Chapter 6
Maritime Security: Adapting for Mid-century Challenges

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Abstract Maritime security can be expected to continue to develop and mature global and regional objectives and is a critical component to advance many of the United Nations (UN) Sustainable Development Goals (SDGs) for 2030. However, there are unknowns, impossible to properly prioritise in advance, that will surely appear. The Covid-19 impact on the maritime industry and broader global economy, at the time of this writing in 2020, is stark and omnipresent. Historically, geopolitics has been a major game changer, but in absence of an outright war, there has been a strong continuing trend to harmonise maritime security in international waters for well over a century. Climate change over the next 30 years may open new routes in previously ice-bound waters. Developments in new energy, mineral and other extractive industries in previously undeveloped regions are expected to drive new offshore and transit corridors bringing greater environmental risk, especially oil spill and emergency response challenges to regions sparse in infrastructure and response resources, such as the Arctic and the Antarctic littorals. The pace of this change, however, will most likely continue to be driven by market forces, often non-linear—which will challenge planners. Husbanding sufficient human and economic capital in reserve is prudent. Strategic thinkers on maritime security objectives should embrace the multi-causality of global challenges and remain nimble enough not to be entrapped by their assumptions.

Keywords Maritime security · Hard power · Soft power · Climate change · Multi-causality · Scenario planning

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1 Introduction

Maritime security will benefit from consistent and sustained collaboration within international structures and forums to advance its planning objectives and mature its institutions. This is the assumption, if not the isolated and pristine-dependent variable, "strategic planners" must embrace to advance the United Nations (UN) Sustainable Development Goals (SDG) for 2030 and is the expectation. However, there are unknowns. Though perhaps too conveniently timely and, therefore, with a potential for distorted context, the shock of the Covid-19 pandemic is an all too obvious example. Historically, geopolitics has perhaps most consistently been a major game changer, but in the absence of outright war among major military and commercial powers, there has been a strong continuing trend to harmonise maritime security in international waters by a very broad collaboration of nations, many in no way otherwise aligned, for example, counter piracy off the Horn of Africa. Climate change over the next 30 years may open new routes in previously ice-bound waters, especially in Arctic Eurasia, though Antarctic waters may also begin to see significant new regulatory and enforcement challenges. Developments in new energy, and mineral and other extractive industries in previously undeveloped regions are expected to drive new offshore and transit corridors bringing greater environmental risk, especially oil spill and emergency response challenges to regions sparse in infrastructure and response resources, such as the Arctic littoral and the Antarctic and sub-Antarctic. The pace of this change, however, will most likely continue to be driven by market forces, often non-linear—which will challenge planners. This chapter will delineate current maritime security strategic thinking and emphasise the multi-causality of global changes, with a focus on the viability and certitude of assumptions.

2 Collaborative Maritime Security

Collaborative maritime security is supported by a framework of international law with institutional guidance from the UN and its affiliated institutions, most specifically the International Maritime Organization (IMO). Regional organisations also play a very substantial role and include the Arctic Council, Nordic Council and the European Union (EU) in their respective, often overlapping, geographic regions. Collaborative "hard" vs. "soft" security is generally an exercise by States of unilateral naval power. There are, however, significant contributions by navies to support soft security functions, such as policing, safety and environmental law enforcement—unilaterally, within formal alliances, as well as more hoc or temporal cooperation.

2.1 United Nations Sustainable Development Goals for 2030

The focus of this chapter is on strategic planning for "global" maritime security, which has an objective outside, though hopefully generally parallel with, specific State or regional intra-governmental goal. It is illustrative to note the high number of the 17 UN SDGs (drafted in 2015) for 2030, which rely significantly and clearly on a secure maritime sector for advancement, especially SDG 6 Clear Water and Sanitation, SDG 7 Affordable and Clean Energy, SDG 8 Economic Growth and Decent Work, SDG 9 Industry, Innovation and Infrastructure, SDG Sustainable Cities and Communities, SDG 13 Climate Action and SDG 14 Life Below Water (plastic refuse) (UNEP 2015). It is also worth noting early that there is inherent friction in meeting these objectives as implementing policies that are not foundationally mutually supportive. Affordable energy, economic growth and policies to reduce greenhouse gases (GHGs) do not leap together into effective synergistic policies but are likely to require a very complex, coordinated and sustained effort.

2.2 Maritime Security and the International Regulatory Governance

The following major international shipping conventions, adopted by the IMO,[1] reinforced by sovereign domestic laws, impact primarily "soft" security and by charter and design must take into account the interests of 173 member countries (and the Cook Islands) (European Union 2020).

- International Convention for the Safety of Life at Sea (SOLAS) sets safety standards for ships.
- International Convention for the Prevention of Pollution from Ships (MARPOL) sets international standards to prevent ship-borne pollution.
- From a security perspective, the United Nations Convention on the Law of the Sea (UNCLOS) in which 167 countries have joined has gone a long way to codifying international common law. Its most noteworthy exception, the US, which has not ratified it, nonetheless generally abides by its provisions, and its ratification is supported by both the US Navy and Coast Guard.
- Convention on the International Regulations for Preventing Collisions at Sea (COLREGS) standardises rights of way.
- The International Ship and Port Facility Security Code (ISPS) provides the security regulations for ships and ports (post 911 guidance and standardisation effort).
- International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) provides a standard for maritime training.

[1] For a more detailed examination of the various Conventions mentioned see the chapter by Christodoulou and Dalgård which appears as Chap. 20 in this volume.

2.3 Collaborative Hard Security

In general, by definition, "security" in the context of international maritime collaboration implies "soft" security, or more specifically, a compliance or enforcement regime based on specific international law in parallel, most often by "domestic legal" enforcement by sovereign nations. Hard security by contrast refers to naval combat, or more often posturing, a very different set of parameters and one more often governed by unilateral or alliance-fettered objectives.

This is not always the case, however, as demonstrated by the multi-layered response to pirate activity off the coast of Somalia in the last dozen years, for example. In that sizable and highly significant action alliances, coalitions and unilateral sovereign state navies have cooperated and at times collaborated in and out of structured security parameters.

At most, these actions are tactical (reactional and incident driven) and, at best, only approach operational levels of planning such as at the counter piracy Shared Awareness and Deconfliction (SHADE) meetings in Bahrain (Combined Maritime Forces 2020).[2] In fact, the enabler of these multifaceted maritime coordinated actions in the Gulf of Aden and in the Indian Ocean is the absence of an articulated or even "implied" holistic strategy (Iran, Pakistan, China, NATO, the EU and almost every other nation that had merchant ships or cargos transiting the Horn of Africa have been engaged in these security operations). However, it would perhaps be an overstatement to generalise that this well over a decade-long maritime security cooperative engagement, among a very diverse group of participants, is a future trend absent the unique geographic details and highly specific concerns.

3 Benchmarking Maritime Security Strategies

For this discussion, the emphasis is on planning and collaboration by intra-governmental institutions and forums with mandates for maritime security, such as the IMO with a charter of enhancing global maritime security and intra-governmental regional institutions such as the EU. A maritime "strategy" implies a coherent multifaceted approach with multiple methods, usually to achieve an overriding objective larger than specific incidents.

[2] The chair for this biannual conference rotates between the CMF (Combined Maritime Forces) and EU Naval Force—Somalia (EU NAVFOR) (Rider 2018).

3.1 IMO

The IMO adopted, in 2018, an initial strategy to reduce GHGs 50% by the year 2050 (IMO 2018). The "threat" driving this strategy is climate change. The anticipated worsening trajectory of the impact of GHG in the atmosphere has been observable for some years.

The collective impact of GHG from the shipping industry is not of a decisive magnitude (3% of all global inputs) to mitigate the global "threat" but is significant in a collective sense (speculatively, it could rise to as much as 10% of the global GHG emissions) (Cushman 2018; Transportenvironment.org 2020). Additional supporting measures by the IMO include significantly enhanced energy efficiency requirements and the Global Maritime Energy Efficiency Partnership (GloMEEP). These programs seek to build capacity for adopting GHG mitigating measures in Developing and Least Developed Countries (LDCs) (IMO 2020).

3.2 European Union

For the EU, maritime strategy *"is understood as a state of affairs of the global maritime domain, in which international law and national law are enforced, freedom of navigation is guaranteed and citizens, infrastructure and transport, the environment and marine resources are protected"* (European Union 2014). Maritime interests are delineated as prevention of conflicts and the rule of law, protection of EU people and infrastructure, maritime external border control, global supply chain safety and steps to curb illegal or "pirate" fishing. Identified transnational threats highlighted include territorial disputes (especially in the South China Sea), piracy, weapons proliferation, terrorism, organised crime, pollution, natural disasters and climate change.

Fundamentally these measures are designed to address the above specified threats with an emphasis on a coordinated approach in international relations, EU maritime global visibility, a regional response capacity, preparedness and include UNCLOS dispute-settling mechanisms. Information sharing is also highlighted along with enhanced maritime awareness and surveillance capacity (European Union 2014). It should be noted that sharing of maritime awareness and surveillance with international institutions can be, especially, challenging as many of the assets with the capacity to execute these missions operate primarily within navies and air forces whose primary task and focus is on specific member state defence priorities—or rather—hard security vs. soft security objectives.

An EU analysis focused on the North Sea region but with a global outlook implies that the major driver for future shipping changes in the behaviour patterns of owners and operators is clearly market driven. Ships have steadily increased in size as the global merchant fleet has been modernising to optimise changing patterns of consumer demand though this has been limited somewhat by a lag in the

ability of ports to meet the increased capacity of the newer larger vessels. Short sea shipping (coastal and/or inland) has been a means to adjust this capacity disparity within the EU (European Union 2020).

Clearly, the planning efforts of the IMO and EU emphasise "soft security" in the maritime domain with measures and strategic institutional plans to guide policy formation and implementation. They are not, and rightfully so, designed to assess and significantly alter the global economic or political status quo. The threat addressed that most closely approaches the grand strategies of the major sovereign states is climate change.

4 Embracing Multi-causality

Identifying the independent or causal variable is the foundation of the scientific method. The challenge for applying, in a macro sense, that method directly to maritime security planning is that the future is not going to be a laboratory. Nor will it follow any rules. Case studies of historical events and forecasting or linear projections have a place in preparatory analysis but also can be less than neutral if they do not consider the very uncertainty with which they influence and support planning. At worse, they can allow for the lack of contingency planning to address a "Black Swan" event; one which has a very low probability of happening, but which can have dramatic impact (Taleb 2010).

This is not the place to provide an analysis of whether the Covid-19 impacts to the maritime industry is, or is not, a good example (though investors in the cruise ship industry very likely believe so). But it can be, and is reasonable to suggest, that the scale of the tertiary shock to the maritime industry, global trade and energy markets was not on the forefront of planning as little as 3 months before this writing (though pandemics and their capacity to uproot civilizations are foundational to civilization itself) (McNeill 1977).

The larger point, for projecting a future on which to "plan" for, is that it is best to "embrace" uncertainty rather than obfuscate. A tool to consider is scenario planning methods, which are not as overly reliant on quantitative methods for macro-analysis (quantitative methods though can greatly enhance the "micro" subsets of useful data). The objective is to identify drivers and assess how they might interact within a complex system to produce plausible outcomes.

Scenario futures are not forecasting or linear projections of the future. Rather, they are used to best prepare future decisions makers for uncertainties. It is clear that *"[a] scenario focus on developing and differentiating drivers and how they are interconnected in a complex system, will produce structurally different futures … conceived through a process of causal rather than probabilistic thinking*" (Van der Heijden 2005, 27).

5 Identifying the Main Drivers and Threats

From a maritime security perspective what should planners anticipate for 2050? The best answer to the unanswerable is that it is unlikely to be a tight linear continuation of current trends. Admittedly that answer is not very helpful. More useful would be to make some necessary assumptions to assist preparation for unexpected developments or contingencies, which at their best allow the flexibility to have utility for multiple variations of the coming 2050. Deep changes to global trade patterns have and will have highly volatile security implications. This is particularly true when changes to shipping routes, means or functions outpace existing regulatory regime and infrastructure. For example, the rapid rise in Arctic and Antarctic adventure tourism voyages has stressed soft security reasonability and infrastructure (Ren and Chimirri 2018).

Historically, global aggregate shipping fluctuations are a derivative of market demand for goods, 90% of which are currently borne by shipping; therefore, it is a common and well-grounded planning assumption that there is a causal relationship between the global economy and sea borne commerce (European Union 2020; Berti 2020). Also, highly significant from both a "soft" and "hard" security perspective is the tertiary effects of climate change and the opening up of new and longer seasonal sea route patterns in the Arctic, as well as potentially in Antarctic waters that challenge the existing security regulatory regime. This is particularly true of hydrocarbon development in frontier maritime regions but also for a host of other growing extractive industries that provide the mineral and rare-earth components necessary for many alternative energies (European Union 2020).

The Arctic Council's seminal *Arctic Marine Shipping Assessment 2009 Report* identified in its findings that Arctic natural resource development and, especially, global commodities prices for hydrocarbons and minerals were driving much of the expansion in Arctic transit routes (Arctic Council 2009). Other studies on expanding development and shipping on maritime frontiers, also using scenario method tools for analysis, identify the continuing significance of hard power geopolitics, shifts in global trade and commodity markets (particularly oil and gas) (Skinner 2016). These are good assumptions for security planning. They should be anticipated and planned for. Seismic geopolitical shifts (war) could also change the rules of the maritime security regime as could vagaries of climate change.

6 Geopolitics and Breaking the Rules

Historically, when security transitions to "defence" or rises to naval action, the international legal regime is often disregarded, and sovereign interests override strict adherence to international law—but this does not always, or even generally, equate to complete disregard, as is often assumed. For example, both Germany and Great Britain did indeed create new rules for themselves during the First World War

that suited their own interest on the high seas, but particularly in the German case, the decision to do so was long-deterred by the feared repercussions of breaking from existent international common law, for example, violation of US neutrality in the North Atlantic. The suspension and then resumption of unrestricted submarine warfare were at the very highest levels of German strategy, and its timing and execution were one of the key determinates of its ultimate failure to secure regime survival (Wolford 2019).

7 Energy Markets and Maritime Security

Planning or attempting to manage future global trade patterns in a holistic sense is a task outside the charter and capacity of any maritime security institution. In fact, it can be argued in a geopolitical lens that historic hegemonic superpowers themselves, at their height and greatest reach, have at most only highly influenced global trade. By contrast, a narrower focus on global energy markets can be especially useful for 2050 maritime planners for two reason: it is tightly correlated to achieving "strategic" objectives of the international community with emphasis in this chapter on the IMO, EU and UN SDGs for 2030; and it is a highly significant, perhaps the most significant driver of change in transit routes to adjust to industrial extractive industries. As routes change in turn, the regulatory security regime must adjust. Physical risks are aggravated by infrastructure deficiency, poor communications, incomplete charting, unreliable navigational aids and difficulty of Search and Rescue. Insurance is an important component of shipping costs as well but minor when compared to capital, crew, or fuel (Peter 2019).

7.1 The Geopolitics of Oil and Gas

For a century, the geopolitics of energy has been synonymous with the geopolitics of oil and gas. Near-term price of hydrocarbons influences investment development decisions. Markets and profit matter. However, the very long timelines to progress from exploration to profitable production that is necessary for these massive industrial projects require strategic analysis. Like security planners, the gamble for the energy industry is on assessing the future market decades away, as well as the nature of the coming global political-economic system; not the current price of a barrel of oil. However, geopolitics and the global energy economy is continually changing and not necessarily in a linear or evolutionary manner.

The international order predominant since the end of World War II has faced mounting challenges that have included the collapse of the Soviet Union and the end of the Cold War (Yergin 2011). One of the central enablers and drivers of these significant shifts has been and continues to be energy, and still, its central component, the oil and gas sector. Much of the global hydrocarbon resource that has been

easy to access, produce and transport has already been consumed. Though there is certainly very little likelihood that known reserves cannot sustain even a growing global economy to 2050 and beyond, the technologies and resources necessary will increase, and therefore, its relative cost.

7.2 Scenarios and Back-Casting

While forecasting scenarios envisage growth in renewable energy, none anticipate a revolution in which renewable energy surpasses consumption of any of the fossil fuels though back-casting scenarios posit a more promising future, a radically different energy mix, where utilization of renewables eventually surpasses fossil fuels. In this context, it should be noted that back-casting is a planning method that does not analyse current trends rather it goes backward in time from a policy objective, such as the Paris Accord's CO_2 reduction target years, and then develops scenarios with bundles of policies that could reasonably achieve that objective.

As a transition to renewable energy accelerates in the scenarios, new trade patterns and routes could develop around those materials critical to renewable energy technologies. For example, rare-earth elements are widely used in clean energy technologies, including solar panels and wind turbines. Though rare-earth elements are found in many regions, they are usually in non-marketable concentrations. Currently, almost all mining, production and processing take place in China. Change in extractive industry regions for lithium, cobalt and indium, also widely used in clean energy technologies, could also change trade patterns and shipping corridors. Renewable energy is already a game changer for Chile, Jordan, Morocco and several island states in terms of energy security (O'Sullivan et al. 2017).

8 The Covid-19 Pandemics Impact on 2050 CO_2 Emission Goals

The shipping sector and its growth are routinely impacted by financial crises, such as in in 2008, as well as pandemics. Clearly, the current (August 2020) economic Covid-19 downturn has produced dramatic regional reductions in CO_2 emissions to visible effect. However, the long-term impact is very much uncertain. Economies and energy have typically rebounded in the past from severe economic downturns. Populations, distinct from their leadership, however, tend to gravitate to "dirty" and cheap fuels (hydrocarbons) in times of crisis, which will challenge planned shifts to cleaner but still currently more expensive fuels (particularly for transportation) (Victor 2020).

9 Security Flashpoints 2050

There are a number of potential security flashpoints that have been identified for the next few decades. These include areas such as:

- The Arctic and Antarctic littorals: Climate change is projected to continue to extend summer sailing season, and these regions will likely continue to see new exploratory and production activity for hydrocarbons and other minerals and rare-earth commodities—highly variable on market demand.
- The Baltic and Black Seas: Potential for continued sovereignty friction and competition for both land and sea (above and below surface) resources, dependent on US, Russia and NATO relations.
- Alliance between China and Russia? Such an alliance could create major shifts in the global political arena, not only regional security regimes. However, for historical context, arguably it was misreading the likelihood of such an occurrence that was the major driver for the failed US engagement in the Vietnam War.
- The degree of China's emergence as a dominant regional power in the South China Sea: Already a factor in sovereignty claims regionally, it could potentially also have game changing influence on transit routes and resource extraction in the Indian Ocean and East Asian waters.

It is important to note that this is not an exhaustive, authoritative or prioritised listing. In fact, this chapter hopefully has underscored that such a list cannot be subjectively developed with useful validity. Rather, it is a contribution to stimulate thought. It suggests perhaps that a scenario workshop of maritime security stakeholders from a wide spectrum, addressing these concerns, might make a useful contribution to the problem set and enhance strategic planning.

10 Conclusion

In 1920s and early 1930s, along with war plan "Orange", in preparation for a potential war with Japan, the USA also created a "Red" war plan and conducted staff drills for war with the British Empire. There was even a Red-Orange series of plans for taking on Japan and Britain in a coalition (Ross 1997). The point being that events that played out in the Pacific only 10 years later in WWII were very far from a planning "certainty" or even considered a probability. Nonetheless, broadly developed capacity in ships, training, planning, and especially sustained operations served the US Navy well in the hard power challenge of WWII.

Looking from the present back 30 years to the early nineties, as distant in time today as 2050, the emergence of a much-improved Chinese regional military power prepared to challenge the USA, the dominant naval power in the South China Sea, was not seen as any more likely by strategic planners than either India or Japan's future capabilities (Tritten and Stockton 1992). In conclusion, this chapter urges

prudent planning to wisely husband the resources for maritime security that may very well be needed to address the unforeseen.

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