	1993	1993	1992	
	France	1996	1987	1990	1977	2004	1991	1991	1992	2003
	Japan	1996	1980	1985	1980	2007	1998	1998	1995	2006
	UK	1997	1977	1980	1975	1998	1991	1991	1997	2001/2003
	USA		1978	1980	1974		1994	1994	1992	1996

(*continued*)

(continued)

Grouping	*State*	*UNCLOS 1982*[a]	*SOLAS 1974*[b]	*Search and Rescue 1979*[b]	*London Convention 1972*[b]	*London Protocol 1996*[b]	*SUA 1988*[b]	*SUA Protocol 1988*[b]	*OPRC 1990*[b]	*UN Fish Stocks Agreement 1993–95*[a]
Other IOR littoral states	Bahrain	1985	1985				2005	2005		
	Myanmar	1996	1987				2003	2003		
	Djibouti	1991	1984				2004	2004	1998	
	Eritrea		1996							
	Iraq	1985	1990							
	Israel		1979				2009	2009	1999	
	Jordan	1995	1985	2006	1974		2004	2004		
	Kuwait	1986	1979				2005	2003		
	Maldives	2000	1981							1998
	Pakistan	1997	1985	1985	1995		2000	2000	1993	
	Qatar	2002	1980	2009			2003	2003	2007	
	Saudi Arabia	1996	1985	2006		2006	2006	2006	2009	
	Somalia	1989								
	Sudan	1985	1990				2000	2000		
	Timor-Leste	2013								

(*continued*)

(continued)

Grouping	*State*	*UNCLOS 1982*[a]	*SOLAS 1974*[b]	*Search and Rescue 1979*[b]	*London Convention 1972*[b]	*London Protocol 1996*[b]	*SUA 1988*[b]	*SUA Protocol 1988*[b]	*OPRC 1990*[b]	*UN Fish Stocks Agreement 1993–95*[a]
Other states	Republic of Korea	1996	1980	1995	1993	2009	2003	2003	1999	2008
	Russia	1997	1980	1988	1975		2001	2001	2009	1997

UNCLOS United Nations Convention on the Law of the Sea

SOLAS International Convention for the Safety of Life at Sea

SUA Convention for the Suppression of Unlawful Acts Against the Safety of Maritime Navigation

OPRC International Convention on Oil Pollution Preparedness, Response and Co-operation

IORA Indian Ocean Rim Association

[a]United Nations Division for Ocean Affairs and the Law of the Sea. Chronological lists of ratifications, accessions and successions to the Convention and related Agreements, 20 September 2013.

[b]International Maritime Organization (IMO). Status of multilateral Conventions and instruments in respect of which the IMO or its Secretary-General performs depositary or other functions, 30 September 2013.

[c]Iran and the UAE (United Arab Emirates) signed UNCLOS in December 1982 but have not yet ratified.

Glossary

Actors Individuals or organizations that play a direct role in the conduct of world politics

Aggregated risks Risks that combine and grow incrementally. Involve combined risk management challenges often at national and organizational levels. Evaluations of aggregated and accumulated risks at larger organizational levels that involve complex interactions require access to good data and the application of experienced judgement employing a largely qualitative approach

Architecture Formal structures and arrangements in international relations

Blue economy An imprecisely defined term that generally refers to the use of the sea and its resources for sustainable economic development. The United Nations Environment Programme describes the blue economy as an innovative approach to conserving the oceans, while reaping their benefits in a more equitable and sustainable way

Choke point A strategically important narrow maritime route providing passage through or to another region or area of sea

Coastal zone The band of dry land and adjacent ocean space (water and submerged land) in which terrestrial processes and land uses directly affect oceanic processes and uses, and vice versa

Collective security Security arrangements where a group of countries pledge joint action to deal with threats to their economic or territorial sovereignty. The term was enshrined in the Covenant of the League of

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Nations (Article 16) and the Charter of the United Nations (Articles 1 and 43), and underpins the bases for United Nations Security Council–sanctioned actions and some regional security arrangements

Cooperative security Processes for proactively dealing with the prevention of multidimensional threats from arising through harmonizing and synchronizing efforts and better understanding problems. It is a gradualist approach to developing multilateral security structures and dialogues based upon traditional bilateral approaches. It is based on the ideal that providing security should include as many relevant actors as possible, while acknowledging the primacy of state interests and building upon regional stability provided by existing bilateral alliances

Cumulative risks Risks that combine and magnify due to accumulative factors, which often appear to be discrete and diverse but in fact impact on each other. Involve combined risk management challenges, often at national and organizational levels. Evaluations of aggregated and accumulated risks at larger organizational levels that involve complex interactions require access to good data and the application of experienced judgement employing a largely qualitative approach

Failed state A nation-state where political control has disintegrated to a point where basic conditions and responsibilities of a sovereign government no longer function

Freedom of navigation Free use of the seas for the passage or transit of shipping

Geopolitical The effects of geography (human and physical) on international politics and international relations

Geostrategic Relating to strategy required in dealing with geopolitical issues, where strategy is intertwined with geography

Globalization A process of interaction and integration among people, governments and industries of different nations. It includes economic, environmental, security, knowledge and information, and communication

Global maritime system Functioning of the world's interconnected oceans and seas. Includes maritime trade and facilities, marine resources, oceanic areas and oceanic environment, and encompasses economic, environmental, human, energy, industry and security factors

Indo-Pacific The wider Indian and Pacific Ocean maritime strategic system that encompasses the trade routes and sea lanes, and maritime facilities and marine zones

Internally displaced persons (IDPs) People within the boundaries of a state forcibly displaced by political violence and civil war; religious, racial and ethnic intolerance and discrimination; economic and environmental disadvantage; and/or natural/man-made disasters

International straits Maritime straits that are used for international navigation between one part of the high seas or an exclusive economic zone and another part

Law and order at sea Actions to deal with criminal matters at sea, including piracy; smuggling of people, drugs and arms; illegal, unregulated and unreported fishing; illegal immigration; and marine pollution and dumping at sea

Maritime boundary delimitation Process of defining maritime boundaries between states

Maritime commons Areas of the world's oceans and seas that are beyond national jurisdiction. Often referred to as the common heritage of mankind, where use and exploitation of resources shall be carried out for the benefit of all mankind

Maritime power projection The application of military force from the sea. It can take the form of amphibious or Special Forces landings or the delivery of naval bombardment, guided or unguided weapons, and military aircraft from seaborne platforms

Maritime security An inclusive concept that derives from the systemic nature of the maritime domain presenting multiple and interrelated requirements for security cooperation between state and non-state actors; it addresses traditional and non-traditional security challenges. Maritime security involves coordinating collective and cooperative risk mitigation and vulnerability reduction efforts in order to protect and promote national, regional and global vital interests, objectives and core values, including those relating to state sovereignty, freedom of navigation, economic development, environment and ocean resources, human and social development, and political stability

Middle power In international relations, a middle power is a sovereign state that is not a superpower or a great power but still has significant influence and international recognition

Nation-state A sovereign political entity that includes territory, population, organization and recognition, and whose population identifies with that entity

Non-traditional security Challenges to survival and well-being of peoples and states that arise primarily from non-military sources and include

such matters as transnational crime, piracy and sea robbery, terrorism, natural and man-made disasters, information and cybercrime; and climate change, resource exploitation and marine pollution

Regionalism The expression of a common sense of identity and purpose, combined with the creation and implementation of functionally focused state-led institutions that express a particular identity and shape collective action within an international geographical region

Regional security architecture Formal structures and arrangements within a geographical region designed to address security challenges

Risk The effects of uncertainty on the achievement of objectives

Risk criteria A framework for expressing comparative assessments of the impacts of specific risks. It involves consideration of the likelihood of a risk arising and the consequences to an organization in order to determine the overall level of the risk

Sea assertion Asserting control or dominance of an area of sea for a period of time

Sea control The ability to control an area of sea for a period of time in order to permit freedom of action and use for one's own purposes

Sea denial Denying an adversary the use of an area of sea for a period of time

Sea lines of communication (SLOCs) The shortest navigable routes followed by shipping from their points of departure to their destinations. Also refers to the major commercial shipping passages of the world

Sea power The means by which a nation extends its military power to sea to achieve national ends. It includes a nation's capacity to use the seas as it wishes and consists of maritime combat capabilities, commercial shipping, personnel, industry and access to basesTrack 1, Track 2 and Track 1.5. In international affairs, Track 1 is a generic term used to describe entities, forums or dialogue that predominantly involves government ministers and officials dealing with the official business of governments. Track 2 refers to entities, forums and meetings involving academics and former government officials conducting dialogue in an unofficial capacity, able to offer alternate perspectives and deal with issues that may be too politically sensitive to consider in Track 1 forums. Track 1.5 events and entities involve government ministers and officials along with academics and former officials

Traditional security 'Nation-state on nation-state' security issues, conflicts and wars

Vulnerability The state of susceptibility to harm from exposure to risks posing unquantifiable uncertainty, combined with insufficient capacities to prevent, prepare, respond or adapt

Weapons of mass destruction (WMDs) Weapons with the capacity to inflict indiscriminate death and destruction on massive scales. Their presence in the hands of a hostile entity can be considered a grievous threat. Weapons of mass destruction are nuclear, biological or chemical in nature

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[1] Note: Page numbers followed by "n" refer to notes

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