



MARITIME PERSPECTIVES 2024

MARITIME INDIA: TEMPORAL AND SPATIAL CONTINUUM

Edited by:

Vice Admiral Pradeep Chauhan

Ms Anuttama Banerji

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VOLUME V: MARITIME INDIA: TEMPORAL AND SPATIAL CONTINUUM

Editors: Vice Admiral Pradeep Chauhan and Ms Anuttama Banerji

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Foreword

Within the contemporary realm of academia and analysis, the dominant intellectual discourse has been one that regards the 'sea' as 'liquid territory', subsumed in State-making constructs. Indeed, such constructs have been adopted by several sovereign nations, making the sea a legatee of the 'realist school'. Yet, human realist ambition has failed to bring the seas under absolute human command. It remains an eternal entity that has moulded national, regional, and global maritime identities for millennia. It is imbued with life-like characteristics that enable it to become a part of the quotidian existence of the people who live in its vicinity. This holds true for all littoral nations, including India. Hence, the sea is an all-pervasive entity that has an infinite role extending across 'time' and 'space'.

Against this backdrop, this volume of Maritime Perspectives, entitled "*Maritime India: Temporal and Spatial Continuum*", explores through its three constituent sections, 'hard' and 'soft' facets of the oceans that are responsible for shaping India's maritime identity.

The first Section provides some pertinent deliberations on India's maritime identity and its history as a seafaring nation. The opening piece encourages readers to reappraise their existing thoughts and ideas by examining India's maritime identity as a prerequisite for the sustenance of maritime consciousness. It recommends that Indian endeavours be viewed through a maritime lens rather than through the far more commonly encountered land-centric one. Providing a degree of specificity to this approach, the next article posits that India's rich seafaring legacy is adequately evidenced through its ancient shipbuilding traditions. Aptly, the section concludes with a review of Radhika Seshan's book, "*Empires of the Sea: A Human History of the Indian Ocean World*."

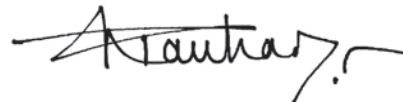
All this offers an excellent segue into the second Section of the volume, whose opening article traces the evolution of Indian maritime diplomacy from conceptualisations such as the Indian Ocean being a ‘Zone of Peace’ to the more contemporary hierarchy of strategic partnerships, which are being increasingly viewed as an attractive alternative to the treaty-based alliances of the Cold War period. The next piece takes the process further and highlights the centrality of a national security strategy and defence guidance, which would facilitate the development of a common understanding amongst all stakeholders, both civilians and military, as they endeavour to give tangible manifestation to the strategic intent of the political leadership of the country. The third article of this section provides some much-needed geographical context in respect of Africa. Its authors strongly advocate a more robust Indian partnership with African States such as Comoros, Madagascar, and Mozambique, while lauding the Indian Navy’s role as an instrument of ‘soft power’ during the Covid-19 pandemic. It consequently signals a ‘coming-of-age’ for an India that is an acknowledged maritime power in the contemporary era.

The third and final Section of this volume deepens the maritime comprehension of contemporary readers, sensitising them to the impact of China’s naval presence in the Indian Ocean Region (IOR) upon India’s maritime security. This theme is explored through three well-researched articles. The first reiterates the criticality and centrality of India’s role amidst the presence of several other maritime nations within the IOR. The second piece expands upon this and, quite interestingly, delves into China’s ongoing endeavours to find convergences between the aerial and maritime domains as Beijing continues to increase its foothold across the South Asian littoral. The third article of the Section complements the first two as it examines several ramifications of Chinese “Grey Zone Operations” in the IOR. It recommends that major States, such as India, need to build critical space-based maritime domain awareness (MDA) capabilities to counter Chinese machinations in this sub-region. The fourth article argues that the development and manufacture of maritime drones (unmanned surface vessels and unmanned underwater vehicles) must find top priority in India’s critical ‘must have’ technology for various operational roles against a technologically well-equipped adversary like China, in the IOR. Nicely rounding off Section 3 — and the volume itself — is a critical review of Captain

(Dr) Alok Bansal's book entitled "*Gwadar: A Chinese Gibraltar*", which seeks to shed light on this "*strategically located*" port, describing it (somewhat optimistically, perhaps) a "*gateway for the landlocked countries of Central Asia and Afghanistan*", while attempting to "*squarely address the significance of [Gwadar] for a variety of stakeholders, especially those located in its geographical proximity*".

In sum, this volume of Maritime Perspectives attempts to track the maritime identity and history of India, while deliberating upon the evolution of its maritime diplomacy and its usage of soft power to counter contemporary threats within the international maritime domain. Considering the wide range of subjects deliberated upon within this volume, I am certain that it will enable readers, especially maritime enthusiasts drawn from every walk of life, to appreciate the multifaceted nature of India's maritime identity. At another level, it will enable maritime practitioners, strategists, and policymakers alike, to gather fresh insights into some of the key issues that shape the contemporary maritime landscape. These insights — covering both, 'time' and 'space' — will also provide valuable inputs to policymakers in the efficient discharge their collective responsibility for charting an optimal future course for "maritime India".

Happy Reading!



Vice Admiral Pradeep Chauhan
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*India: A Land of Ancient
Mariners*

Forging a ‘Maritime Identity’ for India

Ms Krithi Ganesh

Given that the next two centuries are widely acknowledged to be the centuries of the seas and space, it is prudent to bear in mind that over the course of these two centuries, “*India will either be a maritime and space power... or she will not be any kind of power at all*”.¹ This is not mere bombast, for India’s current and future prosperity are inextricably linked to the maritime domain. 90 per cent of India’s external merchandise trade (by volume) and 67 per cent (by value) is seaborne.² India’s 12 major ports and 200-plus non-major ports constitute the Indian nodes of this external merchandise trade, connecting India to the world through International Shipping Lanes (ISLs) and, in times of tension or conflict, through our Sea Lines of Communication (SLOCs).

Small wonder, then, that India has identified “*port-led prosperity*”³ and “*port-led industrialisation*”⁴ as truly viable pathways to realise the country’s aspiration to move from a three trillion US-dollar economy to a 30 trillion US-dollar one by 2047.⁵ Likewise, India’s food security is, in very significant measure, a direct function of the country’s fisheries sector, which plays “*a vital role in addressing the rising global demand for an affordable quality source of protein.... India is the third largest fish-producing country in the world accounting for 8% of global production... [it] is the fourth largest exporter of fish and fisheries products, with a growth in exports of 26.73% in terms of quantity between FY 2021-22 and FY 2022-23... the sector supports the livelihood of over 30 million people in India.*”⁶ Going forward, India’s multifaceted, yet intense, maritime endeavours to transition from its current model of a ‘brown economy’⁷ to a ‘blue’ one,⁸ once again underscores the deep connections between the seas and India’s economic, material, and societal wellbeing.

Consequently, it is essential to strive towards the creation, sustenance, and strengthening of what we might call “maritime India”. This involves nurturing and fortifying India’s “maritime identity”. Indeed, having a strong sense of “maritime identity” is a crucial prerequisite for the development of “maritime power”, even though it may not, in and of itself, be a sufficient condition for “maritime power”, which is the military, economic, and political ability to use the seas for one’s own purposes while simultaneously dissuading, deterring, and preventing others from using the seas in ways that are harmful to our own interests.⁹ In order to build a ‘maritime identity’, however, it is necessary to move from the general to the specific. This requires that we first explore and understand the processes involved in the development and establishment of any given cultural identity. This might serve to ease the somewhat Herculean endeavour that this article seeks to initiate.

What is ‘Cultural Identity’?

Identifying-with or feeling a sense of belonging to a particular group based on cultural categories — including nationality, ethnicity, race, gender, and religion — is termed ‘cultural identity’.¹⁰ Our sense of belonging to different identities comes from sharing collective knowledge such as traditions, history, language, styles, and customs. Since most people are part of more than one cultural group, this makes our cultural identities a complex and multifaceted mix of influences. Although scholars initially assumed “*identification with cultural groups to be obvious and stable*”,¹¹ most recognise it now to be “*contextual and dependent upon temporal and spatial changes*”,¹² implying that some identities may take precedence over others depending on the situation on-ground. Moreover, in a world overrun by globalisation, it is no surprise that there has been an increase in the number of intercultural encounters and experiences, wherein identities — in particular, cultural identities— are “*constantly enacted, negotiated, maintained, and challenged through communicative practices*”.¹³

Forging Cultural Identities

Until we engage in a close examination of history, it appears that some cultural identities which we often take for granted, seeming to have perpetually existed,

actually came into existence for a variety of fairly specific socio-political reasons.¹⁴ These very cultural identities have changed and continue to evolve with the passage of time, and communication lies at the heart of their conception and construction.¹⁵ The theory of social constructionism suggests that knowledge is the end result of social processes,¹⁶ and that “*the self is formed through our interactions with others and in relationship to social, cultural, and political contexts.*”¹⁷ So, how and why does the social constructionism theory matter in terms of cultural identities, and in turn, ‘maritime identity’?

In the context of cultural identity, social constructionism highlights how identities are not fixed or predetermined but are shaped by social interactions, historical contexts, power dynamics, and cultural norms. In the establishment of cultural identities, cultural expressions are crucial. They serve as the *tangible manifestations* of shared beliefs, values, traditions, and practices within a society or community, and can be thought of as the building blocks in the construction of a cultural identity. Examples of tangible manifestations of cultural expressions include music, literature, poetry, art, architecture, dance, folklore, and films — all of which express cultural values, overtly or covertly.¹⁸ The following pointers elaborate on the manners in which cultural expressions are incorporated in the development of cultural identity.

- (a) **Symbolism and Representation:** As mentioned above, cultural expressions often contain symbolic meanings that reflect the values, beliefs, and aspirations of a culture. These symbols serve as important markers of identity, helping individuals and communities to express and reinforce their cultural affiliations.
- (b) **Identity Formation:** Cultural expressions provide individuals with opportunities to explore, affirm, and negotiate their cultural identities. Through participation in cultural activities and consumption of cultural products, individuals develop a sense of belonging and connection to their cultural heritage, as well as to broader social groups with whom they share common cultural traits.
- (c) **Interpersonal Communication:** Cultural expressions serve as a medium for interpersonal communication and social interaction. They enable individuals

to communicate complex ideas, emotions, and experiences across cultural boundaries, fostering empathy, understanding, and solidarity among diverse communities.

- (d) **Community Cohesion:** Cultural expressions play a crucial role in building and maintaining social cohesion within communities. They provide shared experiences and rituals that strengthen social bonds, promote cooperation, and reinforce collective identities among group members.
- (e) **Adaptation and Innovation:** Cultural expressions are syncretic and dynamic — constantly evolving, reflecting ongoing processes of adaptation, innovation, and hybridisation. As societies encounter new influences and experiences, cultural expressions adapt to incorporate these changes while retaining core elements of cultural identity.
- (f) **Resistance and Empowerment:** Cultural expressions can also serve as forms of resistance against dominant cultural norms, power structures, and forms of oppression. Through creative expression, marginalised groups assert their agency, challenge stereotypes, and reclaim their cultural heritage, contributing to processes of empowerment and social change.
- (g) **Globalisation and Diversity:** In an increasingly interconnected world, cultural expressions facilitate the exchange of ideas, values, and practices across cultures, contributing to cultural diversity and intercultural dialogue. Globalised media, travel, and digital technologies enable individuals to engage with diverse cultural expressions from around the world, enriching their own cultural identities in the process.

At first glance, this approach towards constructing a cultural identity may appear — especially to naval and maritime practitioners — to be overly sociological and theoretical. However, understanding the way ‘identities’ function in a society is one of the ways we can hope to build and leverage a ‘maritime identity’ for our country.

To better understand what is meant by ‘maritime identity’, the next section investigates this term in greater depth.

Forging Maritime Identities

What is “Maritime Identity”?

Despite India’s historically and culturally rich maritime legacy, it is terribly unfortunate that a significant percentage of our populace is woefully unaware of the same. It would, therefore, facilitate ease of understanding were we to probe what “maritime identity” might mean. Although the expression “maritime identity” is sprinkled liberally across several articles, papers, interviews, and other works of scholarship, the phrase *per se* is rarely defined. Of the few actual definitions is by Henry Holst in his article, “*Blue Means Blue: China’s Naval Ambitions*”. Holst states, “*Maritime identity is a nation’s inherited maritime traditions, responsibilities, prerogatives, self-concept and strategic interests as a naval power. It frames the strategic discussion that occurs at high levels of government and therefore wields enormous influence over foreign policy.*”¹⁹ He stresses the roles that history, culture, national interests, and self-perception play in terms of shaping ‘maritime identity’, while also deeply impacting the nation’s foreign policy. Having the potential to influence high-level strategic discussions, decisions about naval power, maritime interests, and consequently, “maritime identity”, ultimately have an impact on the way a country interacts with others on the global stage. Nevertheless, it is important to grasp the state-of-affairs *within* India prior to focusing on its foreign affairs, as the former shapes the latter.

India has nine coastal states (Gujarat, Maharashtra, Goa, Karnataka, Kerala, Tamil Nadu, Andhra Pradesh, Odisha, and West Bengal) and four coastal union territories (Dadra & Nagar Haveli and Daman & Diu, Puducherry, Lakshadweep Islands, and Andaman & Nicobar Islands). Given the country’s extensive coastline — which is in the process of being fixed at 11,084.50 km (and will shortly replace the far more familiar one of 7,516.6 km)²⁰ as well as the country’s maritime area of 3.22 million square kilometres (km²) — consisting of the exclusive economic zone (EEZ) of 2.02 million square kilometres²¹ and the legal continental shelf of 1.2 million square kilometres²² — it comes as no surprise that India’s coastal regions have a rich maritime heritage and culture. Therefore, would it be too much of a stretch to suggest the possible existence of separate, region-specific ‘maritime identities’ in the coastal parts of India?

State-specific Maritime Identity?

1. Gujarat

Gujarat's maritime legacy spans an epoch of some five millennia — across the regions of Kachchh, Kathiawar, and peninsular Gujarat — rooted in the ancient *Harappan-Saraswati* civilisation. Lothal, possibly the world's first drydock, is an example of the civilisation's early maritime prowess. Despite its eventual decline, maritime trade continually re-emerged, connecting Gujarat with the ancient civilisations of Sumer, Egypt, and Greece. Texts such as the *Mahabharata* and the historical treatise *Arthashastra*, attest to Gujarat's maritime significance, emphasising its role in ancient trade networks.²³ Arab travellers from the 9th century have praised Gujarat's sea trade, which burgeoned with the *Haj* pilgrimage and the spread of Islam to the northwestern parts of the Indian subcontinent.²⁴ Surat, Diu, and Daman emerged as key ports during the colonial period, when colonial powers — consisting of the Dutch, French, Portuguese, and British — bolstered Gujarat's prominence through extensive trade.

Gujarat is steeped in centuries of maritime heritage owing to (hereditary) seafaring communities such as the *Memons*, *Kharawas*, and *Kolis*, who passed down seafaring wisdom and navigational skills orally, and which was later documented in “*handwritten seamen manuals called ‘pothis’ and diaries or ‘roznamas’ of individual voyages*”²⁵ in the 15th century.²⁶

Post-Independence, ports such as Kandla revitalised Gujarat's maritime economy. The Scindia Steam and Navigation Company laid the foundations for Gujarat's modern maritime industry even in the face of foreign competition.²⁷ Today, as in the past, Gujarat's extensive coastline of 1,214.70 km (soon to be revised to the newly measured length of 2,125.82 km), its strategically advantageous geography, and its pro-business environment, taken in aggregate, continue to propel its maritime aspirations, evident in developments like the ports of Mundra, Pipavav, and Kandla, as well as the numerous ship-recycling yards at Hazira and Alang.²⁸ No small wonder, then, that the state of Gujarat has historically been “maritimely” inclined, with deep-rooted ties to the sea.

2. Maharashtra

The coastal belt of the Konkan is not confined to a single Indian coastal state but spans three of them, “*from the state of Maharashtra to the southern part of the state of Karnataka*”,²⁹ with a major portion being in Maharashtra. This belt possesses a diverse mix of coastal communities that share a deeply intimate relationship with their most proximate environment — the sea.

Maharashtra, with its coastline of 652.60 (being revised to the newly measured length of 896.98 km) is home to several fishing communities, amongst which are the *Koli*, *Bhoi*, *Bhandari*, and *Gabati*, and tribes such as the *Warli*, *Kokana*, and *Gond* who fish using indigenous methods.³⁰ They harvest a variety of fish, including *Bombil* (Bombay Duck), *Halawa* (black pomfret), *Shingada* (catfish), and *Gada* (dolphin),³¹ as well as clams, mussels, and oysters. These communities contribute to Maharashtra’s maritime identity through their fishing practices, cuisine, folklore, and *Koli Geet* folk songs that celebrate the fish and the sea.

The *Bakhar* — a Marathi historical narrative — not only details the initiatives of Maratha rulers and records their maritime influence as well as their dominance of the Konkan coast during the 17th and 18th centuries,³² but also contains historical events from 1060 to 1500 CE of North Konkan where the *Kolis* are reported to have settled in 1138.³³ *Chhatrapati* Shivaji established one of the earliest navies to safeguard his realm from maritime threats, bestowing distinct positions upon *Kolis* and *Bhandaris* “*due to their knowledge of navigation*”.³⁴ Shivaji is also credited with pioneering the construction of numerous sea forts for Maratha defence — all of which was achieved with minimal technological resources.³⁵ Admiral Kanhoji Angre, with his Maratha fleet, is celebrated for his naval prowess and skilful leadership while engaging with colonial powers.³⁶

Maharashtra, hailed the “Gateway of India”, is “*one of India’s largest commercial and industrial centres*”.³⁷ Major and non-major ports such as Mumbai, Nhava Sheva/Jawaharlal Nehru Port Authority (JNPA), and Ratnagiri, continue to play crucial roles in trade, commerce, and logistics, connecting Maharashtra (and, in turn, India) to global maritime networks. Maharashtra’s maritime identity is truly multifaceted, encompassing historical, cultural, and economic dimensions that highlight the coastal state’s enduring connection to the sea.

3. *Goa*

Well-known for having been Portugal's first territorial possession in Asia (in 1510, by Afonso de Albuquerque), Goa has a relatively short coastline of 101 km (the newly measured length is 181.48 km) but a long history of maritime trade, colonisation, and naval activities. As a former Portuguese colony, it was a crucial hub of the maritime trade routes between Europe, Africa, and Asia during the Age of Discovery (lasting an entire century, from the mid-15th century to the mid-16th one).³⁸ Goan sailors and navigators played significant roles in Portuguese maritime expeditions, contributing to the exploration and colonisation of new territories — including Dadra & Nagar Haveli, Daman, and Diu.³⁹

Goan cuisine, architecture, language, and festivals, all stand testimony to its historical maritime connections, with strong influences from the Indian hinterland and their cultural blends with European, African, and Southeast Asian elements.⁴⁰ Traditional occupations such as fishing and boatbuilding continue to thrive in coastal communities such as the *Kharvis* and *Kolis*,⁴¹ thereby preserving Goa's maritime heritage.

Mormugao Port in Goa handles significant cargo traffic, facilitating trade and commerce. Fishing is a vital economic activity for many coastal communities in Goa, contributing to the state's economy and providing livelihood for thousands of people. Additionally, maritime tourism — incorporating a heady mix of beach tourism, coastal tourism, cruise-ship tourism, and water sports — attracts visitors from around the world, by virtue of the state's stunning coastline along the Arabian Sea. Indeed, Goa's beaches, estuaries, and rivers are integral to its identity and contribute to its allure as a tourist destination.

Thus, Goa's connection to the sea is woven into the very fabric of its being. History, culture, economics, and geography — all are threads spun by the ocean's constant presence, tying Goa to the maritime world.

4. *Karnataka*

Karnataka has a 280 km-long coastline (soon to be revised to the newly measured length of 309.59 km) abutting the Arabian Sea and comprising sandy beaches,

rocky shores, estuaries, and river deltas — all of which contribute towards the state’s tremendous biodiversity.

Karnataka’s rich maritime heritage dates to ancient times. The *Vijayanagar* Empire’s (1336–1646) control of ports on both coasts (west and east), ensured “*opportunities for the acquisition of increased wealth*”⁴² through the ancient trade routes connecting the Indian subcontinent with civilisations in West Asia, Africa, and Southeast Asia. Ports such as Mangalore (Mangaluru) and Karwar played a significant role in facilitating maritime trade and commerce during distinct historical periods and remain important even today.⁴³ New Mangalore Port (NMPT) and Karwar Port, amongst others, are important hubs for cargo shipping, and handling various commodities such as iron ore, petroleum products, and agricultural goods.

Karnataka’s coastal communities — including the *Bunts*, *Mogaveeras*, amongst a host of others — have rich traditions, customs, and livelihoods. These communities have preserved maritime traditions such as fishing, boatbuilding, and navigation, given that these remain integral to their collective cultural identity. The fishing industry provides employment and sustenance to these coastal communities, while also contributing to Karnataka’s economy.

There is more than adequate historical evidence to show that as Indians, we need to take justifiable pride in the stirring exploits of the *Tulu* warrior queen, *Rani Abbakka Chowta*, who defeated a whole succession of Portuguese sailors, soldiers, and marines, whether operating singly or in cohort with local Indian chieftains. This fighting spirit informs the maritime identity of coastal Karnataka even today. It is a monumental shame that New Delhi’s location and obsession with Muslim and particularly Mughal history has denied contemporary India the much-needed awareness of this rich manifestation of the country’s maritime identity. Within Karnataka, of course, her valour has been immortalised in stories retold from generation to generation through folk songs and *yakshagana*.⁴⁴ Sadly, however, even at the state level, only recently have there been efforts to honour her memory.⁴⁵

The ocean, therefore, is not just a border for Karnataka, but crucial to the state’s identity. From the historical significance of its ports to the vibrant cultures of its coastal communities, Karnataka’s connection to the sea goes well beyond geography.

Fishing villages, bustling ports, and thriving maritime industries all contribute to the rich tapestry of Karnataka's importance as a coastal state.

5. Kerala

Hailed as the “Garden of Spices” in Sumerian records,⁴⁶ Kerala's maritime trade and seafaring have a long history encompassing all of its 569.70 km of coastline (the newly measured length is 597.43 km). The *Chera* dynasty was one among the triumvirate *Tamilkam* kingdoms (the other two being the *Pandyas* and the *Cholas*) that ruled over present-day Kerala.⁴⁷ *Sangam* literature also has references to *Chera* chiefs “dated to the 1st century CE”.⁴⁸ Expectedly, the state has been a significant centre of trade and commerce for centuries, with ancient ports like *Muziris* (believed to be present-day Kodungallur) serving as important hubs for international trade with civilisations in West Asia, Europe, and East Asia. Kerala's maritime connections date back to ancient times, with evidence of trade with the Roman Empire, ancient Mesopotamia, and other civilisations. Vasco da Gama — along with his crew — landed in Kozhikode (whose name had long been anglicised to ‘Calicut’) on 20 May 1498, having sought the help of a Gujarati pilot.⁴⁹ The Portuguese sought to “open the sea route to Asia and to outflank the Muslims, who had hitherto enjoyed a monopoly of trade with India and other eastern states”.⁵⁰

Kerala's connection to the sea is reflected in its traditions, festivals, cuisine, and arts. Coastal communities such as the *Mappilas*, *Thiyyas*, and fisherfolk (including *Arayans*, *Velans*, *Mukkuvas*, and *Marakkans*)⁵¹ have preserved maritime traditions such as fishing, boatbuilding, and navigation, all of which are integral to their cultural identity. The ‘*chundan vallam*’ is a type of traditional and vintage wooden boat; an iconic symbol of Kerala's maritime heritage, it is still used in boat races (called *Vallam Kali*) and religious festivals such as *Onam*.

The state's ports, fishing industry, maritime trade, and “rich marine wealth with a large variety of fish and a highly skilled population of fishermen have made Kerala a leading producer and consumer of fish”.⁵² Ports like Kochi (the anglicised name having been ‘Cochin’), Kozhikode (anglicised to ‘Calicut’), and Beypore, have historically been important centres of maritime commerce, handling trade in spices (such as cinnamon, pepper, cloves, and cardamom, amongst others), timber, coir, and other commodities. Its economy is also deeply tied to maritime tourism, with its serene

backwaters, scenic beaches, and traditional houseboats attracting tourists from around the world.

It is obvious, therefore, that Kerala's ties with the maritime domain are about as organic as can be, with its coastline, coastal communities, ports, and maritime activities collectively contributing towards the shaping of its maritime identity.

6. *Tamil Nadu*

The extensive coastline — 906.9 km, which will soon be revised to the newly measured length of 1064.98 km — of the state of Tamil Nadu runs along the northeastern segment of the Indian Ocean and largely defines the southwestern limit of the Bay of Bengal. It is characterised by sandy beaches, estuaries, and natural harbours, all of which provide ample opportunities for maritime activities. As mentioned above, *Tamilkam's* triumvirate — consisting of the *Pandya*, *Chera*, and *Chola* dynasties — ruled over southern India and Sri Lanka for several centuries, and contributed extensively towards the advancement of south Indian literature, art, and architecture.⁵³ The *Chola* rulers conquered parts of Sri Lanka and the Maldives in the 10th century CE, thereby taking the empire to new heights.⁵⁴ Moreover, the ancient Tamil kingdoms were home to several ancient ports like *Poompuhar* (modern-day Kaveripattinam) and *Mamallapuram* (contemporary Mahabalipuram), which were vital centres of trade and commerce with ancient civilisations such as Rome, Greece, China, and Southeast Asia. Tamil Nadu's maritime connections played a crucial role in the spread of Indian culture, language, and religion to other parts of the world.

The state's coastal communities such as the *Paravars*, *Vedarars*, and several assorted communities of fishermen, have preserved maritime traditions such as fishing, boatbuilding, and navigation — integral to their cultural identity. Traditional fishing techniques and rituals associated with the sea (such as the placating of the sea goddess *Gangaiyamman* during the *Pongal* festival in Nambuthalai),⁵⁵ and festivals celebrating the bounty of the ocean are significant aspects of Tamil Nadu's maritime culture.⁵⁶

The fishing industry is also a crucial economic activity, providing livelihoods to millions of fishermen and contributing significantly to Tamil Nadu's economy.

Ports like Chennai, Tuticorin, and Ennore are major centres of maritime commerce, handling trade in goods like coal, iron ore, petroleum products, and containerised cargo.

Tamil Nadu's maritime tourism, with its scenic beaches, historic ports, and cultural heritage attracts tourists from around the world. The maritime state's identity is shaped by a confluence of factors: its extensive coastline, thriving coastal communities, bustling ports humming with activity, and cultural practices steeped in the seafaring way of life.

7. *Andhra Pradesh*

Situated along the southeastern coast of India, the state of Andhra Pradesh boasts a rich maritime heritage dating back centuries. The state's coastline stretches for 973.7 km (a figure soon to be revised to reflect the newly measured length of 1,272.58 km) along the Bay of Bengal, providing it with abundant marine resources and fostering a strong connection to maritime activities.

Andhra Pradesh's ports have historically played a crucial role in sustaining maritime trade and commerce, facilitating maritime interaction with civilisations across the Indian Ocean. Evidence of Roman amphorae, Roman coins, and double-mast ship motif coins issued by *Satavahana* kings, amongst other artefacts, attests to the region's contact with distant parts of the world.⁵⁷ Even in the present day and age, the state's ports contribute significantly to India's maritime trade, handling cargo and facilitating imports and exports. Visakhapatnam Port (also known as 'Vizag') and Kakinada Port, for instance, continue to be major hubs for maritime trade and fishing activities. It is encouraging that Andhra Pradesh has consistently been paying attention to the development of its maritime infrastructure and capabilities, with initiatives such as port modernisation, coastal economic zones, and maritime education and research institutions. These efforts underscore the state's commitment to leveraging its maritime identity for economic growth and development.

Moreover, Andhra Pradesh's strategic location makes it a key player in India's maritime security and naval activities. In the words of a former Chief of the Naval Staff, Admiral R Harikumar, "*Visakhapatnam, with its rich maritime history and tradition, has always had a profound connection with the Indian Navy. Being the strategic*

centre of gravity on the Eastern seaboard in the modern Indian maritime landscape today, Visakhapatnam has continued to serve as a beacon of [the] Indian Navy's maritime will, intent and purpose."⁵⁸

8. Odisha

Located on the eastern coast of India, Odisha has one of India's richest maritime traditions that dates back millennia. The state's coastline of 476.4 km (which figure is being revised to the newly measured length of 667.12 km) along the Bay of Bengal has played a significant role in shaping its culture, economy, and history. Odisha's maritime heritage is deeply intertwined with trade, fishing, and maritime exploration.

The ancient ports of Odisha (or *Kalinga* as it was called in ancient times), such as *Kalingapatnam* (present day *Andhra Pradesh*), *Puri*, and *Chilika*, were important centres of maritime trade, connecting the region with other Indian kingdoms and those of Southeast Asia. The discovery of as many as ten ports belonging to the *Gupta* period is particularly fascinating, along with evidence of *Kalinga's* overseas trade with Southeast Asia, China, and the Roman World.⁵⁹ Further advancements in terms of archaeological evidence are expected to provide an even clearer picture of Odisha's incredibly rich maritime history.

Odisha's cultural practices, folklore, and festivals have a strong maritime inclination. The week-long *Bali Jatra* festival, held on *Kartik Purnima*, "*commemorates the past association of the people of Odisha with Bali and the glorious maritime tradition of transoceanic voyages they undertook to Southeast Asian Countries*" on *boitas* (huge boats).⁶⁰ The state's coastal communities have a strong connection to the sea, with fishing being a major occupation for many. Additionally, Odisha's rich tradition of maritime art forms, such as the intricate work on *Pattachitra* (traditional cloth-based scroll painting), often depicts scenes from maritime life and mythology.

The state continues to leverage its connection to the maritime realm for economic development through industries like fisheries, ports, and coastal tourism. The state government of Odisha has also been actively promoting initiatives to harness the potential of its coastline for sustainable development and growth.

9. West Bengal

Although West Bengal has a deeply indented coastline of considerable length along the Bay of Bengal, it has been inadequately measured thus far. With technology providing for far more accurate measurements, the erstwhile figure of 157.50 km that was thus far being used is being revised upwards to 662.9 km. The *Sundarbans* — the world's largest mangrove forest and a UNESCO World Heritage Site — is in the southern part of the contemporary state, highlighting the significance of the maritime ecosystem to life in Bengal.

The state's ancient port cities of *Tamralipta* (situated in the current Purba Medinipur district) and *Saptagram* (located on the banks of the Hooghly River),⁶¹ were crucial for the Indian subcontinent's overseas trade in cotton, silk, grains, and saltpetre, with Southeast Asia, Rome, and China.⁶² *Sadhabas* (seafaring merchants) undertook expeditions to Indonesia and Sri Lanka, resulting in the exchange of intellectual and cultural ideas.⁶³

The European colonial period wrought several changes in the then undivided state of Bengal, transforming Kolkata (or Calcutta as it was then called) into the capital of British India, while also developing it into a critical port and shipbuilding centre.⁶⁴

The contemporary state's major ports such as Kolkata and Haldia, as well as its numerous fishing harbours and coastal towns, underscore the continuing importance of West Bengal's rivers and deltas, and of the sea itself.

Union-Territory-specific Maritime Identity?

Although the four coastal Union Territories (UTs), namely, (1) Dadra & Nagar Haveli, Daman & Diu; (2) Puducherry; (3) the Lakshadweep Islands; and (4) the Andaman & Nicobar Islands, all have the Indian Ocean as a common denominator, their maritime inclinations vary quite significantly.

1. *Dadra & Nagar Haveli, Daman & Diu*

Even as a consolidated entity, this UT has a very limited coastline (just 63.1 km) and is not traditionally known for maritime activities. However, fishing and some maritime trade could contribute to the development of a local maritime identity.

2. *Puducherry*

Despite its limited coastline (just 42.11 km), Puducherry has historically maintained a strong connection with the sea, largely because of French colonial trade, and still boasts a well-developed fishing industry and a port. This provides some evidence that the length of a coastline may not, in and of itself, be a particularly important determinant of maritime identity and, by corollary, even limited coastlines can, indeed, form the basis for an intense maritime identity.

3. *Lakshadweep Islands*

The Lakshadweep chain is an archipelago with strong maritime roots. Fishing and traditional boatbuilding are central to the islanders' way of life. Tourism also relies heavily on the sea. Lakshadweep's maritime identity is likely the most well-defined amongst modern India's Union Territories.

4. *Andaman & Nicobar Islands*

The Andaman & Nicobar Islands have a long history of indigenous seafaring communities. Fishing and tourism are important economic activities. The consolidated coastline of this UT had been poorly measured — an error that has now been rectified such that the originally promulgated length of 1,962 km has been remeasured to yield a consolidated coastline of 3,078.2 km — the longest of all the coastal states and UTs of modern India. The strategic location of the islands also makes them crucial for contemporary India's maritime security. As may be expected, these islands possess a strong maritime identity.

Maritime Identity of India as a Consolidated Geopolitical Entity

As seen in the previous section, each coastal state and Union Territory has varying degrees of maritime identity. Yet, as the contrasting examples of West Bengal and Puducherry show, the length of coastline is not necessarily the sole or even the principal determinant of maritime identity. Clearly, there is a need to sharpen our focus on the subject. Indian naval captain, Ranendra Sawan, in his article "*India's*

Maritime Identity”, writes that the Government of India has much of the onus to “rebuild or reinforce the nation’s maritime identity”.⁶⁵ To this end, it must be admitted that the Government of India has, indeed, taken a number of policy-level initiatives, including promulgation of the “Project SagarMala”, the “Maritime India Vision 2030” (MIV-2030) — which has subsumed the SagarMala programme within it, the more recent “Maritime *Amrit Kaal* Vision 2047” (MAKV 2047), and “Project Mausam”, all of which have sought to champion the maritime realm.⁶⁶ Not to be forgotten are India’s maritime policy of “Security And Growth for All in the Region” (abbreviated to SAGAR), and the Indo-Pacific Oceans Initiative (IPOI) which lends first-order-specificity to SAGAR — both of which highlight New Delhi’s openness towards the seas.

However, while it certainly is the Government’s duty to enforce the nation’s maritime identity, this top-down approach has a limited contribution, whereby only those directly impacted or actively curious about affairs maritime will be “in the know”. A layperson’s understanding of India’s maritime geography is often so poor as to cause him or her to think that the Arabian Sea and the Bay of Bengal are waterbodies that are distinct from the Indian Ocean.

It appears necessary for the government’s “top-down” approach to be supplemented by a “bottom-up” approach that would forge a sense of ‘maritime consciousness’. How might such a weighty endeavour be undertaken? Strategies towards this end might include the following:

- (a) **Community-Engagement Programmes:** Organise community events, workshops, and seminars in coastal regions to raise awareness about the importance of the maritime domain. Encourage participation from local residents, fishermen, students, and youth to instil a sense of ownership and pride in maritime heritage.
- (b) **Educational Initiatives:** Integrate maritime education into school curricula in coastal areas to familiarise students with maritime history, geography, and industries. Offer vocational training programmes in maritime skills such as fishing, boat building, navigation, and marine conservation to empower local communities and create employment opportunities. Provide internships

and/or courses at maritime-related institutions in order to disseminate information to (recent) graduates.

- (c) **Cultural Celebrations and Festivals:** Organise maritime-themed festivals, cultural fairs, and exhibitions to showcase traditional maritime practices, arts, crafts, music, and cuisine. Encourage local artists, craftsmen, and performers to highlight maritime heritage through their creative expressions.
- (d) **Heritage Conservation:** Preserve and promote maritime heritage sites, museums, lighthouses, and monuments along the coastlines. Develop heritage trails, interpretive centres, interactive exhibitions (like immersive art experiences), and guided tours to educate visitors and residents about the historical significance of maritime landmarks.
- (e) **Environmental Conservation:** Foster environmental stewardship among coastal communities by promoting sustainable fishing practices, mangrove conservation, beach clean-up drives, and marine biodiversity conservation initiatives. Empower local stakeholders to become custodians of their coastal ecosystems and natural resources.
- (f) **Entrepreneurship and Innovation:** Support grassroots entrepreneurship and innovation in the maritime sector by providing access to funding, mentorship, and technical assistance. Encourage startups and social enterprises focused on marine conservation, eco-tourism, renewable energy, and sustainable aquaculture.
- (f) **Youth Engagement and Leadership Development:** Establish youth forums, clubs, and leadership programs to empower young people to become ambassadors for maritime awareness and advocacy. Encourage youth participation in maritime sports, expeditions, and volunteer projects to foster a sense of adventure and camaraderie.
- (g) **Digital Platforms and Media Outreach:** Utilise digital platforms, social media, and multimedia channels to disseminate information, stories, and documentaries about maritime heritage, culture, and contemporary issues. Engage with influencers, bloggers, and content creators to reach wider audiences and spark conversations about the maritime domain.

Conclusion

India's future is intrinsically, inextricably, and inevitably tied to the seas, which is why strengthening our (national) maritime identity is quite so crucial. Should there be a genuine implementation of the strategies, commencing with the nine coastal states and four coastal UTs, a maritime identity can be fostered among the coastal peoples of India, which would be the first step in the project towards inculcating a maritime identity for the Indian populace at large.

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The Case for India's Seafaring Legacy - Ancient Indian Shipbuilding

Ms Priyasha Dixit

The contemporary global shipbuilding industry has been shaped by epochal change on a near continuous basis. Shipbuilding is itself a subset of the seafaring element of external merchandise trade. Contemporary Indian society, particularly the Indian political, administrative, and industrial elite, remains woefully ignorant of Indian maritime prowess in terms of both, material wherewithal (“capacity”) and human skills (“capability”) that persisted over the several centuries that elapsed between the “ancient” Indian historical epoch to the “medieval” one.

Why is it important to re-introduce the seafaring traditions of the peninsular kingdoms of ancient India to contemporary Indian society? This is, at least in part, because knowledge of past accomplishments that were sustained over protracted periods engenders the feeling that the contemporary generation is the inheritor of a rich and proud legacy that their own efforts must sustain and embellish, even as they ready themselves to hand this legacy over to generations to come. Contemporary Indian society is unfortunately still imbued in large measure by feelings of inferiority in its pre-colonial prowess, achievements, and status. A significant cause is that despite political independence having been gained, a severe lack of knowledge of ‘maritime India’ persists.

This ignorance is frequently lamented as “sea blindness”. Yet, this lack of knowledge is not, by any stretch of imagination, a mere accident of fate. It is a deliberate extractive process without which a people cannot be placed for long under a colonial yoke. To achieve the latter, the very spirit of the colonised people must be

broken. In the case of India, this has required the deliberate and methodical stamping out of the natural pride of Indians in their past accomplishments. Destruction of organisational pride is one among several manifestations of a deliberate process by which the colonisation of wealth and territory is sustained through the colonisation of the collective mind of the people being placed under a colonial yoke. There are, of course, a whole slew of large questions that need to be addressed. Is the term “colonial” to be conflated solely with “European” colonial powers? Where should the line between “pre-colonial” and “colonial” periods be drawn across the historical evolution of the several socio-cultural entities that preceded the establishment of the modern nation-State that followed the 1648 ‘Peace of Westphalia’?

These larger issues notwithstanding, given that contemporary India is attempting to re-establish itself as a self-reliant nation with significant present and future capacity, capability, and potential, this article seeks to contribute to the engendering of national pride in ancient Indian knowledge and its practical applications in shipbuilding. It accordingly endeavours to lay the first step in a stairway whose ascent would lead to the rekindling of national pride by tracing the history of its shipbuilding industry and the surrounding evidence of maritime trade and connectivity, concentrating upon the ancient period of Indian history. This article also seeks to highlight India’s constant role in the history of the global shipbuilding scenario until the “medieval” epoch (defined by the advent of the Portuguese, the British, and other European powers), while making a passing mention of modern shipbuilding in the 19th century onwards.

Conventional wisdom asserts that India has always been a crucial hub for maritime trade, connecting the East with the West. The possibility that the English word “navigation” itself may have been progressively derived from the Sanskrit word ‘*navgati*’ must also be appreciated. Here, ‘*nav*’ means a ship or a vessel and ‘*gati*’ means speed or progress¹ India was an independent and crucial player in well-established mercantile trade in the Indian Ocean for centuries, well before the arrival of any colonial powers.² Since ancient times, Indian sailors ventured into the seas thanks to their knowledge and use of the monsoon winds. This deep understanding of seasonal patterns allowed them to travel safely and efficiently, opening up trade routes to faraway lands. *Satavahana* coins, dating as far back as the 2nd century BCE

to the 3rd century CE, also depict the use of winds for oceanic navigation. There is also a mention of ships propelled by the force of the wind, collectively known as *Pavanabalasamahaya*, in Buddhist Jatakas and Jain literature. Archaeological evidence suggests that seafarers sailing from the eastern coast of India, particularly from the modern Indian state of Odisha, have been conscious of this phenomenon for more than 2,000 years.³ The Indian Ocean, therefore, can be viewed as a familiar and shared maritime space since antiquity.

The study of Indian history is often referenced to three broad epochs, namely, the ‘ancient’, the ‘medieval’, and the ‘modern’ periods. The antiquity of an incident or event is established relative to an overarching timeline that is further subject to the aforementioned general classification, even though this does, indeed, have its own challenges concerning the underpinning colonial ideas surrounding the conflation of modernity with development.⁴ It is pertinent to note that when this timeline is imposed upon maritime history, the arrival of foreign powers may be viewed as one of the key markers for each period as it coincides with the time periods denoted in the general classification.

The term ‘foreign powers’ here loosely implies colonial powers that took over territorial control and purposely established a legacy that was independent-of, and often in contradiction-to, the Indian heritage, where the adjective “Indian” refers to the socio-cultural and socio-economic entity called “India”, even if not to a coherent geopolitical and cartographic one. This broad understanding of the term ‘colonial’ is replete with complexities and is, of course, vulnerable to criticism. It is certainly true that the interaction of foreign cultures with those of India, and the cross-cultural transplantation of techniques, crafts and methods occurring as a result, has had both, positive and negative spinoffs. However, this is an entire subject in and of itself and a separate concern, one way or another, altogether.

To return to the main threads with which this particular article is being woven, the arrival of the Portuguese powers, for instance, could well be referred to as a crucial event in the “medieval” period, within the context of maritime history.⁵ Likewise, the subsequent colonisation of India by the British might be said to coincide with the “modern” period and is another important maritime marker.

In somewhat striking contrast, the scope of ancient history presents a far less tidy set of markers. It is, in and of itself, a dynamic issue as, unlike the “medieval” and “modern” markers from which one goes forward to embrace contemporary times, the “ancient” period and its markers are constantly being shifted *backwards* in time, because of newer discoveries. That said, there is, today, an abundance of sources — both online and offline — that offer strong evidence of India’s significance in the ancient maritime world. Despite this growing body of evidence, seldom is India portrayed as a pivotal and essential political entity in the chain of dependence concerning trade and development — what we nowadays, at least in popular parlance, call “global supply chains” and “global value chains”. This neglect notwithstanding, as the second President of the USA, John Adams, said, “Facts are stubborn things; and whatever may be our wishes, our inclinations, or the dictates of our passion, they cannot alter the state of facts and evidence”.⁶ There is significant evidence that shows that India had a flourishing shipbuilding industry (albeit one of understandably varying levels of sophistication and application) right across history. It is probably colonial drivers that have relegated Indian seafaring to the fringes of academic investigation, and this is a travesty that urgently needs to be corrected, especially as modern India seeks to cast off the mental shackles of colonisation that have persisted far longer than have mere political ones.

In terms of the ancient period in India, the Harappan epoch is usually presented as the age containing the most reliable evidence when considering the origin of ancient shipbuilding in India. There are important sources from this era that suggest a heightened sense of maritime awareness and maritime identity. The oldest tangible evidence is in the form of images, seals, and other such remains. The variety in the design of the oldest known boats depicted in images from the Harappan period suggests a possibility of well-established contact with other cultures that probably contributed to such diversity in riverine and seagoing craft.⁷ There is also evidence of an Indus Valley seal that gives us an insight into ancient Sindh. It seems to represent a vessel, likely for riverine use, made of reeds, in which the reeds are lashed together at the bow and stern.⁸ The depiction on the seal from Mohenjo-Daro, along with a baked clay amulet, depicts a curved hull with vertical lines across it. These depictions are validated by Egyptian evidence of similar reed watercrafts (bundle

rafts).⁹ While Thor Heyerdahl's famous Ra, Ra-II, and Kon-Tiki expeditions, involving boats constructed from reeds captured the global imagination¹⁰, this has, sadly, not happened with the Indus Valley reed boat, despite its value and antiquity.

The native Indian genius thrived within civilisations such as the Harappans. They constructed sophisticated port cities like Lothal, which prospered around 2,400 BCE. These focal centres emerged as pivotal trade nodes, linking India via maritime routes to lands as far off as Mesopotamia. Excavated sites of the Harappan settlement phase, such as *Lothal*, *Nageswar*, *Kuntasi* and *Padri* present varied evidence that suggests that the Harappans did have a seaward attitude and had ventured as far as the Persian Gulf. About 35 Mature Harappan sites are situated along the coastline of Gujarat alone.¹¹

Marine archaeology, as a discipline, has also widely contributed to the knowledge of ancient maritime affairs and shipbuilding in particular as it offers detailed analyses of port remains and recovered shipwrecks. The *Godavaya* shipwreck located in Sri Lanka, which also happens to be the oldest shipwreck in the Asia-Pacific region, is 2,100 years old. It is a valuable find in the field of marine archaeology and supports the information surrounding trade in the Indian Ocean during the ancient period.¹²

While literary sources are relatively sparse in this regard, there are certain key texts that supplement the archaeological evidence. The *Rigveda* is known to be the oldest surviving literature record containing references to maritime activity. There is a mention of the *Samudra* or the seas in the text. There are also references to Lord *Varuna*, the Lord of the Sea, who knows all sea routes. Several passages detail anecdotes of sea voyages; of merchants sailing across oceans for trade and in search for wealth.¹³ Indian epics such as the *Mahabharata* and the *Ramayana* also contain descriptions of shipbuilding among other anecdotes that also address navigation, naval warfare, and various other kinds of maritime activity.¹⁴ *Sangam* literature also provides significant evidence in relation to Tamil traders of ancient India.

Aside from these literary sources, certain accounts of foreign travellers shed light on the state of maritime affairs prevalent during ancient India. Examples of these accounts include that of the "*Periplus of the Erythraean Sea*", the travel accounts of Marco Polo, and those of Chinese pilgrims such as *Fa-Hien* and *Hiuen Tsang*. The

“*Periplus of the Erythraean Sea*” along with Pliny’s work called “*Natural History*”, and Ptolemy’s “*Geography*”, are some of the more popular foreign literary sources that describe ancient India’s commerce with Rome. Supplementing these are ancient Tamil works along with ancient texts in Sanskrit and Pali, which refer to the land of ‘*Romaka*’, that is, the city of Rome and use words such as ‘*Yavanas*’ for Greeks and Romans.¹⁵

There is a record of the Board of Admiralty in Emperor Chandra Gupta Maurya’s War Office, as detailed in the well-known text *Arthashastra* authored by Kautilya. The *Arthashastra* also mentions several posts related to the naval department, for instance, there was a *Navadhyaaksha* (Superintendent of Ships) whose duties included navigation of the seas as well as inland navigation. It also expounds upon the construction and security of trade routes.¹⁶ The criticality of shipbuilding is also proven by the fact that the State also gave tax incentives to build ships.¹⁷ Maritime trade and connectivity were, therefore, a significant feature of ancient societies.

Various historical and archaeological sources in Sanskrit, Pali and other vernacular languages detail the use of timber for shipbuilding and the meticulous techniques employed to maintain the longevity of those ships. Panini’s work, called the *Ashtadhyayi*, which dates back to the 5th century BCE, elaborates greatly on different timber species and their use in ship construction among many other purposes. Patanjali’s work from the 2nd century BCE, likewise, mentions the particular use of *Deodar* for the construction of different parts of the ship, and the general variety of timber employed in the construction process. Many other foreign records, while expounding the many merits of Indian teak, mention that teakwood was exported to distant lands for shipbuilding, and construction of buildings, temples, and palaces.¹⁸ The discovery of Indian teak in the ruins of Ur of the Chaldees (present-day Iraq) dates back to 3,000 BCE, which serves as proof that commercial activity by sea between India and Babylon thrived during the ancient period.¹⁹

Human needs, as in every other walk of life, dictated the pace and scale of the development of shipbuilding. Looking at trade as a factor, it must be appreciated that India’s role was ever-changing, yet significant throughout time and so, too, were the waters around it. One is struck by the sheer dynamism of the ancient period, and

this ensures that the process of tracking backwards from the arrival of the Portuguese (which is part of the medieval period), is never a monotonous or linear exercise. As history is accorded its rightful place in the modern tale of India's prosperity and development, the centrality of shipbuilding begins to shine with an ever-brighter lustre. As mentioned earlier, ancient Indian seafarers, excelled at comprehending the potency and complexity of the monsoon winds. They designed and built ships and craft that were capable of utilising these seasonal winds to effect not merely close-coast voyages but ones that involved sailing out of sight of land for protracted periods, thereby laying the foundation for trade routes spanning the Indian Ocean and farther regions. Evidence suggests that it was not just voyagers but Indian maritime craftsmen, too, were adept at employing their refined skills to develop indigenous shipbuilding methods. Their innovative approach displayed ingenuity and resourcefulness that marked them apart from the rest of the world while actively contributing to the development of robust and seaworthy vessels.²⁰ A series of evidence, which can be encountered going further back in time from the period, portrays a shipbuilding industry with increasingly indigenous ideas in action.

An 11th century Sanskrit text called *Yuktikalpataru* offers elaborate insights into the shipbuilding practices of the time. Generally credited to King Bhoja of Dhar, the text sheds light on various aspects pertaining to shipbuilding. It details size-related specifications and methodologies with remarkable granularity, showcasing the distinguished prowess and calibre of Indian shipbuilders during the 11th century. Shipbuilders had immense knowledge of the properties of wood, which, of course, was the most crucial material for shipbuilding during the ancient period.²¹ However, shipbuilders were also confronted with various challenges of using wood as the primary material for shipbuilding. The durability, strength and resilience of wood was a serious issue.

A wreckage salvaged in 1961 provides an insight into how people may have gone about resolving such issues during those times. The ship was made of Kerela teak, which was known for its durability. Since iron was not being used by Indian shipbuilders in those times (with good reason, since iron was prone to rusting), the ship's planking was stitched together with coil yarn dipped in fish oil.²² Traces of this technique of building stitched or sewn ships exist in certain communities to date.

Although the arrival of the Portuguese (and subsequent colonial powers) certainly marked a decline in favourable command of the seascape, this was a gradual process. Right up to the middle of the ‘modern’ historical epoch, India continued to witness considerable activity in its shipbuilding industry. At sea, there was still an interesting mix of cultures and crafts at play; while “junks” populated the eastern coast as they made their way from China, the western coast was dominated by “dhows”. Junks, which were large sailing vessels with a distinguishable and unique design, are traditionally associated with East and Southeast Asia. They were characterised by a high stern and projecting bow, featuring up to five masts to support highly manoeuvrable square sails crafted from panels of linen or matting and later flattened by bamboo strips.

Massive rudders were used in lieu of a large keel or centreboard. Solid bulkheads partition the hull both transversally and longitudinally, thereby providing structural strength to the craft.²³ Dhows, on the other hand, were a quintessential mix of Indo-Arab techniques. The masts and yards of traditional dhows were originally constructed using Indian teak and coconut wood. Early versions had their sails woven from coconut or palm leaves, while the subsequent use of cotton (which was also from India) made longer voyages possible. The planks used for the hull were often stitched or sewn together and the vessel most often featured a triangular (lateen) sail, which allowed it to sail much closer to the wind than a square sail would have allowed.²⁴ Duarte Barbosa, a Portuguese worker on the Malabar Coast during the early 1500s, recorded that sewn-plank boats plied annually between Calicut and either Aden or Jeddah. Meanwhile, on the eastern coast, a Dutchman named Peter Floris, working on the Coromandel Coast, also noted the presence of local sewn-plank boats, both at sea and at the harbour, near Madras (present-day Chennai).²⁵

However, the scenario changed as the shipbuilding industry encountered massive, even if gradual, changes. The pace of this change increased dramatically as the 18th century gave way to the 19th and European shipbuilding practices became predominant across much of the colonised world. The 19th century is, in fact, regarded as a transformative era, principally because it marked the shift from wood-centric shipbuilding to the use of iron and steel for the construction of ships. The age of sail gave way to the age of steam, impacting the design of ships as place had

to be found for steam engines and the coal (and later, heavy oil) that would propel them, as also for the shafting and propellers that the steam would be used to run.²⁶ In many ways, this period laid the groundwork for the contemporary shipbuilding landscape.

As a colonised nation, particularly under the British, India's position in the shipbuilding world changed significantly. Faced with an acute timber shortage after losing access to American forests and its own depleting oak forests, Great Britain was absorbed with the aim of acquiring raw materials from India, particularly teakwood. Another reason behind this urgency was the immediate need to free Great Britain from its dependence on foreign territories such as the Baltic nations which did not belong to it.²⁷ Therefore, it may be argued that right from the late 18th century onwards, British control of Indian forests grew exponentially to cater for its shipbuilding industry. India's role, on the other hand, had diminished drastically from being an acknowledged repository of shipbuilding skills to being a mere provider of raw material.

There is much evidence to suggest that the civilisations that dared to venture beyond their territorial limits, into the uncharted seas, thrived. This unique blend of evidence, if reconciled and juxtaposed with records of dexterity, may render a multitude of possible narratives. The diverse sources which generally encompass oral histories which are passed down through generations, written documents or inscriptions from various periods, and the surviving traditions and rituals are significant. The fundamental challenge, therefore, is to reconcile this rich tapestry of sources and often distinct or disparate elements to construct a cohesive and reliable historical narrative.

In conclusion, it is important to point out that the overwhelming arc of development in this century if coupled with a myopic view of history, would propagate the notion that significant shipbuilding developments occurred exclusively in the 19th century. While this era can undoubtedly be credited for bringing in such revolutionary change as informs common contemporary knowledge, it is also crucial to remember that this is hardly the first revolution to have occurred in this regard and far from remaining imbued with a sense of inferiority that has been assiduously

planted by colonial powers, India needs to take pride in its ancient knowledge systems and to pick up the threads of subcontinental history that were so callously snipped by colonising entities. In this wider effort at not merely restoring justifiable pride in indigenous effort and achievement, it is not merely the story of Indian shipbuilding that is at stake but Indian mind-building itself. This is an endeavour that is both noble and necessary if ‘maritime India’ is to be revived and restored to a position befitting its contemporary aspirations.

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Book Review

Empires of the Sea: A Human History of the Indian Ocean World

Radhika Seshan. Pan Macmillan Publishing India Pvt Ltd, 2024. 236 Pages,
Rs 357 (Paperback) ISBN:978-93-90742-50-9

Ms Priyasha Dixit

Radhika Seshan's book, "*Empire of the Seas: A Human History of the Indian Ocean World*", breaks new ground in the ongoing process of re-evaluation of Indian history, in that it attempts to augment this process through a specifically "maritime" lens rather than the usual land-centric ones. Refreshingly, the author places the seas at a central position in the story of human development and, thereby, of human history, even the oceanic space covered by the author in this book is contextualised to the Indian Ocean. It has a total of six chapters, which detail, through a progressive timeline, India's maritime history. The author's research is theoretically grounded, and she seeks to conduct her inquiry in a largely subjective manner, although her work is, of course, supplemented by objective evidence. This approach is well chosen and is quite capable of supporting the seminal argument that she seeks to justify.

The book begins by looking at 'water' as a key physical element, and shedding light upon its association with human history. However, the theoretical question that the author explores is whether it is possible for 'water' (as an element), particularly in context of the Indian Ocean, to have a history of its own that could be traced backwards through time. In the introduction of the book, the author delves into a myriad of subjects that outline the role of 'water' and the various ways of projecting its history. The history of water, Seshan contends, can be viewed as a mix

of geographical realities married to human ability, imagination, and artistry. The lifestyle of coastal communities — how they navigated these waters and the craft borne of artistic imagination — amalgamate the physical and representative worlds. This, according to the author, is because the presence of ‘water’ is both tangible and intangible.

A crucial point that the book brings out is the central role played by the political imagination of human beings, and its resultant manifestations through human linkages with the sea. It strives to highlight a point in time when human association with the seas began to develop into territorial attachment and grew sovereign aspirations, which have led to the incremental “*subordination of the seas*”. The human ambition of controlling and owning a medium as fluid as water borders upon hubris and this is a particularly intriguing point that Seshan makes. She also prompts that the real gap (beyond the political imagination/connection) in the study of human engagement with the seas lies in the physical aspect, that is, an understanding of the *literal* affinity of the masses with this element.

The first two chapters attempt to define the geographical layout of the Indian Ocean, while outlining the extent of interaction, and the native understanding and indigenous innovation which developed as a result. The author brings out the connection between ‘geography’ and ‘history’ as disciplines, and the subsequent effect of this connection upon culture. The author then delves into the diverse nature of human linkages to the Indian Ocean and their influence on the wide corpus of knowledge. She posits that a host of valuable knowledge developed because of a strong cultural foundation, one that rationalised the lifestyle which came about as a result of physically experiencing the seas as an important part of human experience and evolution. Seshan comes up with rather unique markers in time, which begin from the Harrapan civilisation, then move onto trade with the Romans, and finally encompass the period defined in “*Sangam*” literature. Varied evidence of trade (such as from seals, sculptures, and trade routes) plays a central role via which maritime activity is traced throughout this segment of the book. The subject of ‘trade’ also lends itself to the subsequent chapter, which explores the busy maritime trade networks that were spread across the region well before the arrival of the Europeans.

Another key point that the author highlights is the overlap between the “*worlds of water and land*”, wherein she extends the maritime world into the hinterlands of India,

nudging the reader to move beyond just the ocean and the coast. The author relies on a great variety of sources aside from archaeological evidence, and these include religious rituals and performances, and regional literature. Importantly, Seshan does not shy away from consciously addressing gaps in colonial historiography. In the third chapter, the author essentially brings forth the idea that with the arrival of European seafarers, the erstwhile expansive geographical spread and the wide-ranging functional scope of maritime activity in the Indian Ocean began to shrink and this continued until both were ultimately subsumed within the conceptual bounds of European colonial rule. Seshan contends that an authentic collective or general affinity to the seas, therefore, lasted until the thirteenth century, after which this generic understanding, and the symbiotic relationship between indigenous peoples of the Indian Ocean and their oceanic environment began to dissolve and become fragmented. It is the thirteenth century onwards, the author opines, when European imagination of the “East” began moving towards realisation. In the fourth chapter, the book addresses the pre-European networks that existed in the Indian Ocean — a network that was rendered by the European arrival. Her review of these pan-oceanic networks then gives way to the segment that focuses upon the arrival of the Europeans. Interestingly, Seshan challenges the conventional wisdom that holds that the success of the Europeans was due to the lack of knowledge of the sea on part of the Indian kingdoms (and other subordinate geopolitical entities), stating this to be both factually and historically incorrect. Although she herself does not, in the opinion of this reviewer, address herself adequately to this assertion and its defence, Seshan nevertheless performs an important service in not merely identifying a new doorway to historical knowledge but in opening it for other researchers and historians to explore this pathway and in so doing, separate shibboleths from facts.

Seshan utilises her fifth chapter to underscore additional key points of her research narrative as she details the clash of thought and change of perception surrounding the sea itself once the Portuguese begin establishing dominance by claiming control of the coast and the sea. This was, in fact, the initial introduction to the concept of the sovereignty of the seas. The final chapter highlights how the resulting political instability and establishment of colonial rule changed the state of the Indian Ocean region forever.

Through this book, the author has successfully put forth a humanistic perspective in line with its inquiry into the maritime aspect of Indian history. Seshan deals with an extensive timeline and varied sources simultaneously — which taken together, become prone to subjective findings and conclusions — making the nature of the text rather eclectic. Since each chapter carries a theoretical question (often addressed through multiple lines of inquiry), there is a seductive flow to the content. This essentially means that while the content is packed with an impressive amount of objective evidence, its flow relies extensively upon its theoretical grounding, thereby generating a nuanced interplay of style and purpose of writing. In conclusion, it must be acknowledged that the author has, with competence and style, addressed an important gap in the understanding of the maritime history of the Indian Ocean. Each theme explored through different chapters in the “*Empire of the Seas: A Human History of the Indian Ocean World*” generates an invaluable marker for further research. This set of pointers differentiates the book from many other more pedestrian and more Eurocentric narratives, providing the reader with a set of gems to gather at will.

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*Maritime Diplomacy and
Soft Power*

The Evolution of Indian Maritime Diplomacy: From a Zone of Peace to Growing Strategic Friendships

Mr Arjun and Ms Poornima Vijaya

Geopolitical trends in the Indian Ocean Region (IOR) have distinctive yet challenging undertakings. For decades, political commentators have struggled with defining the maritime boundaries of the IOR, despite its growing importance. This challenge is partly credited to the very conceptualisation of the region. Is it an economic thoroughfare, described by trade and cooperation, or is the geo-strategic competition that accentuates the growing concerns of resource vulnerability that further impairs the preceding security dilemma in the region?

In this context, India has, lately, endured consistency in its conceptualisation of the mounting importance of the Indian Ocean - a region beyond its narrow geographical lens, is viewed holistically with a potential rise of great power status. Despite the historical underpinnings of maritime connectivity and informal diplomacy, India's maritime geo-strategic initiatives are a relatively recent phenomenon.

This article elucidates two central components of India's evolving maritime strategy- utilitarian bilateralism and selective plurilateralism. Utilitarian bilateralism in Indian maritime diplomatic attitude is expressed through New Delhi's strong emphasis on pursuing bilateral naval diplomacy with 19 countries, mainly the US, Japan, France, South Korea, Australia, and the ASEAN States to enhance their capacity-building measures and undertake developments in new areas of technology, logistics, exercises, and information sharing.

Additionally, India's selectivity in its plurilateral exercises and diplomacy through IBSAMAR (with Brazil and South Africa), MALABAR (with Australia, Japan, and the US), MILAN (with Southeast Asia), and newfound emphasis on the growing

construct of engagements through the Quad architecture, thus strategically indicates its steadfast efforts towards mitigating and deterring the expanding Chinese influence in the IOR. As for the Chinese, the IOR is central to their ambitious Belt and Road Initiative (BRI).¹

Furthering, this article is divided into four parts. Firstly, it examines the evolution of Indian maritime strategy in the post-colonial era, which was deep-rooted in exclusionary propriety and the rhetoric of non-alignment. Secondly, it charts India's gradual shift from a reflective embattlement towards India's new self-confidence of inclusivity. An array of factors has contributed to this shift in maritime attitudes with the emergence of favourable geopolitical conditions, thus providing India with an opportunity – the '*Maritime Peace Dividend*' – enduring India's growing capabilities, power projections and employing soft power to further integrate the region under India's sphere of influence.

The following section highlights the range of obstacles that undermine New Delhi's attempts at coordinated strategies of collective actions to enhance its prime integrative powers in the IOR. The final section explores maritime opportunities under the evolving strategic environs, thus compelling India to adopt cohesive bilateral and plurilateral maritime diplomacy in pursuant of common goals of safety, security, peace, and prosperity.

Exalted Morality of the Past: Fixation on Zone of Peace, and Bilateralism

The Lusaka Non-Aligned Conference held in September 1970 was purported for "*states to recognize and respect the Indian Ocean as a zone of peace from which the great power rivalries and competitions, as well as bases conceived, are excluded*".² Enthusiastically, India spearheaded this initiative with support from other states such as Sri Lanka and Indonesia. The following year, the United Nations General Assembly (UNGA) adopted a resolution on 16 December 1971 to declare and recognise the Indian Ocean as '*for all time a zone for peace*'.³

Throughout this post-colonial era, India's strategic focus was situated over land borders while disregarding the importance of maritime security, primarily due to

the frequent conflicts emerging from China and Pakistan.⁴ Many analysts have accounted for New Delhi's imprudent fixation over the mainland borders as a response to the strategic circumstances and complex path dependencies.⁵ The empirical data following the decades after independence indicates the severe underfunding of the Indian Navy.

“In principle, the proposal to declare the Indian Ocean Region (IOR) as a zone of peace is strikingly apposite. Increasing Chinese presence and the threat of PLA-N bases in the IOR, the growing interests of other major powers (US, UK, Russia, France, and Japan) in the region, and the many Chinese infrastructure projects in the region, create an imperative for India to actively limit the military maritime activity of external powers in the region. But attempting to do so through the IOZOP route will ensure that while no military activity is ever practically curtailed, Indian influence and credibility in the region will be severely eroded”.⁶

Confronted with the new realities of material weakness and the growing presence of strong militaries in the region, India resorted to a tactic generally employed by smaller countries to appeal to the “*Morality*.” India's eagerness to embrace the idea of ‘*the zone of peace*’ can be analysed in a similar light of former Yugoslavian President Josip Tito, to propose the Mediterranean as a ‘*sea of peace*.’⁷ Both the nations, desirous of maintaining a degree of strategic flexibility in a constantly intensifying bipolarity, attempted to use *Morality* to preserve a modicum of autonomy while evading the great power rivalry. The December 1971 War exposed the Indian Navy to severe attacks.⁸ Despite the victory, new vulnerabilities from state and non-state actors, discussions on the overall security, prosperity, and naval integration to India's grand strategic vision, re-emerged over the last few decades.⁹ However, the gradual spill-over of the Sino-US rivalry into the IOR drew many analysts' attention to contemplate the renewed strategic importance of the region.¹⁰

Former US National Security Advisor, Zbigniew Brzezinski has notably observed that ‘*the arc of crisis stretched along from the shores of the Persian Gulf to the Indian Ocean*’ with severe fragility in political, social, and maritime institutions fissures, constitute the gaps in the security infrastructure of the state.¹¹ Subsequently, a dire warning for a coherent strategy led to the reactive nature of India's new maritime developments in the region. Despite the rapid advancement in naval technologies, India's maritime prowess failed to translate into effective naval diplomacy during the Cold War era.

However, in the recent past, India has held bilateral missions, promoting interoperability, security, and trade activities in the region with a significant number of countries including the Maldives and Sri Lanka in the neighbourhood, member states of the ASEAN, the Middle East, and with a few European navies, as well. Bilateralism under the SAGAR initiative (Security and Growth for all in the region) has expanded the utilitarian spheres of naval diplomacy with exercises such as Varuna with France, Konkan with the British Royal Navy, INDRA with Russia, SIMEX with Singapore, and JIMEX with Japanese Navy, thereby contributing to enhanced trust and cooperation.¹² Joint-Manship and deterrence against Chinese aggression and belligerence in the IOR and the Pacific have been the focal points during these exercises.¹³

Shifting to a pragmatist foreign policy has led to both display of strength though subtle projections of power as well as, panic in public discourse due to the loss of neutrality in India's foreign policy disposition, because of its simultaneous multilateral engagements with new emerging power rivalries in the region.¹⁴

Strategic Shift in India's Maritime Engagement Policy - Towards Selective Pluralism

The end of the Cold War brought radical shifts in India's maritime policy. The collapse of the erstwhile partner, the Soviet Union, made Indian policy-makers pragmatist in their approach to international issues. This ideological shift represented India's departure from the Nehruvian non-alignment and appealed to morality in its substantive manifestations to engage strategically and economically with various nations.¹⁵ The Indian Navy's Maritime Doctrine of 2004 and 2009 reiterates the importance of the Navy's role as the ultimate guarantor of economic growth, virtuously upholding freedom of navigations of seas and ensuring the safety of sea-lanes of communications of the region.¹⁶

Scilicet, India has been proactive in its desire to shape the multilateral discourse concerning the Law of the Seas. India ratified the UNCLOS in 1995 and is deeply involved in various maritime organisations such as the International Maritime Organization (IMO), the International Seabed Authority (ISA), the International

Tribunal for the Law of the Seas (ITLOS), and the United Nations Convention on the Law of the Sea (UNCLOS, 1982).¹⁷ As India realised the importance of the Indian Ocean, the 'Act East Policy' pursued through diplomacy, both bilateral and multilateral, thus securing their vital economic and security interests in the region. IOR is an emergent 'centre stage' and 'a crucial theatre for global strategic interest for all militaries, regionally and globally'.¹⁸ Multilateral structures in the IOR namely the Indian Ocean Rim Association (IORA), the Indian Ocean Naval Symposium (IONS), and the Indian Ocean Commission (IOC) in conjunction with external balancing measures of multilateral maritime exercises such as Exercise MILAN and Exercise MALABAR, collectively display a naval culture of common interests, challenges, and objectives.¹⁹ However, a vacuum has emerged with the growing Chinese hegemonic interest and in response to such changes, Dr Jaishankar says,

“Multilateralism has fallen short and bilateral delivery is not what it used to be. The world is moving towards multipolarity, rebalancing & plurilateralism. Shared values and comforts create new combinations. Will not fall for mind games. India-France-Australia: From maritime security to blue economy; HADR to emerging technologies; resilient supply chains to counterterrorism; sustainability to connectivity. And to sports and education. Coming together for global, regional & national benefit”.²⁰

Many scholars continue to deliberate whether India has a definable grand strategy, yet there is growing consensus upon the notion that sustained economic growth supersedes strategic priorities. The Indian Ocean is pivotally located at the strategic crossroads of global trade, connecting several international economies, and promoting convergent interests. Thus, furthering on the same agenda, India's primary focus lies in maintaining and upholding an open economic order through securing supply chains, ensuring sea lines of communication, and vital intelligence-sharing for maintaining peace and security of the ocean.²¹ Leveraging the Indian Navy as an instrument for economic growth, by virtue of its constabulary role in protecting the critical sea lines of communication in the IOR, combating piracy, tapping seabed resources and more importantly safeguarding the country's offshore energy installations, it however, remains a 'Cinderella Service',²² accounting for 15 percent of the defence budget. Undeterred by the vicissitudes in the Navy's budget, the latest data of 2021-2022 indicates a static 15 percent allocation of India's defence budget towards naval operations, modernisation, and maritime security.²³

Despite the navy being significantly underfunded, India seeks to expand its regional influence in the IOR as a Net Security Provider.²⁴ This is further demonstrated in India's eagerness to accomplish unilateral actions such as deploying ships to the Gulf of Aden, escorting US ships through the Malacca Straits, and deploying vessels to Colombo for security against LTTE, under the UNSC Resolutions and Combined Multinational Task Forces. In its efforts to ensure freedom of navigation and safety of sea-lane communications, New Delhi has increasingly engaged in naval cooperation, despite remaining wary of joining any regional groupings with rotational command structures, thus limiting India's operational autonomy.²⁵ Nevertheless, a subtle amalgam of economic and ideological underpinnings has shaped the Indian Maritime Doctrine since the end of the Cold War.

Since 2014, the Indian administration under PM Narendra Modi, has revisited the '*Look East Policy*' and rebranded it as the '*Act East Policy*'. This policy shift aims to bring a cohesive structure to India's foreign policy, simultaneously accomplishing the national goals, notably in the North-eastern region of India. This region has been a continual challenge for India, given its landlocked geography, history of insurgencies (aided externally by China and supported internally by numerous separatist groups), and the overall inadequacy of infrastructure that has hindered the region's development.²⁶ India is actively seeking to achieve profound economic and political goals through extensive linkages connecting the two regions, namely, the Indian Subcontinent and the Southeast Asian region.

Origin of the '*Act East Policy*'

In an endeavour to advance economic and security cooperation in the IOR, as well as to foster and extend cultural ties with all the Indo-Pacific countries through uninterrupted engagements at various bilateral, regional and multilateral levels, New Delhi has promoted the '*Act East Policy*'. This diplomatic effort is intended to exalt the prevailing bilateral relations and transform them into a comprehensive strategic partnership.

Likewise, it also strives to increase the degree of engagement between the North-eastern states of India with its Southeast Asian neighbours through enhanced physical

connectivity and infrastructural development, by air, railway and road. The Indian government has given precedence to the North-eastern states as a 'gateway' to carry out the 'Act East' policy due to its physical proximity with the ASEAN member countries, strengthening its bilateral relations through cultural and people-to-people contact. Regarding issues of strategic affairs, there has been an increasing concurrence of cooperation to combat terrorism and promote maritime security in conjunction with international laws and regulations.²⁷

In the face of China's truculent disposition and its growing regional and global ambitions, the 'Act East' policy could be regarded as one of the country's most pivotal regional foreign policies that acts as a countervailing measure against the Chinese expansionist approach in the Indo-Pacific - an extension of its erstwhile 'Look East' policy introduced post-Cold War 1991, by the then incumbent Indian Prime Minister, Dr P.V Narasimha Rao. The 'Look East' policy was enacted in a bid to reinvigorate India's economy, under the initiative of the economic liberalisation programme to abate the over-dependence of trade, on the West.²⁸ In doing so, it redirected India's primary focus from the West to the resurging East. The key objective was to forge strong economic and political cooperation and to integrate exclusively with the Southeast Asian nations. This move proved to be a game changer for the Indian economy in many ways, resulting in an upsurge of Indian exports to Southeast and East Asia at 14.7% annually between 1990-2013. Apart from this, India had signed numerous Free Trade Agreements with the Southeast Asian economies as well. Over and above, the economic reformation paid significant dividends to the national treasury and laid the cornerstone for trade integration between Indian and the ASEAN up until 2014.

Although the 'Act East' policy is an evolutionary continuation of the erstwhile 'Look East' policy, its *raison d'être* is entirely different.²⁹ Apart from their respective objectives which depart from the same point, the two policies diverge in terms of their overall impact, geographic entourage, political and economic outreach, and strategic outcomes. The following chart features a summation of the quintessential characteristics that accentuate the differences between the two policies:

Table 1

'Look East' Policy (1991)	'Act East' Policy (2014) (<i>Act East Policy of India, Launched in 2014- A Comprehensive Overview</i> , 2021)
Objective: To enhance economic cooperation exclusively with the ASEAN members.	Objective: To enhance economic, political and strategic cooperation beyond the ASEAN architecture to all the Indo-Pacific member countries. To build physical infrastructure for greater connectivity with ASEAN members through the Northeast region of India.
Purpose: To reduce its economic dependence on the West, namely the Soviet Union after its fall, and to find an alternative in the East and Southeast Asian economies.	Purpose: To forge stronger strategic bilateral relations with the Indo-Pacific member countries to offset China's increasing influence and footprint in the Indian Ocean region and in the South China Sea.
Lack of defence cooperation.	Greater thrust on defence cooperation.
The Northeast was overlooked while drawing out the plans to forge deeper ties with the Eastern neighbours.	The development of the Northeast is given preponderance in the strengthening of ties with East and Southeast Asia.
Inefficient use of Track-III diplomacy for fostering bilateral relations.	Commissioning all aspects of Track-III diplomatic tools to bolster relations with the member countries.
India did not aid in the development of infrastructure in the neighbouring countries.	India has collaborated with Japan to assist in the construction of infrastructure in Bangladesh, Myanmar and Sri Lanka

Source: Collated by the Author

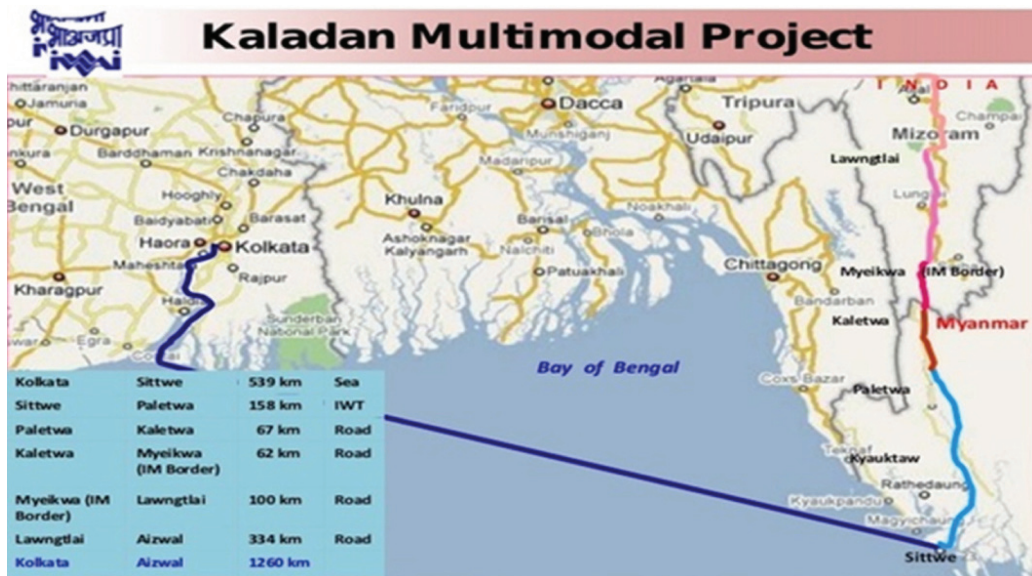
Opportunities and Challenges of Infrastructure Project in the Northeast

The Government of India has paid special heed to the infrastructural development in this region. Several cardinal projects financed by the Central Government have been undertaken to provide impetus to the 'Act East' policy.³⁰ Despite the best efforts the Kaladan Multi-Modal project that oversees the infrastructural development in the Northeast, the project has encountered several roadblocks that have stalled and delayed the much-needed infrastructure development required to physically integrate the Northeast with the ASEAN neighbourhood. The complexities and the challenges of the landscape include the topography, monsoon, landslides, land compensation arrangements and most importantly, insurgency. All these factors have affected and arrested the momentum of the project.³¹

The Kaladan project is configured to connect the East and Northeast of India with Myanmar, via sea connectivity from Kolkata to Sittwe and northwards to Mizoram through Myanmar. This project is estimated to open and strengthen economic and strategic interaction between the two countries, while reducing the physical distance between Kolkata and Sittwe by almost 1328 km. Furthermore, the Indian Government has identified various land ports, waterways, and integrated checkpoints all along the region as trade rivets to the ASEAN. Moreh in Manipur and Akhaura in Agartala are major sources of land-port based trade junctions. The government has confirmed that the India-Myanmar-Thailand Trilateral Highway will serve as the main trade and tourism artery in the future, for the region. As far as the physical infrastructure is concerned, the transnational highway is in good condition, except for a 120 km long Kalewa-Yagyi stretch, which is currently being upgraded to a two-lane highway by the Indian Government and this project is set to be completed by 2021.³²

Tripura has gained the attention of institutional investors as a potential hub of logistics for the Northeast, on account of a project funded by the Government that will connect Sabroom, the southern-most tip of Tripura to the Chittagong

Figure 1: Kaladan Multimodal Project



Source: Quora

Port in Bangladesh, 64 kms away from each other.³³ This leg of the project welds the Northeast to the Indian Ocean and therefore, provides new trade arbitrage opportunities. Upon completion of the project, it will advance the prospective of Tripura as a state, to compete in a two-way trade with Kolkata.

The Central Government is driving towards an '*all-round development*' of the region through airways, highways and railways, which would provide multi-mode connectivity to South-East Asia. As a result, several highway and railway projects are underway. The Civil Aviation Ministry is expanding intra-regional air connectivity through the UDAN Scheme. In the coming months, Guwahati Airport is going to introduce six flights to the ASEAN region, extending its international outreach. The Civil Aviation Ministry in November 2019 launched the 4th phase of UDAN with a particular emphasis on the Northeast region, granting 78 new routes in conjunction with the foreign policy.³⁴

Security Threats Prevailing in the Northeast and Adjacent Neighbourhood

The Northeast region of India was neglected for far too long and as a result, has experienced a lacuna of infrastructural development leading towards poor regional connectivity since independence. With the advent of the '*Act East*' initiative, this region is witnessing a rapid make-over of infrastructural development which could trigger a greater thrust of movement not only within the country but internationally as well.³⁵ This region offers many opportunities for investment in the development of various sectors; however, it is crippled by a large number of security challenges that hinder it in manifesting its potential.

Among the many security concerns, the burgeoning of contraband items such as narcotics and illegal arms trade is the most prevalent. Considering that the Northeast is adjacent to the '*Golden Triangle*' an epicenter of heroin-based substance trade, contrabands are routed through and distributed all over the region.³⁶ Porous borders, mountainous terrains, extensive vegetation and the same ethnicity living on either side of the boundary, render the complex manning and controlling the influx of movement of the contrabands across the borders even more arduous. Coupled with these challenges, there persists one more deep-rooted threat of insurgency.³⁷

Insurgency has been prevalent in this region for several decades now, harming and halting the daily routine of its people, while suspending the growth and development of the states. Nonetheless, a concerted effort between the Union Government and the Northeast State Governments has seen to the abatement of insurgency, while ensuring a considerable stable functioning of the state. As it stands, the region is largely free of terror and enjoys a peaceful ambience like never before.

Nevertheless, several Indian insurgency groups have taken refuge across the border; and it is through constant monitoring and vigilance by the Indian security agencies that their influence and morale has waned. On this account, in a recent military development on 26 December 2020 over 50 National Socialist Council of Nagaland, Khaplang Yung Aung (NSCS)(K-YA), Naga insurgents had surrendered to the Indian Army due to the relentless military counter-insurgency operations on the India-Myanmar Border.³⁸ Moreover, the regular exchange of military intelligence between the Indian Army and the Myanmar Army has led to the elimination of the insurgent top leadership, resulting in the surrender of over 50 cadres. Despite such heavy military deployment, surveillance and coordinated military operations along the borders, there have been attacks on the Indian security forces. Apart from insurgency, militancy too has harried and threatened the development and completion of the Kaladan project.

China's Abetting Insurgency in Myanmar to Derail the Kaladan Project

Adding fuel to the fire, the Chinese have been sneaking in arms and ammunition to equip various terror outfits across the Myanmar-Bangladesh border. Several reports have stated that China has been funding seven terror groups including the '*Arakan Army*' (AA) and the '*United Wa State Army*' (UWSA) in Myanmar to target the Kaladan project and to protect China's Belt and Road Initiative (BRI) in Kyauphyu, a deep seaport that provides China, access to the Bay of Bengal.³⁹ To corroborate Chinese involvement with the terror outfits in Myanmar, the Thai security officials had intercepted a large weapon consignment of Chinese-made weapons near the Thailand- Myanmar border, besides arresting a few. Following the interrogation, it came to light that the AA had requisitioned the arms from China. It was also

revealed that there is a Sino-Pakistan axis that is responsible for sponsoring various militant organisations in Myanmar to target the Kaladan project.⁴⁰

The Kaladan project poses a direct competition to the China-Myanmar Economic Corridor project (CMEC) under the aegis of the BRI. The CMEC proposes to connect China's southern province of Yunnan with Myanmar's city of Mandalay and to further extend it southwards to Yangon and southwest to Kyaukpyu. From the strategic perspective, China perceives Myanmar as a crucial partner for the development of the CMEC, which includes the construction of the Kyaukpyu Special Economic Zone and the building of a deep-water port in Kyaukpyu, in the state of Rakhine.⁴¹ Suppose Beijing realises its ambitious project, it will not only make inroads into the Bay of Bengal and the Indian Ocean but will place itself within striking distance of the Indian shores.

However, much to Beijing's displeasure, the CMEC has failed to gather much momentum and fair wind since its announcement. The reason being, that critics from across various quarters, including the public in Myanmar, have raised their concerns over the fear of the country running into the Chinese

debt-trap much like Sri Lanka and Pakistan. Drawing lessons from their former's experiences, the Myanmar military has swayed its government to withdraw and cancel several of its joint-venture projects with China along the CMEC and effectively persuaded to cut-back the initial estimate of the Kyaukpyu port project from \$7.5 billion to \$1.3 billion, while increasing its own financial share from 15% to 30%.⁴² By taking such bold measures, Myanmar has taken the wind out of China's sails limiting the latter's economic verve in the country.

Figure 2



Source: Twitter.com

In contrast, India and Myanmar inaugurated the Sittwe port on May 09, 2023. under the Kaladan initiative, resulting in the free flow of goods and an increase in trade activities between the two nations. If the Kaladan project prevails, it may render the CMEC ineffective and redundant to a certain extent, leaving China in the lurch. The only way CMEC could remain relevant and in contention is if the Kaladan project fails. Therefore, China is using every possible means to destabilise and deter the project from succeeding, by furtively abetting insurgency in Myanmar.

Against these complex diverse security challenges, one begins to ponder whether the Northeast is adequately safe, to executive an economic foreign policy of trade and commerce of such magnitude through these corridors. However, until the security architecture in the region is rendered fool-proof, one reckons that there will be no exponential gain in commercial and trade activities despite the infrastructural layout, as every business enterprise desires to operate in a secure environment. Nonetheless, despite these challenges, India should continue to persist with its interests in the region, as it would not only provide employment and economic opportunities for all, ergo help abate insurgency and militancy in due course, but also offer an opportunity for the country to reinforce its ties with ASEAN, in the wake of Chinese belligerence and military adventurism. Under these treacherous circumstances, is there a better alternative for India to complement and engage its '*Act East*' policy?

Andaman and Nicobar Islands an Opportunity

Despite the absence of a coherent National Security Doctrine, evaluating the numerous statements issued by both the governments and the strategic community in India, it is evident that India has a relatively more comprehensible and planned vision of its past, present, and future roles in the IOR. New Delhi strategically upholds the value of maritime diplomacy to bolster perceptions of India as a compassionate and responsible power by,

- (a) Enhancing the global prestige by being viewed as a responsible stakeholder and as a custodian of the global commons, and.,
- (b) Positively shaping the maritime security environment by emerging as an integrative power in an essentially disintegrated region.⁴³

India's eagerness to embrace the political use of maritime power is not a new phenomenon. It is, rather an age-old notion that states which direct their power and developments, seawards, will appear less threatening and hostile to the neighbors, thus shape favourable perceptions than those that are wed into the continental, geopolitical game of domination.⁴⁴ Despite the wide array of political regimes ranging from dysfunctional democracy to crawling authoritarianism, the Indian Navy has repeatedly suggested that the '*small mobile pieces of national sovereignty are also floating vessels promoting the ideals of democracy*'.⁴⁵

New Delhi's continual efforts to maintain its image as a vibrant democracy reflects on its power projections abroad. The Indian maritime doctrines recurrently elucidate the strategic importance of upholding its primary and secondary spheres of maritime interests. Hence, coherently differentiating the same, India maintains its primary maritime zone covering the Persian Gulf, and secondary zones stretching until the Red and South China Seas.⁴⁶

Maritime diplomacy is considered as an instrument to shape India's strategic environment, as an integrative power in the region, which is plagued with several challenges, ranging from climate change, piracy, natural disasters, and governmental deficits. However, India's ambitions are to foster stability in the region through a two-pronged strategy – firstly to discharge the increasing number of custodial duties, and secondly, to implement a '*neo-Nixonian*' approach of building regional capacity by assisting the weaker states to help themselves.⁴⁷

External powers with strategic ambitions in the IOR have impeded India's determination to become an integrative power - notably China's growing economic presence in the region has diluted India's bid to gain control and influence over the smaller archipelagic and littoral states. Due to such foreign interference, India will continue to be perceived as a resident power instead of an indispensable power.⁴⁸

Against this backdrop, the Andaman and Nicobar Islands offer a potential strategic sphere of influence, economically and militarily. The Great Nicobar Island is situated at the entrance of the Strait of Malacca. India's growing bilateral relationship with the Eastern countries is standing in good stead and renders an opportunity for an increasing strategic depth into the Indo-Pacific region.⁴⁹

The Andaman and Nicobar Islands offer a tremendous vantage point over the Strait of Malacca, a sea line of communication crucial and essential for the movement of oil trade from the Gulf up to the South China Sea, East China Sea and the Pacific. Secondly, it houses economic opportunities through forms of tourism, fisheries, and forests and facilitates, and adds approximately 30% of the additional Exclusive Economic Zone (EEZ) which would benefit India in undersea mining and exploration activities for tapping oil and gas reserves.

Strategic Importance of Andaman & Nicobar Islands

In view of the current security challenges prevailing in the Northeast, and the rapid expansion of Chinese naval presence in the IOR over the last decade, it is imperative for India to reassess its maritime strategy regarding the Andaman & Nicobar Islands. Despite China's ongoing aggression on land and sea, the Indian Maritime Doctrines have merely mentioned China in passing as references to '*some nations attempting to gain a strategic toehold in the Indian Ocean Rim,*' or as '*attempts by China to encircle India strategically*'.⁵⁰ India remains cognizant of China's growing presence and influence in the IOR; despite the immediate concern, it considers China, as a long-term strategic challenge for India's maritime security.⁵¹

In this relatively benign threat environment, India's policy is directed towards soft power projection. The Indian Maritime Doctrine since 2004 has repeatedly defined the Navy as an effective instrument of foreign policy by generating goodwill through Maritime Diplomacy.⁵² By participating in disaster relief programs and assisting in humanitarian crises, India has successfully engaged in many bilateral and multilateral naval exercises with regional and foreign powers. MILAN exercises between India and the nations of Southeast Asia, IBSAMAR exercises with active participation from India, Brazil, and South Africa are India's conscious efforts to turn towards Maritime Plurilateralism.⁵³

Considering the strategic geographical layout of the Islands and the economic objective of India's '*Act East*' policy, it would be plausible indeed, to suggest that these Islands constitute a favourable and sustainable disposition to thwart China's ambitions in the region. Suppose, adequate importance is accorded to the archipelago and there is a comprehensive strategic plan rolled out, it could alter the course of India's destiny

in the coming years.⁵⁴ The Chinese leadership has taken cognisance of the importance of controlling the Strait of Malacca and comprehends that whoever controls the Strait will have leverage, thereby choking China's supply line.⁵⁵ According to Sithara Fernando, '*China's most important maritime concerns in its relations with South Asia are oceanic trade transit points for western China, the sea lanes connecting the Straits of Hormuz and the Strait of Malacca which carry its energy imports*'.⁵⁶ Reinforcing this view, Che Lin states that '*China's National Security and peaceful development demand that the Indian Ocean be incorporated into the national security strategy because China's trade, investment, energy, religion, territory and territorial seas are intimately linked to the Indian Ocean*'.⁵⁷ Eighty percent of China's oil supply is shipped from the Gulf, hence, China's conundrum with the Strait of Malacca is real. Hence, China has recalibrated its national strategy by reorienting its focus towards the Indian Ocean and ergo modernising and developing its Navy at neck-breaking speed, to deter any prospective impediments to its national interests.

China's Predicament: India's Opportunity

The induction of the BRI is a contingency plan to mitigate its over-dependence on maritime trade and alleviate the burden of the Strait of Malacca. If India could feed on this opportunity and reorient its strategy towards the Andaman Islands, it could well offer India the leverage that it requires to negotiate over the disputed territorial issues on the mainland, along the Line of Actual Control, from a position of strength. And since historically, China has always conformed to the attributes of strength and power, and respected a country that speaks from this position, it is necessary for India to acquire such leverage.

The Strait of Malacca is certainly China's dilemma which India must capitalise on, if it seeks to gain any sort of strategic mileage over China in the IOR. Moreover, the Andaman and Nicobar Islands provide significant surveillance and monitoring platforms to the Indian Navy.⁵⁸ Therefore, it is imperative for New Delhi to utilise its inherent maritime strategic assets and use their advantages to outplay the Chinese in the IOR. To achieve its objective, New Delhi should assign a definite role for the Islands in its maritime domain, as this could help achieve far greater deterrence through

staging and power projection in the Indian Ocean and eastward. Additionally, the Islands also provide excellent opportunities to deepen India's maritime partnerships, and plurilateral military engagements with the Quad members and other Asia-Pacific states to countervail the Chinese aggression.

Security Challenges

About one-third of India's EEZ is around the Andaman and Nicobar Islands but unfortunately, due to its physical structural deficiencies and lack of maritime capabilities, the Indian Coast Guard is unable to conduct efficient and proper surveillance in the region. In the last decade, the Coastguard along with the Fishing Federation and the Indian Ocean Tuna Commission have received numerous complaints of foreign vessels fishing illegally in Indian waters. A survey study undertaken by the University of British Columbia stated that India incurs a significant loss of an estimate of US \$150 million to \$200 million a year, due to illegal fishing in India's EEZ, while the fisheries contribute to 2 percent of India's total GDP.⁵⁹

Apart from the illegal exploitation of marine resources by foreign agents, a greater security threat prevails in the Islands. Several reports have claimed that the Andaman & Nicobar Islands are being used as a safe haven by anti-nationals and terror outfits. Among these groups were the erstwhile banned outfit of the Liberation Tigers of Tamil Eelam (LTTE) who treated these Islands as an arms depot, while operating freely on these Islands.⁶⁰ A lack of human resources in the Coast Guard, inadequate security measures and a want of adequate state of the art surveillance machinery has enabled the non-state actors to exploit the Islands for their own interests. Reports suggest that foreigners from Bangladesh, Myanmar and Sri Lanka, have settled permanently in the Andaman Islands using fake Indian Ration Cards as their identification cards. According to some unofficial reports around 50,000 foreigners have already settled in the archipelago.⁶¹

To monitor and safeguard activities in 572 islands around the archipelago against poachers, pirates and non-state actors, is certainly a herculean task that could prove to be economically expensive too. Therefore, it is crucial that the Government design a provident and functional strategy using tourism to parry the various prevailing

threats in the region. The development of tourism could help render continuous surveillance of multiple strategic islands round the clock, with the help of the locals and the staff of the tourism industry. Selected individuals could be trained by the security agencies for gathering intelligence in addition to their regular occupations. In this manner, tourism and security compounded together can help achieve a secure environment in the archipelago.⁶²

If New Delhi continues to overlook the illegal activities festering on the Islands and fails to address its sovereign control and influence to redress the situation soon enough, there is a fair possibility of the Chinese exercising control in parts of the IOR as it did in the Paracel Islands in the South China Sea, where it instituted a civilian Governor in the garrison city of Sansha, and hoisted its own flag, to lay its legal claim on the territory. As a result, the Chinese Navy can provide requisite protection around these Islands increasing its sphere of influence.⁶³ This is a case of acquiring actual jurisdiction over one's own governed territory.

After all, this assumption may appear alarmist, however, Chinese unpredictability and aggressiveness have revealed persistent assertiveness in their behaviour and claims in South China, East China, and Indian Ocean Regions. Additionally, India's past experiences with a belligerent China have increased tensions in their relationship, despite continuous diplomatic endeavours. India has been enduring various forms of Chinese aggression and encroachments, time and again. Firstly, upon the un-administered territory of Ladakh in 1962, which is presently under Chinese control.

Subsequently, the 2013 incursion at Depsang and the recent violent clashes at the Galwan Valley in June 2020 expose Chinese expansionist posturing through the '*nibble and negotiate policy*'.⁶⁴ With growing maritime economic interests in the IOR, it would be in New Delhi's favour to seize opportunities by building its strategic maritime strength in the Andaman Islands, as it would enhance India's maritime footprint in the IOR. Recognising the need for such renewed strategies and providing adequate funding for the same is the need of the hour in today's geopolitics. To restore its sphere of influence in the IOR, it is thus, vital that India errs on the side of caution and ensures that none of its sovereign territory is left unmonitored and unguarded. To achieve this, it must encourage and stimulate tourism across the

archipelago, especially in the uninhabited Islands, to curb illegal immigration and settlement, while also combating violent non-state actors from their safe retreats.

Conclusion

In essence, the CMEC project holds immense strategic value for China's economy and maritime power. Kyaukpyu port provides China access to the Bay of Bengal and the Indian Ocean, reinforcing its maritime presence around the Indian sub-continent. It is worth noting that China has already instituted two maritime nodes around the Indian peninsula in the form of the Gwadar port and the Hambantota port in Pakistan and Sri Lanka respectively, and if the CMEC is carried out successfully, it would complete the Chinese '*String of Pearls*' strategy, encircling and arresting India's influence within the subcontinent. Also, the operationalisation of the CMEC reduces China's dependence on the Strait of Malacca, subsequently, decreasing its susceptibility to being cut-off by its adversaries in the event of a crisis and severing India's leverage.

Suffice to say how crucial CMEC is for China, India must not consider abandoning the Kaladan project, for it serves as a deterrence against China's economic and maritime expansion. More importantly, the Kaladan initiative would help generate institutional investments and spawn Micro, Small and Medium Enterprises in the Northeast and provide greater economic and employment opportunities to all in the region. The Government of India could frame a better conducive working environment, to successfully implement the policy. Parallely, it should identify the Andaman & Nicobar Islands as a potential prospect for undertaking the '*Act East*' policy, complementing the Northeast. The Islands render a strategic military and economic leverage to New Delhi against China's expansionist policy which the Northeast region does not offer. More so, these Islands share a strategic proximity not only with the ASEAN member countries but also with the Indo-Pacific countries for diverse and renewed maritime partnerships, both in utilitarian bilateral and strategic plurilateral sense. Multi-aligned, multi-directional, multi-layered, and multi-factorial engagements in the maritime domain can help India achieve its goal of being a 'Net Security Provider' in the region. Additionally, utilising the Islands strategically, could help counter the '*String of Pearls*' strategy of China.

Lastly, enhancing economic activities on the Islands, could lead to reclaiming its lost maritime control and influence in the Indian Ocean region. Integrating the Andaman & Nicobar Islands with the '*Act East*' policy will render India new options and opportunities to exercise economic and military muscle, as it continues to increase its bilateral partnerships eastward towards the Pacific, as a response to a '*Rising China*'. The Islands will contribute to India's assets and will create room for debate on deterrence policies. And finally, it will positively enrich India's efforts to establish itself as a serious regional actor. It is the need of the hour for India to prioritise and act on this issue, as its foreign policy continues to grow and evolve.

The challenges in the Northeast and in the Andaman Islands are contrasting in nature and therefore their strategic outcomes too. Having said that, the quintessential objective of physical connectivity with the Indo-Pacific countries through land and sea shall be attained, nonetheless. The commonality between the two regions converges on their physical proximity with the ASEAN. The promotion of infrastructural and economic development in both regions would manifest different outcomes and yet, both results would converge towards achieving the Government's aspirations of the '*Act East*' policy and help curtail China's growing influence in the region. By engaging both regions simultaneously to an end, the Government would be reassuring itself of bolstering its ties with ASEAN and East Asia amid Chinese belligerences. The Northeast and the Andaman Islands have distinct challenges and thereby could complement each other by overcoming each other's differences with their respective advantages and strengths. Given the present political climate between India and Beijing and the Chinese military adventurism along its territorial and maritime frontiers, it would be agreeable for New Delhi to strengthen and safeguard its territorial and maritime interests in synchronisation, while carving renewed bilateral and plurilateral diplomatic ties with its neighbourhood to balance Chinese antagonism.

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Strategising India's Long-Term Security

Lieutenant General Harinder Singh, PVSM, AVSM, YSM, SM, VSM (Retd)

India's posited rise is hindered by its lack of a national security strategy. Not only does it lack a formal strategic review process, but there has also been a hesitancy to articulate its interests with precision and objectivity. The annual reports of its key ministries also do not shed light on its security related milestones, with clarity. Attempts to forge a security strategy post a crisis or conflict, and on a few occasions in the past, have been far from useful. However, this past hesitation to articulate India's interests with accuracy is witnessing a change for the better.

A Strategic Necessity

The need to institutionalise strategy in national security is a politico-military imperative. Simply put, an understanding to define India's vital interests, the primary threats to these interests, and the resources required to deter or defeat these threats, is important. A formal articulation of India's interests, threats, resources and policies can help successive generations of political leaders, policymakers, diplomats and defence practitioners to foresee, prepare, and respond to the evolving security environment. Accordingly, a turbulent world order makes long-term security strategy, a strategic necessity.

National security being an expansive subject, the strategic planning process should incorporate a hierarchy of strategy documents and guidance to all components of the state. A hierarchy of documents emanating from the highest political office and going down to the lowest level is essential. This ensures continuity in political vision, strategic thinking and bureaucratic buy-in at each level. As a case in point, last

year, Japan released three interrelated documents: National Security Strategy (NSS), the National Defence Strategy (NDS), and the Defence Build-up Program, which highlights the importance of strategic guidance in the strategy formulation process.

Promulgation of a comprehensive national security strategy and defence strategic guidance would ensure that all stakeholders, both civilian and military, understand the strategic intent of the political leadership, and the military doctrines and concepts, structures and capabilities that are necessary to deliver the strategic choice(s) in question.

Strategic Guidance in Modern Democracies

While the articulation of a national security strategy is a matter of political choice, recent decades have witnessed the crafting of security strategies in several modern democracies, notably the United States, United Kingdom, Australia, Brazil, Japan, South Korea and South Africa. Each of these countries, and several others as well, has recognised the need to formally articulate their security interests, priorities, and the paths they wish to adopt to secure their territories and populace against external or internal threats.

Even though these policy choices or strategic preferences would be unique to each country, some aspects are relevant in India's context. First, a legal basis is essential to enable a national security planning process in any country. The US codified legislation (in 1947 and 1986 respectively) which mandates the crafting of a national security strategy on a periodic basis. In the case of the UK, Australia and South Africa, this process was driven by a political decision at the highest level. Either a legislative basis or a political decision is well-suited to inform the strategy crafting process.

Second, in all cases, the national interests were derived either from prior security related documents, or the Constitution, or legislations, or presidential speeches. For instance, the Brazilian interests were derived from the National Defence Policy of 2005, the South Africans drew from their 1996 Constitution, and the Australians from their previous white papers. This highlights the need to locate an infallible document that could provide the intellectual basis for the national security planning process in the country.

Third, in these countries, the primary stakeholders include all departments within the executive and legislative branches, the strategic community, and in a few cases, even neighbouring countries. In the cases of Australia and South Africa, civil society, too, plays a unique role in shaping the wider acceptance of the national security strategy in the country. An all-inclusive approach builds the required buy-in of a strategic planning process and ensures that any aggrieved parties do not undercut the process.

Fifth, barring the Brazilian national strategy for defence, the 'ways' and 'means' part of the strategy in respect of most countries is kept under wraps. Tasks are shared with due confidentiality, and as relevant, with departments and agencies responsible for executing the national strategy to play their role in accordance with the defined goals and objectives.

And sixth, in most cases, the draft strategy is approved at the highest level. In a few cases, it is referred to the parliament for approval. No formal feedback mechanism is constituted in most countries other than in the case of Australia, which carries a long-time tradition of white paper reviews in the public domain.

Strategising India's Security

Strategising security has never been a priority in India. Even when it was an inescapable requirement to promote unencumbered planning and socio-economic growth in the country. In the absence of an articulated national security strategy and persuasive strategic guidance issued to the military components, there has been a gap in terms of what national security outcome(s) are desired by the political leadership, and what can possibly be delivered by the armed forces to secure India's rise in the twenty-first century.

A government-wide security-planning framework that facilitates the production and promulgation of the security strategy and downstream strategic guidance is important for several reasons. First, it would guide India's ability to build strategic coherence on matters of national security. Thus far, India's reluctance to frame a strategic review process has come at a reputational cost to the State. Barring the

triumphant Indo-Pak War of 1971, there is no other war in India's conflict-prone history, where the Indian State can claim its strategic conduct to have been flawless or bereft of any major criticism.

Second, as seen in other democracies, it would drive the strategy-formulation processes and enable the State to draw precise policy imperatives that are necessary to institutionalize the national security strategy and strategic guidance. Political leaders and policymakers tend to carry an expansive view of security that is heavily biased towards humanitarian or developmental issues but is shy on matters of hard security. A formal articulation can help correct this disposition.

Third, it would elicit the broad contours of military-strategic guidance that could enable the shaping of usable instruments of force. Any strategy document will have to be supported by military-strategic guidance, to inspire the subordinate levels to deliver on assigned military goals and objectives.

And fourth, it could promote and produce policy-relevant research to overcome the inadequacies in national security. Think tanks and the larger strategic community would have a substantive role to play in undertaking policy-driven research and studies.

India's Challenge

For a long time, India's strategic outlook has been cautious and introspective. Engaged with the idea of economic growth and development (and rightly so), Indians have viewed themselves and their role, not from the perspective of how they can shape their immediate or extended neighbourhood, but rather on how they can cope with it. Consequently, India's hesitancy to produce and promulgate a security strategy made it vulnerable to myriad external and internal threats. This resulted in the shaping of instruments of force that were either lacking or inadequate to deliver on desired outcomes, in crises or conflicts.

With the increasing buzz on India's national security strategy-in-the-making, the policy landscape stands to transform constructively. From a military planning

perspective, the key argument is that a formally articulated national security strategy and strategic guidance that identifies the utility of force in peace and war is crucial to shaping the primary military roles and missions, and in turn, the structure of future force.

However, any strategic planning process is constrained by three factors: the availability of funding; a lack of integrated planning expertise; and paucity of tools to review the strategic outcomes. India's challenge will be to keep the strategic planning process resource and risk informed.

10 December 2023

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India and the Strategic Salience of the Mozambique Channel States – Case for a More Robust Partnership with Comoros, Madagascar, and Mozambique

Captain Rajesh Mittal

India's May 2014 general elections were unprecedented in that they gave a decisive mandate to a party on its own after years of coalition governments. Given India's regional pre-eminence, the impact of the elections extended well beyond India's borders. From a maritime perspective the swearing – in ceremony of the new government brought an unexpected dividend. The ceremony generally followed the convention by inviting the political leadership of the countries of the South Asian Association of Regional Cooperation (SAARC). There however, was one exception, Mr Navinchandra Ramgoolam, the Prime Minister of Mauritius and the only non-SAARC leader to be invited for the swearing - in. While the diasporic connect may have been the reason for inviting Mr Ramgoolam, it emphatically brought India out of the narrow South Asia box and placed its extended maritime neighbourhood back in its strategic radar.

Following the Neighbourhood First policy, Mr. Modi, the newly elected Prime Minister, chose Bhutan as the destination for his first official visit in 2014. In 2015, attention turned to India's maritime neighbourhood when the Prime Minister visited Seychelles, Mauritius, and Sri Lanka. During his visit to Mauritius, Mr. Modi articulated India's vision for engaging with its maritime neighbours, which he termed SAGAR, meaning 'sea' in Hindi. SAGAR also stands for Security and Growth for All in the Region. This vision aims to strengthen India's economic and security cooperation with its maritime neighbours and island states, enhance their

maritime security capacities and economic resilience, and promote peace, stability, and prosperity in the region. The Prime Minister also emphasized that the Indian Ocean Region remains a top priority in India's strategic agenda.¹ Tellingly, Mr Modi chose the commissioning ceremony of the Indian built Mauritian coastguard vessel the Barracuda to put forth the SAGAR vision thus underlining India's resolve in capacity building of its maritime neighbours. Mr. Modi also said that India sought a climate of trust and transparency.

In July 2018 while on a visit to Uganda, the Prime Minister announced ten guiding principles for India - Africa engagement.² The principles most germane to this paper being: *“Our (India’s) development partnership will be guided by your (Africa’s) priorities; We (India) will build as much local capacity and create local opportunities as possible; We (India) will work with African nations to keep the oceans open and free for the benefit of all nations.”*³ For India the Indian Ocean is a vital subregion of the Indo- Pacific. In November 2019, Mr Modi announced the Indo - Pacific Ocean Initiative (IPOI) at the East Asia Summit in Bangkok which aims to ensure a safe, secure, and stable maritime domain in the Indo-Pacific.⁴ The IPOI among other pillars comprises maritime security, maritime transport, and capacity building. Maritime security and capacity building are two prominent common strands in the above initiatives.

India’s Strategic Significance of within the Mozambique Channel

Seas are the preferred medium of the global flow of goods and commodities. Approximately 95 per cent of India’s trade by volume and 68 percent by value is moved by sea.⁵ While the trade during peace time is moved using the international shipping lanes (ISLs), in times of tension countries may mandate alternate

Figure 1: The Indian Ocean ISLs and chokepoints



Source: Journals of India

routes. These alternate routes are called those countries' sea lines of communication (SLOCs). The maritime chokepoints along the ISLs are critical to the international trade. The disruption of any maritime chokepoint could upset seaborne trade and cause turbulence in supply chains worldwide.

India's trade passes through chokepoints and around capes and peninsulas of Indian Ocean in the southeast (the Malacca Strait, Singapore Strait and the Malay peninsula) and southwest (Cape of Good Hope, Cape Agulhas, and the Mozambique Channel). Enabled by a kind geography by way of Andaman and Nicobar Islands, India dominates the Six-Degree Channel, the western feeder channel to the Malacca and Singapore Straits. This facilitates India's trade security in the Malacca and Singapore Straits. On the other hand, there are no Indian territories proximate to the Cape of Good Hope (CGH) and the Mozambique Channel to facilitate India's trade protection.

The Mozambique Channel is a crucial maritime chokepoint and some 30% of global tanker traffic passes through the channel. It is also the location of some of the world's largest gas reserves.⁶ The channel derives added salience from the oil discovered in Tsimiroro in western Madagascar.⁷ Africa is one of the major sources of India's hydrocarbons which are transported by sea. Following India's reintegration with the world economy in 1991, Indian trade with Africa grew at a faster pace than her trade with the trans-Atlantic economies.⁸ Nigeria was the fourth largest supplier of crude oil and LNG to India in 2020. It is Africa's largest economy and is one of India's major trade partners. During 2019 - 20 Indian exports to Nigeria were US\$ 3.61 billion and imports were US \$ 10.21 billion.⁹ India also has thriving trade relations with Brazil. In 2018 - 19 India's exports to Brazil were US\$ 3.8 billion and imports were US\$ 4.4 billion. Among other commodities, India imported crude oil from Brazil and exported petroleum products.¹⁰ India's seaborne trade with Nigeria and Brazil as well as with other African countries transits the ISLs and maritime chokepoints abutting the Mozambique Channel States comprising Comoros, Madagascar, and Mozambique.

Most of South Africa's trade with India too moves through this route.¹¹ There are emerging security concerns in the Mozambique Channel. The terror group ASWJ claimed responsibility for siege of the Mozambique Channel port city of

Palma in April 2021 leading to fears of Mozambique Channel becoming a security hotspot. The group had earlier in 2017 and 2020 captured the strategic port town of Mocimboa da Praia, about 80 kilometres south of Palma.¹² In 2010, the Mozambique Channel experienced several piratical incidents, including the hijacking of an Indian merchant vessel. There is a likelihood of such a specter returning to the Mozambique Channel, as piracy, cargo theft, vessel seizure, and the kidnapping of crews are financially lucrative for terror groups. The protection of its maritime trade provides a compelling rationale for India to engage with the Mozambique Channel States.

The trends shaping the shipping industry are likely to result in a step - up in trade including the Indian trade that transits the Mozambique Channel. The industry capitalises on the economy of scale through larger vessels. These vessels bring economic dividends in building and operating costs, but also significant challenges, particularly in restricted waters. This fact was vividly brought to the world's attention by the *MV Ever Given* incident in March 2021.¹³ Further, the ultra large crude carriers, with deadweight between 300,000 and 500,000 tonnes cannot transit fully laden through the Suez Canal.¹⁴ Vessels with high windage area such as wood chip carriers, car carriers and large container carriers face exaggerated adverse effects of wind while transiting narrow waters like the Suez Canal. Other challenges include reputational loss for the operators if their vessel is involved in an incident. The foregoing factors coalesce to bring a renewed focus on the Mozambique Channel as an alternative to the Suez Canal. The channel's oil and gas reserves too are a powerful strategic currency. The Mozambique Channel thus possesses enhanced strategic significance for India and the Mozambique Channel States unique leverage.

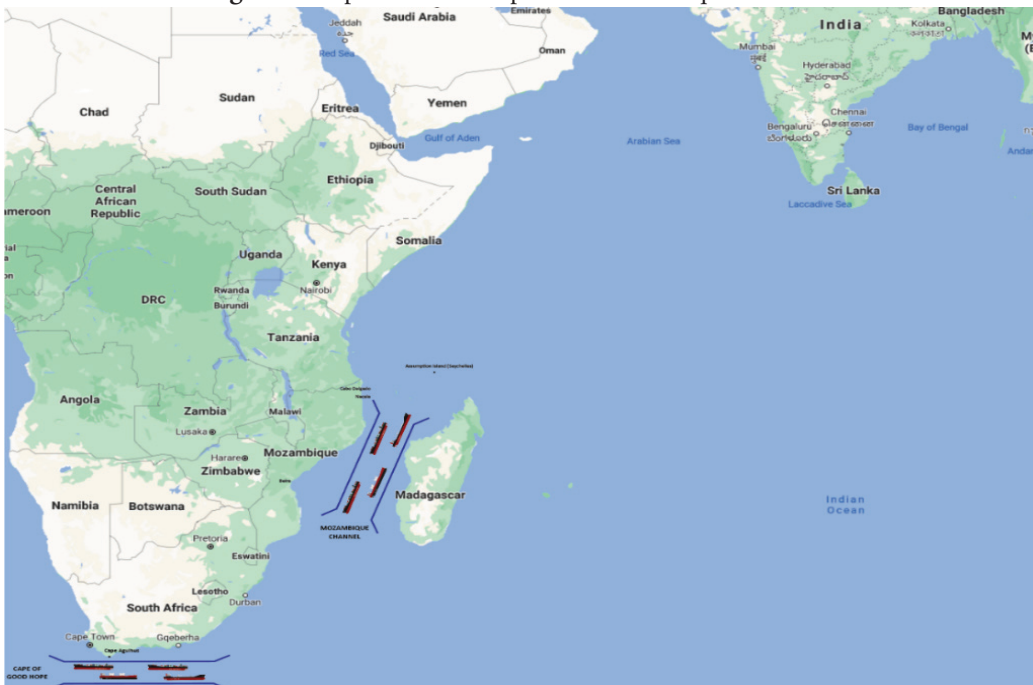
Trade Protection

Zheng He the 15th century Chinese admiral had in 1411 erected in Sri Lanka's port city of Galle a stone tablet invoking the blessings of Hindu deities for a peaceful world built on trade.¹⁵ Since Zheng He's sailing days six hundred years ago the world has been knitted together through globalisation which has increased trade's salience severalfold. *“External trade in goods and services accounted for 16.2 per cent of India's national income in 1950 and remained around this level till 1990. By 2010 the number was up at over 50 per cent, making India more trade - dependent than many OECD*

economies...”¹⁶ In an address to India’s export community the commerce minister Mr Piyush Goyal made a strong case for India to reclaim its historical position as a great trading nation. The minister set a target of \$ 2 trillion in exports by 2030.¹⁷

Seas are the primary conduit of international trade and “for sea trade no country is so centrally situated (as India is).”¹⁸ Approximately 95% of India’s trade by volume and 68% by value is moved through Maritime Transport.¹⁹ In 2020 - 21 India imported over 84 per cent of its crude oil and petroleum products.²⁰ India exported petroleum products worth over US \$21,406 million in the same period.²¹ Given its dependency on seaborne trade, any malevolent interference can impose energy and commodity denial on India. Considering the instability and terrorism that bedevils Mozambique and which threatens to spill into the maritime domain²² it would be naïve to take the safety of India’s trade around the Mozambique Channel for granted. Therefore, it is necessary for India to ensure that the ISLs and chokepoints that abut the Mozambique Channel States remain safe and secure.

Figure 2: Cape of Good Hope and Mozambique Channel



Source: Google maps

Remittances are a vital source of household income in the developing economies. According to the World Bank, India is on track to receive yearly remittances of over \$100 billion in 2022.²³ Indian seafarers constitute approximately 10% of the total workforce in the international shipping²⁴ and are a rich source of foreign remittances. They face a gamut of threats at sea like piracy, maritime terrorism and kidnapping. The safety of the Indian seafarers will be a significant spinoff of ensuring safe and secure ISLs. It will also incentivise more Indian youth to make seafaring a preferred career option.

Strategic Influences in The Mozambique Channel Region

The Mozambique Channel presents a complex arabesque. The anti - piracy operations off Somalia, just north of the channel, saw the presence of several countries and groupings including the US, Japan, India, China, South Korea, EU and NATO. Nearby Djibouti hosts the military bases of Germany, Spain, Italy, France, the US, the UK, China and Saudi Arabia.²⁵

France is present in the channel's vicinity on account of La Reunion and Mayotte islands both of which are départements of metropolitan France. France also is a former colonial power of the Comoros and Madagascar both of which are members of Organisation Internationale de la Francophonie. Portugal's interests are centred on Mozambique which was formerly a Portuguese colony and is a member of Comunidade dos Países de Língua Portuguesa. In recent times the discovery of gas in the offshore region called Rovuma Basin brought in several players to the region. The US firm Anadarko and the Italian energy firm Eni hold the two largest offshore investments in north-east Mozambique. China national petroleum company bought a 28 per cent stake in Eni's Mozambique project. Japanese group Mitsui holds 20 per cent stake in the project led by Anadarko. South Korean energy firm Korean gas corporation holds a 10 per cent stake in Eni's project. India's oil and gas firms too bought significant stakes in Anadarko's Mozambique holdings.²⁶ The Tsimiroro heavy oil development located onshore in Madagascar is expected to start commercial production in 2025²⁷ which will no doubt bring in additional extra regional players. The deterrence provided by naval or coastguard units in an area ensures unimpeded

and safe shipping for all trading vessels in that area regardless of the flags they fly, and the cargo interests they represent. Therefore, Indian trade protection deployment in the Mozambique Channel will likely be viewed favourably.

India's Relations with The Mozambique Channel States

Comoros and Madagascar both belong to a group of islands in the southwest Indian Ocean area called the Vanilla Islands. The term vanilla is used because the flavouring substance vanilla is a major export from these countries. Mozambique on the south-east coast of Africa defines the western border of its eponymous channel, Madagascar forms the channel's eastern boundary, and the Comoros is positioned at the northern end of the channel.

Mozambique has historical, cultural and economic ties to Portugal. Comoros and Madagascar are in the cultural orbit of France. In economic and human development index (HDI)

terms these countries trail the other countries of the region. Due to their strategic geo-location, they are pre-eminently suitable for India's trade protection. As a sign of their intensifying strategic significance, in December 2019 the ministry of external affairs brought Madagascar and Comoros into its Indian Ocean region division. They were earlier a part of the East and Southern Africa division.

Comoros

The Union of Comoros, a former French Colony, is an archipelago of three islands Anjouan, Moheli, and Grande Comore. All three islands are located at the northern

Figure 3: Comoros, Madagascar and Mozambique



Source: Extracted from Study.com

end of the Mozambique Channel. Comoros is ranked 156 in terms of HDI.²⁸ Its low HDI notwithstanding, Comoros has always been valued for its strategic position.²⁹

The former Vice-President M Venkaiah Naidu's visit to Comoros in 2018 indicates the island nation's enhanced strategic importance for India.³⁰ Six MOUs for cooperation and a grant and a Line of Credit of USD 20 million was announced by India during the vice-presidential visit.³¹ The MOUs included one for cooperation in defence and the grants Included that for interceptor boats. A flurry of naval activity cements the upward trajectory of Comoros – India bilateral relations. INS *Mumbai* and INS *Trikand* paid a goodwill visit to Comoros in May 2018. INS *Kesari* visited in June 2020 to bolster the country's pandemic related health security. INS *Jalashwa* visited Comoros in 2021 to deliver food grain. INS *Kesari* paid another visit in January 2022 and assisted the Comorian coastguard in repairing a petrol vessel.³²

Twelve diplomats from Comoros attended the first Special Course for diplomats of the Indian Ocean Region in New Delhi in 2021.³³ Comoros has sovereignty issues over island territories with former colonial power France. India's historical anti-colonialism credentials provide it a soft power, which is denied to other countries vying for influence in this strategic island nation. Comoros, however, is the only Indian Ocean state in which New Delhi does not have a full diplomatic mission.

Madagascar

The island nation of Madagascar has a strategic location along the east of the Mozambique Channel. It is the fifth largest island in the world, with a land mass of 587,000 km² and 26.5 million inhabitants. Madagascar is ranked 173 in terms of HDI.³⁴

The India-Madagascar relations have seen an upward trajectory since former President Ramnath Kovind's visit to the island nation in 2018. During the presidential visit bilateral agreements were signed on defence and aviation cooperation.³⁵ The enhanced strategic relevance of Madagascar manifests itself in an uptick in India's naval engagement with the nation. In March 2020, INS *Shardul* assisted with Madagascar's food security when there were heavy floods in its northern region. In

May 2020 under Op SAGAR - I, INS *Kesari* provided food items, medicines and medical assistance to Madagascar. As part of Op VANILLA INS *Airawat* in 2020 was the first responder in the aftermath of cyclone Diane when she arrived in Madagascar to provide relief assistance. INS *Jalashwa* conducted training of the Malagasy Special Forces in 2021. The ship also carried food grains and medicines to assist dealing with a severe drought. The Regional Maritime Information International Fusion Centre in Madagascar facilitates intelligence sharing through interface with India's Information Fusion Centre - Indian Ocean Region.

Other engagements include the Malagasy diplomats' attendance at the course for IOR diplomats in India and the establishment of India - Madagascar Chamber of Commerce. The chamber brings together policy makers and businessmen for enhanced trade. Madagascar on its part supported India's entry into the Indian Ocean Commission as an observer in March 2020 and the Djibouti Code of Conduct in August 2020.

Mozambique

Having a latitudinal spread from 10° 40' S to 26° 52' S Mozambique on Africa's southeast coast has a coastline of over 1,300 nautical miles. With well - located ports Mozambique is well placed to have decisive influence on the Mozambique Channel. Mozambique's deep - water ports sustain much of the region, linking landlocked neighbours and northern South Africa to countries beyond the African continent.³⁶ Mozambique is ranked 185 in terms of HDI.³⁷

India had provided maritime security to Mozambique during the African Union Summit in 2003 and the World Economic Forum in 2004.³⁸ In 2006, India and Mozambique entered a defence cooperation agreement that envisages joint maritime patrols and technology transfer. In 2015, India resurrected a dormant joint-defence working group with Maputo, expanding training and capacity-building aid to Mozambique's intelligence service. Prime Minister Modi visited Mozambique in 2016 underlining the convergence of energy and security interests. The Defence Minister Mr Rajnath Singh visited Mozambique in 2019. The minister announced assistance of communication equipment and cooperation in the maritime domain.

Two interceptor boats were handed over to Mozambique during the visit.³⁹ The IN ships have visited Mozambique frequently. IN Ships *Sujata*, *Shardul* and *Magar* called at Beira in March 2019 to provide humanitarian aid in the wake of cyclone Idai. INS *Tarakash* called at Maputo in September 2019. In December 2021 under Op SAGAR INS *Kesari* delivered food aid to Mozambique as well as carried two interceptor craft and self – defence equipment for the armed forces of Mozambique.

Indian Public Section Undertakings (PSUs) – OVL, BPRL and Oil India together have a combined stake of 30% in the Rovuma Area-I gas field.⁴⁰ Major Indian companies like Tata Steel, Jindal Steel, the Essar group, Coal India and Damodar Ferro have invested in coal, iron ore and other minerals.⁴¹ Mozambique is also well placed to emerge as an alternate source for India's energy needs.

Towards A More Robust Engagement

Given below are some suggestions to enhance India's more robust engagement with the Mozambique Channel States:

Maritime Governance

Since 2017, there has been an ongoing insurgency in Cabo Delgado which threatens the security in the Mozambique Channel.⁴² The threat of piracy also dogs the Mozambique Channel.⁴³ Owing to the capacity constraints and huge areas of maritime jurisdiction of the Mozambique Channel States, there is a maritime governance deficit in the Mozambique channel. In a raid in 2020, the terrorist group al-Sunna briefly captured the Mozambique port of Mocimboa da Praia in a sophisticated and well-coordinated attack from land and sea.⁴⁴

The security for Anadarko and Eni the two firms exploring gas in the Mozambique Channel was provided by private security companies due to inadequate capacity of the regional navies and coastguards.⁴⁵ With enhanced maritime capabilities and as the net security provider in the Indian Ocean, there is a strong case for India to increase its footprint in the Mozambique Channel. Such an action ensures India's trade protection, facilitates unimpeded commerce and effective maritime governance. Mozambique has capacity building requirements in counterinsurgency and logistics

field too.⁴⁶ The Indian army with its vast counterinsurgency experience is well placed for fulfilling this role.

India's Border Security Force deploys vessels known as floating border out-posts (FBOP) for protecting the country's maritime borders. The Floating Border out-posts (FBOP) act as base for fast patrol boats, crew members and are equipped with surveillance and communication equipment.⁴⁷ India should consider equipping the Mozambique Channel States with FBOPs to enhance security in their waters.

Environmental Security

A Cape-class bulk carrier, Japanese vessel MV *Wakashio*, had run aground off Mauritius on 25 July 2020.⁴⁸ The vessel leaked about 1000 tonnes of oil into the water on 6 August 2020 causing an environmental catastrophe for the island nation's fragile ecosystem. The Mozambique Channel States sit astride busy ISLs and are vulnerable to ship traffic related oil pollution. The Mozambique Channel States are unable to meet their environmental security needs due to capacity constraints. Helping them to strengthen their environmental security would constitute an approach centred on those countries' major area of concern.

The Indian Coast Guard (ICG) with advance capability and training expertise in marine pollution and in laws against ship-sourced pollution should assist the Mozambique Channel States in strengthening their environmental security. The ICG should also assist in negotiating with the International Maritime Organisation for classifying the surrounding waters as Particularly Sensitive Sea Area.⁴⁹ This will mitigate the threat through routeing, strict application of MARPOL and installation of Vessel Traffic Services.⁵⁰ Facilitating the Mozambique Channel States towards a robust oil-spill-response plan will also be a step in the right direction. The Ministry of Ports, Shipping and Waterways has an MOU with Malta for bilateral cooperation in the field of marine pollution prevention, a similar arrangement may be envisioned for the Mozambique Channel States.⁵¹

Assisting the Mozambique Channel States in their technical capacity building for environmental management may also be considered. The Ministry of Environment, Forest and Climate change engages with the scientific community for R&D in technologies for environmental management. The Ministry has the remit to assist other developing countries in capacity building for environmental management.⁵²

Capacity Building and Livelihood Resilience

Economic development is a more enduring foundation for partnership than engagement underpinned by historical or civilisational links alone. Through enhanced employment opportunities such initiatives not only strengthen the Mozambique Channel States' economic sinews but also address issues such as instability and violence.

Flags of Convenience

Flags of Convenience (FOC) is a system where ships' owners register the vessels with flag states other than that of the owners' countries. The FOC are perceived as exploitative and unethical organisations. The United Nations Commission on Trade and Development report is more objective,

“Historically, the decision to “flag out” was associated with lower registration costs.... however, the factors also include efficiency (reducing delays due to port inspections because of a ship register's good reputation), certification, links to a supportive cluster of financial and logistic services (enabling higher logistics performance) and the presence of a cybersecurity framework.”⁵³

The Republic of Marshall Islands (RMI) is an island group in the Pacific Ocean that covers a mere 113 square kilometres. It is a FOC and the second-largest ship registry in the world. The RMI's country brief notes, “*External grants, taxation, fishing receipts and shipping registry fees are the key sources of government revenue.*”⁵⁴ Panama, Liberia and the RMI (all FOC) accounted for the registration of more than sixty per cent of the world shipping in 2016.⁵⁵ Comoros is an established FOC albeit with a poor track record.⁵⁶ India is home to outstanding merchant marine professionals who have excellent reputation in international shipping. Using its pool of technical managers, The Ministry of Ports, Shipping and Waterways should assist the Ship Registry of the Union of Comoros to improve its international competitive profile. Such an endeavour will induce confidence among the shipowners in the Ship Registry of the Union of Comoros. A markup in the shipping registries will provide vastly increased revenue for the country.

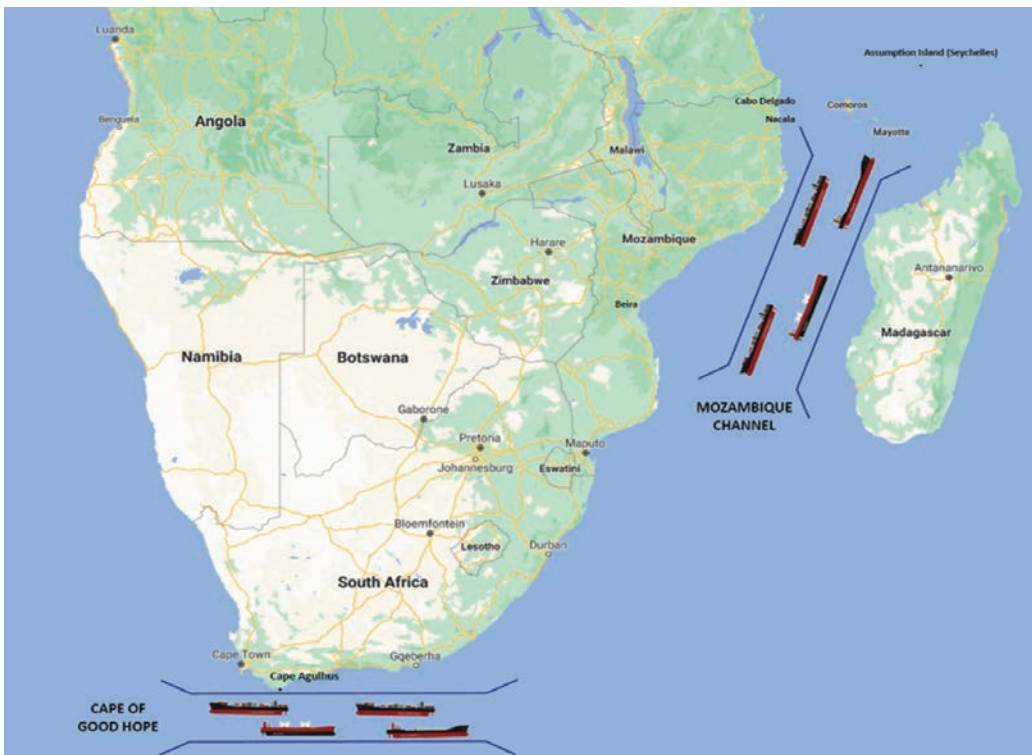
Seafarers are a rich source of foreign currency inflows. The estimated over 500,000 Filipino seamen are said to have remitted \$6.539 billion to their home country in 2019.⁵⁷ Improving the quality of the seafarers of the Mozambique Channel States

through superior training will improve their standing in the maritime world and enhance nations' overseas remittance. India should provide these seafarers seats in the Indian training institutes as also encourage Indian shipowners to hire their services. Assisting the countries with establishing local training facilities and improving the existing facilities should be progressed simultaneously.

Crew Change

“Maritime transport depends on the 2 million seafarers who operate the world’s merchant ships, which carry more than 80% of global trade by volume...”⁵⁸ Timely crew change is critical for ensuring sustainable and safe shipping. Since crewing is the largest controllable part of a vessel’s operating budget, costs such as crew travel often receives

Figure 4: Mozambique Channel states' location along the ISLs



Source: Google Maps

a great deal of scrutiny.⁵⁹ The crew change occurs either at the vessels' destination ports or at transit ports along major ISLs which minimise maritime deviation. The latter option is usually taken when vessels are calling at remote ports.

For ports, crew change accrues several benefits by way of revenue through pilotage, ship agencies, transport, hotels, and visa fees. Such visits also increase employment opportunities. To optimise time utilisation during crew-change calls, the vessels take on bunkers, fresh water, provisions, deck stores, spares and bonded goods. Urgent repairs which are beyond the crew's scope, periodical surveys and servicing of vessels' firefighting and life-saving appliances may also be undertaken. These activities generate an ecosystem that may constitute pilotage companies, marine workshops, classification societies, ship chandlers, bunker stations and barges, water barges, tugs, mooring boats, pilot launches, mooring gangs and security personnel which generate additional employment opportunities. The proclivity to shopping by the off-signing crew will likely energise the local businesses.

The Ministry of Ports, Shipping and Waterways should utilise the services of Indian merchant marine professionals to strategise the principal Mozambique Channel States ports to emerge as attractive destinations for crew change. The ministry should also incentivise the Indian crewing agencies to arrange their crew change at Mozambique Channel States ports. This would enhance the confidence of the international shipping community for crew change in the Mozambique Channel States ports.

Transshipment Hub

India's first mega transshipment container terminal has been developed at Vizhinjam, Kerala where peninsular India comes close to the ISLs and east-west shipping axis.⁶⁰ Transshipment relates to moving containers from one vessel to another while in transit. The concept of transshipment hubs was envisioned for shipping lines' strategy of limiting ports of call for large carriers and servicing small ports with inadequate accessibility and limited port infrastructure by smaller vessels. The hub provides connectivity between long-distance deep - sea lines and short-distance feeder lines and optimises the efficiency of maritime container shipping networks.

The concept of transshipment has witnessed enormous growth due to the vessels' enlargement. Geography plays an important role and countries at the crossroads of major ISLs hold enormous advantages by offering low maritime deviation. The Ministry of Ports, Shipping and Waterways should assist suitable Mozambique Channel States ports in emerging as quality transshipment hubs. Inexpensive manpower and abundant yard space aligned with the capacities of the ultra-large ships are likely to provide additional ballast to the locational advantage of the Mozambique Channel States ports. Yard space can be a significant challenge for existing ports of the region that provide such services.

Ships' Recycling

Recycling of ships that are approaching their end-of-life is an important economic activity which provides employment opportunity and enables recycling of scrap steel, machinery, and electronic equipment. The steel obtained from ships' hulls is a source of ferrous scrap particularly suited for reprocessing into simple steel products used in civil engineering.⁶¹ It is well and truly a growth industry and is predicted to double by 2028, and quadruple by 2033.⁶² India has one of the largest ship recycling facilities in the world with over 150 yards along its coast. Close to 6.2 million GT is scrapped in India every year, which accounts for 33% of the total scrapped tonnage in the world.⁶³

As a responsible world player and destination for green ship recycling India can facilitate the Mozambique Channel States' entry into this growth industry.⁶⁴ The Mozambique Channel States's location close to major ISLs ensures minimum maritime deviation for the vessels' final voyage. The Gujrat Maritime Board (GMB) has vast experience in the training needs of recycling yard workers.⁶⁵ Through their vast experience, the industry can enable the Mozambique Channel States to identify suitable ports and make them international conventions compliant. The Ministry of Ports, Shipping and Waterways in association with GMB can engage with the Mozambique Channel States for the training of the yard workers.

The public sector undertakings (PSU) in strategic sectors are important for India's overseas engagement. The PSUs integrate engaging with society and environmental

concerns in their business operations. In June 2022, India and Vietnam signed an MoU on mutual logistics support agreement and defence partnership.⁶⁶ The work done over the years by ONGC Videsh is said to have laid the ground for India Vietnam meeting.⁶⁷

The Ministry of Ports, Shipping and Waterways should envision 'SAGARMALA Videsh' for the Mozambique Channel States's port development initiatives. The ministry may also leverage the expertise of India's entrepreneurial and nimble-footed private sector in Public Private Partnership mode.⁶⁸ JSW Infrastructure operates ports on both the west and east coasts of India and a terminal at Fujairah, UAE.⁶⁹ Adani Enterprises Ltd operates Abbot Point Terminal in Queensland, Australia.⁷⁰ Their experience will complement the expertise of the Ministry of Ports, Shipping and Waterways. Ports' development initiative is also likely to facilitate SAGARMALA Videsh enter the development of ports for the Mozambique Channel States' future LNG and oil shipments. The Ministry of Earth Sciences may also engage the Mozambique Channel States to explore areas of cooperation in the field of Blue Economy.⁷¹

Adroit Statecraft

The presence of a full-fledged diplomatic mission in a country enables India to shape its international posture, enhance its strategic interests and indicate unconditional resolve to engage with that country. India does not have permanent diplomatic representation in Comoros and the Indian Embassy in Madagascar is concurrently accredited to Comoros.⁷² Absence of an embassy in Comoros is inconsistent with India's primacy and vision in the Indian Ocean. The fact that China, an extra-regional power maintains an embassy in Moroni and India does not is analogous to strategic neglect. India should address this issue decisively. A Defence Attaché - at - large will be able to shape India's military ties with all three countries and needs consideration.

Admiral Gorshkov had famously opined, "*Soviet naval seamen... feel themselves ambassadors for our country.*"⁷³ Unlike the other military services, the navies are unique in having a diplomatic role. Located firmly in the maritime domain as the

Mozambique Channel States are, certain sea-mindedness and nautical moorings are in order for the national representatives. Therefore, persons with maritime background should be among those considered for ambassadorial appointments in the Mozambique Channel States. Such persons will not only conduct the diplomatic functions with a plan but also have a nuanced understanding of the maritime issues. They will be able to deal with such issues with greater sophistication, incisiveness, and nous.

Australia perceives for itself a leadership role in the Pacific Ocean just as India does in the Indian Ocean. Australia indicates its resoluteness to engage with the Pacific States through a federal minister for the Pacific, a post currently held by The Hon Pat Conroy, MP.⁷⁴ A portfolio with Indian Ocean appellation similar to the Australian portfolio will elevate the status of India's engagement with its maritime neighbours and provide them with greater political attention.

Meetings on the sidelines of major summits have gained traction in contemporary statecraft. The Indian Union territory of Puducherry and the state of Goa have strong historical links to France and Portugal respectively. Organisation Internationale de la Francophonie (OIF) is an organisation of eighty-eight member countries where French is the customary language.⁷⁵ Comoros and Madagascar are members and Mozambique is an associate member. Similarly, Comunidade dos Países de Língua Portuguesa (CPLP) is a global organisation of nations where Portuguese is an official language.⁷⁶ Mozambique is a member and India became an associate member in 2021. India should press its case for full membership of both the organizations. Such memberships will provide India with additional platforms to deepen its engagement with the Mozambique Channel States.

Conclusion

The Mozambique Channel is a pivotal maritime trade route and chokepoint. India's trade with its trade partners in Africa and South America transits the Mozambique Channel and the nearby ISLs. For ensuring the security of India's trade that transits the Mozambique Channel and the proximate ISLs; the Mozambique Channel States comprising Comoros, Madagascar and Mozambique assume great strategic salience.

With the Mozambique Channel States emerging as a key oil and natural gas reservoir, a step-up in the engagement will also provide India with an alternate source for its energy needs. For its trade security and the future energy supplies India needs to robustly engage with the Mozambique Channel States.

Owing to maritime governance deficit in the Mozambique channel and capacity constraints of the Mozambique Channel States there is a strong case for India to increase its footprint in the Mozambique Channel. The Mozambique Channel States sit astride busy ISLs and are vulnerable to ship traffic-related oil pollution. Helping them to strengthen their environmental security would constitute an approach centred on those countries' major areas of concern. The initiatives embodying livelihood and environmental security are aligned with the SAGAR vision and the guiding principles for India-Africa engagement. A full-fledged embassy in Comoros will enable India to enhance its strategic interests. Pursuing the above initiatives with vigour and energy suggests a way forward.

30 April 2024

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Epitome of Soft Power: The Indian Navy's Benign Missions During the Covid-19 Pandemic

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The COVID-19 pandemic, which hit the world in 2019–2020, resulted in profound consequences in all spheres of public life, from the economic to the political, in a large number of countries. India was no exception. The slowdown in the growth rate of the Indian economy,¹ which had begun even before the pandemic struck, acquired a landslide character in the spring and summer of 2020. The actual collapse of economic sectors related to the services sector, and the need to urgently implement measures of social support and protection to affected segments of the population, forced the government to impose fiscal restraints, primarily in sectors related to security.

In these conditions, the Indian Navy was faced with a whole set of diverse tasks: it was necessary to contain the spread of Coronavirus infections among naval personnel, provide all possible assistance in the fight against the pandemic in the country, evacuate citizens stranded abroad, provide assistance to foreign countries, all of this while simultaneously continuing combat training and ensuring maritime security in India's areas of maritime interest.

Before dwelling upon the Indian Navy's stupendous work during the pandemic, a brief account of its involvement in disaster relief would place the issue in perspective.

Indian Experience in Post-Disaster Relief

India has proved to be quite effective in using maritime '*soft power*' when it comes to the provision of assistance to neighbouring countries affected by natural disasters.

Some of these disasters, such as large-scale flooding caused by monsoon circulation, unseasonal rains or in the aftermath of tropical revolving storms (cyclones), occur frequently but do so with at least a modicum of notice, thereby permitting preparatory as well as curative actions along planned lines. Others, such as earthquakes, seaquakes, cloudbursts, and glacial lake outburst floods (GLOFs) occur with little or no warning.

In August of 2018, the Indian frigate INS *Sahyadri* visited Fiji. During this visit, the residents of Suva (Fiji's capital city) were offered free medical examinations by Indian and Fijian doctors in a specially set-up medical camp in Rata Sukuna Park.² While this may not be comparable in scale with the operations undertaken by the PLAN's *Peace Ark*³, it nevertheless deserves mention as a commendable attempt by the Indian Navy to promote goodwill across the far-reaches of the Indo-Pacific.

Another example of the demonstration of the 'benign' dimension of India's maritime power may be observed in the prompt actions of the Indian Navy's 'First Training Squadron' (1TS) in March of 2019, in the immediate aftermath of Cyclone *Idai*, which hit Mozambique. Indian Navy (IN) ships — the *Sujata*, the *Sarathi*, and the *Shardul* (the last-named being a Landing Ship [Tank]), which were at sea at that time, arrived at the port of Beira — the worst hit location — a mere four days after the *Idai* had made landfall.⁴ The ships evacuated some 5,000 people, established points for distributing food and fresh water, and provided medical assistance to the beleaguered populace. The helicopter from the *Shardul* was extensively used for rescue and relief operations. All activities were carried out in close coordination with local military authorities. All in all, Indian naval personnel rescued 192 people, while medical assistance was provided to 1,381 Mozambicans. This operation demonstrated India's mettle and significantly improved its international image. In combating the consequences of such natural disasters, the Indian Navy certainly lived up to its sobriquet of being the "preferred security partner" within the region.

Similarly, the efforts of the Indian Navy in rendering assistance to Mauritius, which was hit by the tropical cyclone *Bergitta* in January of 2018,⁵ must also count as one of its more effective actions in terms of alleviating the distress caused by natural disasters. Having correctly calculated the path of the cyclone, the Indian

Navy deployed a task group consisting of the underway-replenishment tanker, the *Deepak*, and the offshore patrol vessel, the *Sharda*, both laden with humanitarian aid, to Mauritius. In addition, the hydrographic vessel, the *Sarvekshak*, which was, at that time, in the vicinity of Mauritius, was also included in the operation. This Indian Naval Task Group handed over a significant volume of food, clothing, and medicine to the local authorities in Port Louis.

In addition to disaster relief, the Indian Navy has also conducted the evacuation of non-combatants from conflict zones. In 2015, Operation RAHAT was carried out by the Indian armed forces with great élan and finesse, following the intervention of the Saudi-led coalition in Yemen.⁶ Three Indian naval warships (the *Sumitra*, the *Mumbai*, and the *Tarkash*) successfully evacuated a total of 3,074 people, including 1291 foreign nationals from the country.

COVID-19 and the Indian Navy

Although the first cases of coronavirus infection in India were recorded as early as February 2020, the first case of infection in the Navy occurred only two-and-a-half months later. On 18 April 2020, the Indian Navy spokesperson confirmed that a total of twenty-one naval individuals had been infected with the coronavirus,⁷ almost all of which (20 cases) had been reported at the naval base, INS *Angre*, located in Mumbai. For the most part, the patients were asymptomatic, and the infection had only been detected during routine testing. Quarantine protocol was enforced in the barracks, and all patients were transferred to INHS *Asvini*, the naval hospital in Mumbai. For a brief period thereafter, thanks to the introduction of a nationwide quarantine, no new cases of infection were reported in the Navy.

On 24 June 2020, however, a COVID-19 outbreak was reported at the marine engineering training institution of the Indian Navy, INS *Shivaji*, located in Lonavala. There were a few other instances of the outbreak in the Indian Navy, but these were managed through well-established Standard Operating Procedures (SOPs). In general, Indian Naval ships and establishments were able to avoid mass infections thanks to a strict access-control regime, standard testing protocols, and a high standard of hygiene.⁸ The cause of infection (contact with infected personnel) was

traced and managed according to SOPs. More importantly, unlike the case with several other navies, the pandemic had virtually no effect on the combat capability of the Indian Navy. Ships at sea, as well as those alongside at bases, were isolated from shore, thereby avoiding large-scale infections. Even at the two naval shore bases that were the most affected by mass infections — INS *Parundu* and INS *Angre* — full operational capability was sustained. Strict adherence to protocols, including the mandatory two-week quarantine and an adequate number of tests allowed both bases to remain fully operational. Thus, the Navy was able to fully maintain its combat readiness during the pandemic.

Operation SAMUDRA SETU

In early May 2020, at the peak of the first wave of COVID-19 in India, the Indian Navy launched Op SAMUDRA SETU for the seaborne evacuation of Indian citizens stranded abroad due to the global and near-complete travel ‘lockdown’. This operation was carried out as part of the “*Vande Bharat Mission*” announced by the Government of India, aimed at providing succour to Indian citizens stranded abroad⁹ by the pandemic. The operation was initially conceived as a joint operation: it was assumed that both civil aviation (passenger airliners of Air India) and the Indian Navy would be involved in the *Vande Bharat Mission*. It was planned that the Navy would evacuate up to 10,000 people, a number that was comparable with the air evacuation, which aimed to bring home 14,800 people.¹⁰

The Indian Navy had experience of similar operations undertaken in the past — Operation SUKOON in 2006, wherein warships of the Indian Navy evacuated a large number of Indian, Sri Lankan, and Nepalese citizens, from Beirut, and during Operation RAHAT that has been alluded to earlier in this article. For Op SAMUDRA SETU, specially equipped warships that were best suited for the evacuation of civilians,¹¹ including potentially infected individuals, were deployed. The criteria for the selection of ships for this operation included: (a) the capacity to accommodate a large number of passengers, (b) adequate space to facilitate observance of social distancing requirements in the best possible way, and (c) a large and fully equipped Sick Bay (which, in naval parlance, denotes a small-sized hospital) to treat patients

afflicted by COVID-19. As a result, amphibious troop-carriers, such as the LPD (Landing Platform [Dock]) the *Jalashwa*, along with a number of Landing Ships - Tank (Large), namely, the *Airavat*, the *Shardul* and the *Magar*, were selected, and loaded with necessary provisions such as medicines and other supplies to combat infection. For this mission, female officers and doctors were also embarked on these ships, in order to provide requisite care and counselling for female passengers. The Sick Bays on these ships were equipped with everything necessarily needed to carry out emergency medical procedures of every kind, including obstetrics. The operation lasted 55 days, during which ships covered a total of 23,000 kilometres.¹² A total of 3,992 individuals were evacuated to India by sea, from Iran, Sri Lanka, and the Maldives. The operation was particularly challenging for the ships' crews. Due to the presence of a large number of civilians onboard, many of whom could have been carriers of the coronavirus, the ships were under the constant threat of a COVID-19 outbreak at sea. Thus, the conditions in which the evacuation was carried out required a high degree of selfless commitment, immaculate hygiene, and strict adherence to COVID norms.

Mission “SAGAR”

If Op SAMUDRA SETU was aimed primarily at implementing the State's obligation towards its nationals, the Navy's second operation, a series of missions that was given the generic prefix Op SAGAR [followed by a numerical suffix], had clear foreign policy goals. The SAGAR missions involved providing assistance to the smaller States of the Indian Ocean and a few in the Western Pacific as well, such as Vietnam. A total of four SAGAR missions, namely, SAGAR-I to SAGAR-IV were mounted by the Indian Navy, in close coordination with the ministries of Defence and External Affairs, as well as other agencies of the Government of India. The succeeding paragraphs offer a brief summary of these missions.

Mission SAGAR-I

The recipient countries of the assistance provided by this mission were small and medium-sized island countries of the Indian Ocean basin: namely, Maldives,

Mauritius, Madagascar, Comoros, and Seychelles. INS *Kesari*, a Landing Ship [Tank] was chosen to participate in this operation, and embarked 580 tonnes of food and medicine, along with several medical teams.¹³ The *Kesari* made her first visit to the Maldives, and disembarked two medical teams ashore, along with food and medicines. These were formally handed over to the Indian High Commissioner who, on behalf of the State, presented them via an online ceremony in the presence of the Maldivian Foreign Minister, Mr Abdullah Shahid, and the Defence Minister, Ms Maria Ahmad Didi. The Maldivian President, Mr Ibrahim Mohamed Solih, subsequently expressed gratitude to India for its assistance.

On 23 May 2020, the *Kesari* entered Port Louis, Mauritius, where she disembarked a 14-member medical team¹⁴ which included, among others, a pulmonologist, and an anaesthesiologist. In addition to doctors, a range of medicines necessary to combat the pandemic were also delivered, including ten tonnes of Ayurvedic products. During their stay in Mauritius, the Indian Naval doctors visited local hospitals, clinics, and hospitals — those used for general purpose treatment as well as those that had been specifically converted to treat coronavirus patients — and as the Central Medical Laboratory, where the results of tests for COVID-19 were processed. The Indian doctors not only treated patients themselves but also shared their experience and expertise with local doctors. They also organised public events, during which they demonstrated the importance of hygiene, the use of disinfectants and protective equipment, and exchanged experiences on the peculiarities of receiving patients with coronavirus infection. It was noted that the audience's response during these events was extremely encouraging. In addition, Indian doctors distributed electronic versions of the *Guidelines for Containing and Combating COVID-19* and *Guidelines for the Training of Medical Personnel* among local doctors, which summarised the Indian experience gained up to that time in combating the pandemic.

On 27 May 2020, the *Kesari* called at Antsiranana in Madagascar, to deliver a cargo of medicines.¹⁵ These were formally handed over to the head of the Madagascar Foreign Ministry by the Indian Ambassador, Shri Abhay Kumar. Four days later, the *Kesari* reached the port of Moroni in Comoros, where she disembarked a team of fourteen doctors who, in addition to fighting COVID-19, had also been trained to fight dengue fever. This medical team also included therapists and laboratory

diagnostic specialists. The ceremonial handing over of medicines was attended by Indian naval personnel, the Honorary Consul of India, and the Minister of Health of Comoros.

On the final leg of her benevolent voyage, the *Kesari* arrived at Port Victoria, Seychelles on 07 June 2020. Once again, a large volume of medicines¹⁶ were handed over in the presence of the head of the Ministry of Foreign Affairs of Seychelles, the Secretary of State, and the Minister of Health. India was represented by naval officers and sailors as well as by the High Commissioner of India to the Seychelles, His Excellency General Dalbir Singh Suhag.

Thus, the deployment of the *Kesari* became a visible demonstration of India's readiness to provide assistance to the island States of the Indian Ocean, while at the same time highlighting India's immediate sphere of interest. The five countries whose ports the *Kesari* called at are considered by New Delhi to be strategically important in the execution of India's maritime policy, which is encapsulated by the acronym SAGAR (Security and Growth for All in the Region). By sending a ship with onboard supplies of medicines and well-equipped medical teams to these island countries, New Delhi demonstrated its readiness to assist friendly foreign countries in combating a range of security challenges, including unconventional ones.

Given the general fear that the pandemic had generated, this humanitarian gesture significantly enhanced India's image among the island States of the Indian Ocean Region (IOR). The deployment of INS *Kesari*, which on her way back picked up the various medical teams that had been disembarked on the islands, lasted 49 days, with a distance of 14,000 kilometres being traversed.

Mission SAGAR-II

Mission SAGAR-II was executed, between 06 and 20 November 2020, by another of the Indian Navy's Landing Ships [Tank], the INS *Airavat*. The ship arrived in Mombasa, Kenya on 02 November 2020, and disembarked with humanitarian aid meant for the people of South Sudan.¹⁷ She entered Port Massawa, Eritrea, on 06 November 2020 once again disembarking food aid, before proceeding on a similar mission to Djibouti¹⁸ on 10 November 2020. In Djibouti, the food supplies were

accepted on behalf of the Government of Djibouti, by Mr Ifrah Ali Ahmed, Secretary General, Ministry of Social Affairs, and Solidarity of Djibouti, in the presence of Mr Ashok Kumar, Ambassador of India to Djibouti.

As had been the case with the deployment undertaken earlier by INS *Kesari*, Mission SAGAR-II once again reinforced India's position as a dependable partner in the IOR, with the Indian Navy as the first responder. The mission also highlighted the importance accorded by India to her relations with her maritime neighbours and strengthened the bonds of the latter with India.

Mission SAGAR-III

“Executed by INS Kiltan, Mission SAGAR III was focused upon Vietnam and Cambodia.” The *Kiltan* arrived at the port of Nha Rong in Ho Chi Minh City, on 24 December 2020¹⁹ and delivered fifteen tonnes of HADR stores for the flood-affected people of central Vietnam. The aid was handed over to Vietnam's Central Steering Committee for National Disaster Prevention and Control. The *Kiltan* then sailed for Sihanoukville, Cambodia, arriving on 29 December 2020. She handed over another fifteen tonnes of HADR stores for flood-affected people²⁰ to the National Disaster Management Committee (NDMC). As had been the case with the two earlier SAGAR missions, this deployment once again established India as a dependable partner for southeast Asian nations and the first responder in the region.

Mission SAGAR-IV

On 14 March 2021, INS *Jalashwa* sailed to Port Anjouan, Comoros to deliver 1,000 tonnes of rice to the island country. This was the second time that an Indian naval ship had called at ports in the Comoros, as part of Mission SAGAR. Thereafter, on 22 March 2021, the *Jalashwa* called at Port Ehoala in Madagascar and delivered a consignment of 1,000 tonnes of rice and 100,000 Hydroxychloroquine tablets in response to an appeal by Madagascar for assistance to deal with natural calamities.

The aid package was formally handed over by Captain Pankaj Chauhan, Commanding Officer of the *Jalashwa*, in the presence of His Excellency, Mr

Abhay Kumar, Ambassador of India to Madagascar and was received on behalf of the Republic of Madagascar by the Hon'ble Prime Minister, Mr Christian Ntsay. Also present at the ceremony to mark the handing over of the aid package, were Mr Jerry Hatrefindrazana, Governor of the Anosy Region; and Mr Georges Mamy Randrianaina, Mayor of Fort Dauphin.²¹

On the eastern seaboard, also as part of Mission SAGAR-IV, the *Airavat* called at the Indonesian port of Tanjung Priok, on 24 August 2021, where she delivered one hundred Liquid Medical Oxygen (LMO) containers and three hundred Oxygen Concentrators to Indonesia in response to a request from the Government of Indonesia.²²

The Indian Navy's contribution to the fight against COVID-19 did not end with these deployments. Throughout the pandemic, the IN assisted a number of governmental and public service agencies. For example, IL-38 and Dornier aircraft of the Indian Navy were used to transport doctors, protective equipment, and medicines throughout the country,²³ and naval hospitals were tasked to receive and treat the public at large. Naval innovation was in striking evidence as witness to the fact that Surgeon Lieutenant Commander Arnab Ghosh from the Institute of Naval Medicine in Mumbai developed the *NavRakshak* — a new version of personal protective equipment (PPE) that provided not only optimal protectiveness but also optimal breathability, for military and civilian medical and paramedical personnel. This protective gear, colloquially called the '*Ghosh Suit*', is made of a special, multi-layered, breathable material, and provides both, protection, and comfort for up to 12 hours to medical personnel treating patients in humid and hot climates. This equipment was used during Operation SAMUDRA SETU, and some components included in the kit were also supplied to countries from which the evacuation was carried out (Iran, Sri Lanka, Maldives).

Conclusion

In conclusion, it is today widely acknowledged that the actions of the Indian Navy during the pandemic were timely and executed with a clear intent to assist not just Indian citizens but also our maritime neighbours, while maintaining full operational

readiness. Indian Naval ships, whether ‘mission-deployed,’ or sailing for operational tasks closer home, or getting ready to transport men, material, rations, or medical equipment to and across coastal states and neighbouring countries, maintained full operational readiness at a time of pan-global health crisis.²⁴

The Indian Navy effectively maintained and expanded goodwill during an emergency and demonstrated its ability and preparedness to serve as a security provider in the event of non-traditional threats. This is in contrast to a lack of any similar demonstrable commitment by navies such as that of the People’s Republic of China which profess to be regional powers. The Indian Navy is a clear epitome of maritime and national excellence, and this saga continues...

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*Impact of Chinese Naval
Presence in IOR on Indian
Maritime Security*

Extra-Regional Maritime Powers in the Indian Ocean Region—Implications for the Indian Navy

Captain Kamlesh K Agnihotri (Retd.)

The Indian Ocean Region (IOR) has been garnering greater prominence, particularly since the post-Cold War era in the 1990s. It is the most populous region of the world. Major international sea lanes (ISLs) – through which large quantum of global energy and commodities flow – run across the length and breadth of the Indian Ocean. The Indian Ocean connects many countries with wide-ranging political systems, modes of governance, economic status and social systems. To illustrate its diversity, democratic States like India and Australia co-exist with military junta-ruled Myanmar.

Prosperous Arab nations endowed with large oil and gas reserves at one end share this geographical space with economically distressed countries such as Somalia, Yemen and Pakistan, as well as with the underdeveloped nations of coastal Africa. Iran's domestic politics and nuclear ambitions continue to raise concerns. Its long-standing animosity with Israel, which has historical disputes with neighbouring Lebanon, Syria and the Palestinian Authority, renders the region quite prone to intermittent conflagration. Other threats and concerns such as terrorism, piracy, drug smuggling, arms trafficking and Illegal, Unreported and Unregulated (IUU) fishing, plague parts of the littoral. Some of these could suddenly erupt as new crises, within the IOR and its sub-regions.

Widespread effects of climate change are being felt in the IOR, which is already counted among global high-impact regions. Consequently, the IOR littoral countries are prone to some of the most serious environmental risks.¹ A US National Intelligence Council (NIC) report of 2021 has particularly identified 11 countries

that are highly vulnerable to the adverse effects of climate change.² Major portions of the Indian sub-continent figure in the list. Even though other South Asian countries like Nepal, Bhutan Bangladesh and Maldives are not mentioned in the report, the adverse effects of climate change-related extreme weather phenomena are quite evident in these countries too. Climate change will certainly aggravate the existing risks to the maritime security environment of the region. The resultant socio-economic issues could reduce the coping capacities of many countries and increase the prospects of clashes. The NIC report has identified cross-border water tensions and conflict, as well as cross-border migration attributed to climate impact, and ungoverned unilateral geo-engineering changes, as some issues of discord.³ The resultant deterioration in human security and social indices in some littoral states in Africa and West Asia often requires various forms of humanitarian intervention or even peacekeeping operations.

Centrality of India in the Region

In this dynamic region with underlying issues of friction, India is geographically and economically quite well-placed to play a greater part in the management of various affairs related to peace and security therein. KM Panikkar, the Indian maritime historian of great repute explained the connection between India and the IOR thus:

“The vital feature which differentiates the Indian Ocean from the Atlantic and the Pacific is not the two sides, but the sub-continent of India which juts far out into the sea for a thousand miles to its tapering end at Cape Comorin. It is the geographical position of India that changes the character of the Indian Ocean.”⁴

Therefore, given its naturally endowed central position, India just cannot stay out of its rightful participation in the affairs of the Indian Ocean. In order to prioritise its inter-se objectives, India has broadly divided its maritime areas of interest into primary and secondary areas.⁵ While the primary areas encompass the proximate waters extending up to the entry/exit choke points in the Indian Ocean, secondary areas spread out well into the Western Pacific Ocean.

India has suffered in the past on account of its proverbial ‘*sea-blindness*’ as Admiral Arun Prakash, former Chief of the Indian Navy – and others earlier too –

term it.⁶ It is, therefore, important that the country exploits its natural advantage of a central location in the IOR, as it has a direct bearing on its security, development and economic growth. The importance of the Indian Ocean to India and the world is too well-appreciated to be repeated here.⁷

Acts of terror emerging in, from or through the sea – often with state support – and associated illegal acts such as gun-running and the smuggling of weapons of mass destruction (WMD), constitute grave security threats for all globally interconnected economies. Having actually suffered the horrendous Mumbai terror attack by Pakistan-based non-state actors in November 2008, India must ensure that such acts never recur in the future.

Major Extra-Regional Presence

The vast Indian Ocean region – extending from Australia to the Horn of Africa and from Cape of Good Hope till the Indonesian Lombok Strait – has progressively seen greater power play since the Cold War days. This has gradually led to an increasingly larger presence of numerous extra-regional navies in the region. The increase in this trend has been particularly noticeable since the start of the new millennium. The main drivers for such presence possibly range from ensuring the free flow of trade by ensuring the safety and security of the ISLs, as also the hidden agenda of retaining hegemony and influence in this ‘natural-resources-endowed littoral’.

US Naval Presence – A Given

The United States of America (US), now maintains near-permanent presence in the region. An official US Navy document ‘*A Cooperative Strategy for 21st Century Sea Power-2007*,’ had formally articulated this intent by stating that “*credible combat power will continuously be postured in the Western Pacific and the Arabian Gulf/Indian Ocean to protect [the American] vital interests and deter potential adversaries and peer competitors.*”⁸ Three strategic priorities for the US in the region, as per an American analyst are: preserving a minimum level of maritime security; keeping the Sea Lines of Communication (SLOCs) open; and, maintaining presence via considerable

deployments in support of US interests ashore in the region.⁹

Towards fulfilment of these objectives, the US Central Command based in Tampa, Florida, exercises operational control over the Bahrain-based Commander US Naval Forces (NAVCENT) – comprising the US Navy’s Fifth Fleet – and other US Army and US Marine Corps formations. NAVCENT is responsible for the conduct of security and stability operations along a volatile sea area stretching from the Horn of Africa till Karachi, which encompasses the Strait of Hormuz and the Persian Gulf. This operational task is largely being carried out by the US Navy-led Combined Maritime Forces (CMF), with specific areas of responsibility being allocated to different Combined Task Forces (CTF) as follows:¹⁰

- CTF 150 –Maritime Security Operations (MSO) outside the Persian Gulf
- CTF 151 –Counter-piracy missions
- CTF 152 – MSO inside the Persian Gulf
- CTF 153 – Red Sea Maritime security
- CTF 154 – Maritime security training

In addition, the US has a large naval and air base at Diego Garcia, due south of Maldives, in addition to an operational airbase at Djibouti.

Limited European Naval Presence

Certain European countries also deploy their naval ships, particularly in the northern part of the Indian Ocean. France has a large naval base at the Reunion Island in the South-Western Indian Ocean, with its *Alindien* Naval Command stationed there. Another smaller naval base is in Mayotte, in the Comoros group of islands near Madagascar. The French Navy has been a regular contributor to multinational anti-piracy efforts in the Gulf of Aden. French ships and submarines are also deployed to other parts of the Indian Ocean to support France’s objective of ‘*contributing to regional security through military and security cooperation,*’ as mentioned in the French Indo-Pacific Strategy 2022.¹¹

Naval ships and aircraft of other European countries also operate in the Gulf of Aden and off Somalia under the umbrella of the EU Naval Force (EUNAVFOR). Its Operation ATALANTA, involving anti-piracy convoy escort and World Food Programme ships' protection has been on for over a decade and a half. The latest mandate for its continuation has been extended in December 2022 for two more years – till 31 December 2024.¹² European countries are also contributing ships as part of the US-led CTF-151.

Of late, warships of the United Kingdom (the *Queen Elizabeth* Aircraft Carrier group in 2021), Germany (the *Bayern* Frigate in 2022) and Italy (the *Francesco Morosini* Patrol Vessel in 2023) have been on long-duration deployment in the Indian Ocean as an annual feature. These ships often transit the IOR on the way to the Pacific Ocean, in support of their Indo-Pacific positions and pronouncements.

Chinese efforts towards permanent naval presence in IOR

There are real concerns with regard to the intentions of China in the IOR. As the world's second-largest economy, China's import dependency on oil and gas, largely from the Persian Gulf and Western Africa continues to increase. Since this energy has to per-force, transit through the main ISLs of the Indian Ocean, it becomes imperative for Beijing to ensure the safety and security of its energy SLOCs. A more important reason perhaps is that China, as a rising power, feels obliged to first, expand its economic interests far and wide, including in the Indian Ocean, and thereafter, seeks to protect such interests by leveraging its increasingly robust maritime security apparatus.¹³

Thirdly, the expanded scope of Chinese investments and infrastructure projects running along most of the Indo-Pacific littoral under the ambitious '*Belt and Road Initiative (BRI)*' – also variously referred to as the '*One Belt One Road (OBOR)*' – now forms a major part of its overseas interests. The comprehensiveness of Chinese BRI engagement can be gauged from the very fact that Beijing's total financial commitment to these projects since 2013, adds up to \$ 962 billion – with about \$ 573 billion in construction contracts, and \$ 389 billion in non-financial investments.¹⁴ The imperative for the People's Liberation Army (PLA) Navy to ensure risk mitigation

for these BRI investments and projects would be an equal, if not a bigger driver, for it to aim at a permanent presence in the IOR.

Therefore, Chinese efforts towards ensuring a permanent presence in the Indian Ocean can be said to manifest in three main tasks for the PLA Navy, not entirely exclusive to each other. These are the traditional military-related roles; non-traditional activities; and actions in support of its overseas interests. In order to be able to undertake these tasks in '*distant waters*,' the PLA Navy is building '*blue water*' forces, developing overseas logistical facilities, and enhancing capabilities to undertake diversified military tasks.¹⁵

The PLA Navy's overtly visible presence of at least 8-10 '*grey*' hulls in the IOR and relatively more covert deployments of submarines has become a norm of sorts. Such military presence relates to the following activities:

- Anti-piracy escort mission in the Gulf of Aden since 2008, comprising two frigates/ destroyers and a replenishment ship. At present, the 43rd Task Force is in station.
- Continual submarine deployment in IOR since December 2013.
- '*Aman*' and '*Sea Guardian*' series of maritime exercises hosted by Pakistan.
- '*Joint Sea*' maritime exercise series with Russia in the Mediterranean/Baltic Sea.
- Symbolic Exercises (South of Java Island, Indonesia).
- Joint maritime exercises with Russia and South Africa in April 2023.
- Establishment of Djibouti military base in 2017 and support to anti-piracy task forces therefrom.¹⁶

Such PLA Navy units deployed in the '*far seas*' would arguably be at an operational disadvantage during and in the run-up to hostilities due to the non-availability of integral air defence. Even in peacetime, if they try to display a coercive intent – like enforcing a temporary maritime exclusion zone or commandeering/boarding a suspect ship having state affiliations – they may not be able to ensure sustenance

without protection from the air. However, couched in stated '*benign intent*,' such ships would – and indeed do – engage in Military Operations Other Than War (MOOTW) in peacetime. Such non-traditional activities keep these Chinese forces well-trained, equipped and operationally agile while enabling the country to project its supposedly '*humanitarian face*' as a consequential benefit. Some such activities of the PLA Navy are as follows:

- Joint anti-piracy drills, interactions and exchange of best practices with US, NATO and EU ships.
- Extended duration visits to IOR littorals and beyond, post anti-piracy deployments. The total number of days away from the base port averages more than six months.
- Evacuation of Chinese non-combatants from Libya, Yemen and Sudan.
- Extensive Search for missing Malaysian airliner MH 370.
- Deployment of LPDs and mobile landing platforms (MLPs) to support Djibouti Naval Base's construction and operation.
- Occasional visits of the *Zheng He* 'Training Ship Group' to IOR littorals.
- Repeated '*Mission Harmony*' medical duty voyages by *Peace Ark* hospital ship.
- Search for the crew of a capsized Chinese fishing boat about 900 NM south of India in May 2023 (the location information was provided by Indian Navy assets).¹⁷

Since safeguarding 'overseas interests' is a crucial part of China's '*national defence*' (sic) aims, one of the main missions of the PLA Navy is to effectively protect the rights and interests of overseas Chinese people, organisations and institutions.¹⁸ Some such overseas interests of China in the IOR – for the safeguarding of which the PLA Navy may have to pitch in as per their mandate – are mentioned below:

- Extensive transit of Chinese energy and trade through IOR SLOCs.
- Progression of '*maritime silk road*' infrastructure projects along the IOR littoral.

- Construction of ports and related facilities in Sri Lanka, Bangladesh, Myanmar, Oman, UAE and some East African countries.
- Management of ports in Pakistan and West Asian nations.
- Deep-sea exploration in the International Seabed Authority (ISA) allocated site in South west Indian Ocean Ridge (SWIR), south of Madagascar.
- Oceanographic survey off Makran and East African coasts. Sri Lanka has also invited the *Shiyan-6* survey vessel in October 2023 for a coastal survey.
- Intelligence collection activities by dedicated Chinese ships.
- Deployment of space telemetry and tracking ships (*Yuanwang* class) to Mauritius and Sri Lanka.
- Presence of large Chinese diaspora, peacekeeping forces and citizens in IOR littorals.¹⁹

It can, therefore, be plausibly surmised that the permanent presence of the naval forces of China and the US in the Indian Ocean, with the similar overt objective of providing security to the ISLs, but the hidden agenda of one party trying to retain its hegemony while the other aiming at displacing it – does provide grounds for occasional muscle-flexing. For instance, the US naval forces in and around the Persian Gulf – as also some crude oil tankers which generally bank on the perceived safety factor in the presence of UN naval forces – have often been harassed by the naval boats of Iranian Revolutionary Guards.²⁰ In the grand game of perception management, Iran somewhere draws notional strength from the presence of PLA Navy forces in the vicinity.

The rising capabilities of the Indian Navy add a third dimension to the regional power matrix. India, on its part, has also been deploying its naval ships under Operation SANKALP since June 2019,²¹ after attacks on oil tankers in the Persian Gulf/ Gulf of Oman, to signal its intent to secure its own energy SLOCs – as the word ‘*Sankalp*’ suggests. When the tasks of the PLA Navy to “... *effectively protect the security and legitimate rights and interests of overseas Chinese people, organizations and institutions...*”²² overlap with those of the Indian Navy, there is likely to be some

conflict of interest. With the QUAD mechanism getting renewed traction in recent times, and MALABAR exercises also being regularly conducted in the Arabian Sea and the Bay of Bengal, China has reasonable apprehensions about the naval forces of these two countries – in addition to those of Japan and Australia – cooperating, to potentially counter its own growing presence in the IOR.

The resultant jostling for shaping the common environment to suit respective national interests would certainly deepen the underlying fault lines. Subsequently, these could lead to eventual confrontation. In the emerging geopolitical wrangling, maritime analysts posited as early as 2009, that most of the IOR littorals – which have been hitherto hedging their chances – might be left with little option other than to align with either the US or China, thus causing a significant impact on the regional ‘*balance of power*.’²³

Impact on the Indian Maritime Domain

In such a potentially unpredictable regional environment, Indian maritime interests and activities would surely be impacted to a considerable degree. With eight PLA Navy ships – and possibly an equal number of other associated vessels visiting ports of considerable Chinese investments, control – and therefore influence – like Chittagong, Kyaukphyu and Yangon in the Bay of Bengal, or Hambantota, Karachi, Gwadar, Chabahar, Djibouti and others in the Arabian Sea on a regular basis, they would lie in the middle of an area which is considered to be of vital importance for India. These warships and research/intelligence collection vessels would surely undertake activities like seawater and atmospheric profiling, weather pattern observation, routeing and navigational familiarisation etc., during their passage. With the increase in quantum and density of data so collected, and its technology-assisted management, the PLA Navy would be able to derive operationally and tactically useful information that could be significantly useful during operations.

The institutionalisation of the *Aman* series of multilateral exercises and *Sea Guardian* bilateral drills have also enabled the PLA Navy to be present in the proximate seas around India on a regular basis. The level of the Chinese Navy’s participation has also been increasing with every exercises. While only one Chinese ship engaged

in basic naval drills in exercise AMAN 2007, at least three PLA Navy ships have been participating since then, and engaging in more complex joint maneuvers like interception exercises, anti-surface, anti-air, and anti-submarine drills.²⁴

The PLA Navy is steadily progressing its aircraft carrier programme with the *Liaoning* and *Shandong* aircraft carriers having been operational for 11 and five years respectively, and the *Fujian* carrier is likely to be inducted into service by the end of 2023. A logical projection of this development suggests that it will eventually lead to the Chinese aircraft carrier formation deploying in the Indian Ocean by about 2030. The nuclear attack submarine accompanying such aircraft carrier formation will certainly alter the threat matrix for the Indian Navy. A Chinese scholar insists that “*China should send more submarines to the Indian Ocean to make concerned countries get used to their presence in that region.*”²⁵ The concerns voiced during deployments of Chinese submarines in the Indian Ocean between 2013 and 2017, as also their berthing at Colombo and Karachi, are indicative of the challenges they could pose to Indian Navy ships in these waters. The Indian media has also highlighted these concerns, reportedly citing sources from the Indian Defence Ministry in these terms:

“... the implicit focus of the Chinese navy appears to be on undermining the Indian Navy’s edge to control highly sensitive sea lines of communication.”²⁶

In addition to Chinese nuclear attack submarines, the Chinese ships, whether operating as ‘surface action groups (SAG) or as components of the aircraft carrier formation, will impact the operational employment pattern of the Indian Navy. For instance, a considerable amount of Indian naval air- and ship-based reconnaissance effort is being invested in shadowing the PLA Navy ships – from the Andaman Sea to the Gulf of Aden – proceeding for anti-piracy escort missions and returning therefrom. With Chinese ships frequently transiting across the northern Indian Ocean either for joint exercises, joining anti-piracy patrols, visiting ports in the littoral, HADR and NEO missions or returning to China, India’s plans for gainful exploitation of proximate maritime space for operations, training and research activities in furtherance of its national interests would be adversely affected. The reported postponement of Indian missile launch tests in the Bay of Bengal in November and December 2022 – not once but twice – on account of the presence of the *Yuanwang* series of Chinese

space tracking and telemetry ships, in the Indian Ocean, is an apt example of such constraints.²⁷ Visit of the *Yuanwang-5* to Hambantota earlier in August 2022, had also caused similar consternation within the Indian maritime security establishment.²⁸ For that matter, even the current Chinese force level always present in the Arabian Sea for anti-piracy escort missions, possesses certain combat capabilities in terms of anti-ship, air defence and ASW ordnance. This base-level capability – whether of great significance or not – must nevertheless be taken cognisance of by the Indian Navy.

The acquisition of Type 054A (Jiangkai) missile frigates and fast attack craft by Pakistan, and the proposed supply of eight *Hangor* class air-independent propulsion (AIP) enabled submarines by 2028, will facilitate greater interoperability between their navies. The handing over of Gwadar port for operations to a Chinese company could further facilitate its eventual usage by the PLA Navy for operational purposes. The Indian armed forces would need to jointly factor in this possibility when planning joint operations/missions, and accordingly alter their doctrines, operational plans and tactics. In any period leading to eventual hostility, the possibility of direct cooperation between the naval forces of Pakistan and China or tacit support – because of the greater commonality of platforms – would also need to be considered.

Implications for the Indian Navy

The 2009 Indian Maritime Doctrine has clearly laid out the task of “*safeguarding India’s national interests encompassing sovereignty, territorial integrity, a secure maritime environment conducive to safety, security and development of the nation and its citizens.*”²⁹ This would require the Indian Navy to credibly showcase its proactive presence in its backyard and assiduously build upon the national image of ‘*first responder and preferred security partner,*’³⁰ particularly in India’s primary areas of maritime interest. Towards that end, it is imperative that the Indian Navy vigorously pursues a two-pronged strategy as mentioned below:

Strengthen its capacity and capabilities by way of the acquisition of high-technology-enabled assets, consolidate its maritime domain awareness (MDA) architecture, and integrate the two, with the aim of gaining operational advantage, when required, over an adversary.

Adopt mutually beneficial collaboration with friendly extra-regional forces; while retaining flexibility of approach through deft defence diplomacy, to preserve our own vital operating space and strategic autonomy in decision making.

Since capacity accretion is a precursor to the development of credible capability, the Indian Navy must seek to induct more high-technology-enabled blue-water ships, increase the number of telemetry/intelligence collection/research ships; and procure long endurance aerial, surface and under-sea unmanned systems including sea gliders. Even though India has been proactively pushing its '*Atmanirbhar Bharat*' agenda, the country should not fight shy of collaborating with like-minded extra-regional partners, to concurrently acquire/co-develop high-technology platforms and combat systems where required, to maintain operational effectiveness.

As for generating more comprehensive MDA, laying of seabed sensor chains, particularly at choke points; augmentation of space-based surveillance, communication and data relay systems; as also integration of common operational picture with better data collection, analysis, fusion and dissemination methodologies would have to be taken up with a greater sense of urgency.

Towards fulfilment of these objectives, three countries and/or groupings with whom India must actively collaborate – and is already doing so with varying intensity – towards generating effective responses to the emerging Chinese challenge in the IOR, are particularly relevant. These are the US and the European countries present in IOR as one bloc, ASEAN as a group, and the QUAD grouping.

India can seek greater assistance from the US and relevant European countries for procurement, laying and operationalising underwater sensor chains in operationally relevant sea areas. In fact, it is speculated that India is already collaborating in some way towards the extension of the American-Japanese '*fish-hook*' project – which runs through the Indonesian Sunda Strait – into the Indian Ocean.³¹ The ASEAN countries as a whole, could also be great partners towards participating in the widest possible ways in the MDA architecture being envisaged for mutual security.

Specific avenues of cooperation between the navies of QUAD countries towards engendering common security for IOR can also be progressed within the under-

mentioned frameworks, which have already been agreed to by the constituent countries:³²

Critical and Emerging Technology Working Group, which looks at sharing technologies required to ensure a free, open, inclusive, and resilient Indo-Pacific.

A cooperative framework on space for sharing the strengths and expertise of their space programmes.

The '*Indo-Pacific Partnership for MDA*' mechanism, to provide an integrated maritime picture of the Pacific Islands, Southeast Asia and the IOR. The feasibility of greater cooperation on underwater domain awareness (UDA) – possibly involving seabed sensors and related hardware – with partners across the Indo-Pacific could also be explored within the larger rubric of IPMDA.

The QUAD partnership on HADR in the Indo-Pacific, provides greater avenues for cooperation.

Conclusion

While the suggested tasks for India and the Indian Ocean appear to be quite sound conceptually, the implementation of collaborative ventures between numerous stakeholders – who would surely have their strategic interests, inner motivations and ends in mind – would certainly be the difficult part. For instance, while there is reasonably robust cooperation between the Navies of India and the US – built over many MALABAR series of exercises since the 1990s – the scope of existing cooperation needs to progress to the next higher level. The author has argued elsewhere that it could include the engagement of India and the US in joint operational scenario-building and simulations at the regional level against evolving and hypothetical challenges. These could then, be played out by the two navies in theatre-level exercises at sea – in the Indian Ocean Region, to start with.³³

As for addressing the prospects of the PLA Navy's permanent presence in the region, the jury is still out on whether India should cooperate with, challenge or confront the Chinese in the region, particularly in a largely peacetime scenario. To

be sure, there have been a few elements of cooperation between India and China in the IOR. The Indian Navy has been coordinating with the PLA Navy while escorting merchant ships across the internationally recognised transit corridor (IRTC) along the Arabian Peninsula for more than a decade; and has also provided SAR support when requested by China, as in the case of a capsized Chinese fishing boat in May 2023. An Indian Navy *Tu-142* reconnaissance aircraft actually managed to dissuade the pirates from boarding a Chinese freighter, *MV Full City* in 2011 after persistent effort.³⁴ While the need for challenging or confronting the PLA Navy ships in the Indian Ocean has not yet arisen, the undermentioned quote from Rear Admiral K Raja Menon, a noted Indian maritime thinker, does indicate that India will eventually have to do so in the interest of its national security:³⁵

“... after Galwan and Pangong Tso, we will clearly approach the larger picture from a position of tactical inferiority, unless we develop some punitive capability, which it seems could only be in the Indian Ocean...”

The Chinese thought process on this issue though, appears to be quite clear, and does not inspire confidence with regard to the rules they would play by, should such a contingency occur. This mindset was on display when the PLA Navy purportedly challenged the Indian landing ship *Airavat* in the South China Sea in 2011 even though the ship was undertaking a legitimate passage through the EEZ of Vietnam and was not in Chinese territorial waters.³⁶ Further, the aggressive, and often overtly hostile challenge mounted by the Chinese maritime security forces and maritime militia in the Western Pacific Ocean against Japan, Taiwan, Philippines, and Vietnam, as also against US Navy ships engaging in freedom of navigation (FONOP) missions – all during peacetime – should also be quite instructive for the Indian maritime security establishment. So unambiguous guidelines for engaging with the Chinese in the maritime domain will have to be conceptualised, played out and framed with due deliberation before they can be implemented.

Given this situation in the IOR wherein the two major extra-regional navies – the US Navy and the PLA Navy – are vying for greater influence in the region by virtue of permanent presence in the region, India will have to dispassionately make such choices that best serve its national interests and maritime security requirements. These could manifest in either a more visible slant in partnership with the Western

powers while standing up to the Chinese naval challenge in its backyard by preparing accordingly, or adopting a nuanced ‘*middle-*’ position while retaining its strategic autonomy and independence of decision-making. The choices are, of course, hard to make. Either way, the Indian Navy as the primary instrument of maritime security for India – whose centrality in and for the Indian Ocean is self-evident – will have to take on this onerous task in right earnest, however difficult the task at hand may be.

23 October 2023

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China's Search for Aerial Dominance in the Indian Ocean: Implications For India

Dr Joshy Paul

I ndo-Pacific is a maritime entity, however, in recent times major stakeholders including China, Japan, India, and Australia have been attempting to enhance their aerial capabilities over the maritime domain. 'Aerial/over-water'¹ dominance is necessary to protect naval assets both on the seas and at shores, and also it will help them dismantle the offensive and defensive systems of the enemy with long-range precision strikes. Aerial dominance is achieved through shore-based air assets and aircraft carrier, using fighter aircraft, maritime strike aircraft, and strategic and maritime strike bombers as well as unmanned aerial vehicles and maritime helicopters.

Fighter aircraft operating from aircraft carrier have dominated the over-water space for a long time but now shore-based long-range strike systems are being developed because carriers are now vulnerable to aerial attack. Even though a carrier strike group (CSG) consists of an aircraft carrier, destroyers with air defence mechanisms, submarine-hunting equipment, and submarines, which can provide aerial and underwater protection not only for the carrier itself but also for other naval platforms, the CSG is still not a full proof protective weapon system. For instance, the anti-ship ballistic missile DF 21/26D that China developed demonstrates that ballistic missiles can be used for denying the maneuverability of enemy aircraft carrier and the US carrier strike groups (CSG), the most powerful weapon system on the surface water, is highly vulnerable to China's ballistic missile attack in the western Pacific.² As a result, the US is developing long-range attacking systems under the Pacific Deterrence Initiative (PDI) to target China's command and control facilities established along the east coast of China, from Guam.³

A significant development in the competition for over-water dominance is that countries seek to avoid damage to both men and material in a direct confrontation, rather looking for long-range precision systems to strike enemy targets. To get extended aerial coverage and long-range precision strikes, countries are focusing on developing sixth generation maritime strike aircraft, strategic bombers, and drones operating from aircraft and unmanned ships, which would help them to dominate the over-water space for the next few decades. While for China, an aircraft carrier is still the most potent weapon system to provide aerial coverage in the Indian Ocean because it can not only provide protection for the carrier itself and other naval platforms but can use for offensive operations in distant waters. For PLA Air Force's (PLAAF) air operations in the Indian Ocean, it must cross 'sovereign' spaces of the Southeast Asian countries which would lead to interdiction or denial that will hurt most of China's military operations in the Indian Ocean. The Indian Ocean is strategically a critical arena for China because it depends on the ocean for energy lifelines as well as for its global power projection.⁴

The Taiwan crisis during the 1995-96 period, where the US sent two aircraft carrier to the Taiwan Strait to prevent China from meddling in the Taiwan election which China felt threatened by the US naval power, heralded China's military modernisation aimed to thwart US naval access to the Chinese periphery- the East and South China Seas - and developed anti-access area-denial (A2/AD) capabilities.⁵ The A2/AD capabilities involve a range of systems in three domains- surface water, under-water, and over-water - which include "advanced and extended-range air defence, air-to-air and precision strike capabilities, sea-launched cruise missiles (SLCM), C4ISR (command, control computers, communication, intelligence, surveillance, and reconnaissance) systems, and force projection enablers such as aerial refuelling, airlift, and logistic capabilities.⁶ China's main concern has been the undeterred manoeuvrability of US aircraft carrier in the Western Pacific and its ability to launch an aerial attack on the strategic installations on Chinese shores. To degrade the US military's ability to penetrate China's anti-access environment, China sought to enhance conventional precision strike systems consisting mainly of cruise and ballistic missiles as well as attacks on key enabling capabilities, such as space-based networks that enable C4ISR missions. Apart from intermediate range ballistic

missiles and hypersonic weapons, China has strengthened its air force with the latest fifth generation stealth fighter aircraft and strategic bombers to target US assets around the second island chain including the US naval base of Guam. With the A2/AD capabilities and other enablers, China could establish partial aerial dominance in the western Pacific by pushing US carrier outside the second island chain and is now focusing on the Indian Ocean in part of ,protecting maritime rights and interests‘ enshrined in the 2015 Military Strategy Paper.⁷

China’s Over-water Dominance Strategy

China’s Over-water dominance strategy is premised on two factors; expeditionary capabilities of its air force and naval aviation comprising shore-based air assets and aircraft carrier. Since China does not have an overseas military base to project its airpower beyond its periphery, it has to depend on shore-based air assets and carriers. The capabilities of air and naval aviation that China developed have been to secure the ‘first and second island chain’ in the Pacific theatre⁸; it will invariably help China to extend its over-water dominance towards the Indian Ocean. The People’s Liberation Army Navy (PLA Navy/PLAN) has been on the cusp of becoming a two-ocean navy- the Indian and the Pacific Oceans- with aircraft carrier as its central pillar. To ensure the ‘active defence’ strategy works effectively in the near seas and to protect ‘maritime rights and interests’ in the far seas China necessarily requires strong air power capabilities. Today, the PLAN is the largest navy in the world in terms of the number of ships with 367 ships including three aircraft carrier and 42 large destroyers⁹, and is expected to reach 425 by 2030.¹⁰

Even though the PLAN plays the “primary role” in the far seas operations, the PLA Air Force (PLAAF) is an “essential” force in making offensive-defensive maritime campaigns successful.¹¹ The PLAAF is the third largest air force in the world after the US and Russia, and is ‘closing the gap with the US Air Force across a spectrum of capabilities’.¹² The air systems that China has recently developed are advanced ones matching similar types of US systems.¹³ Its modern inventory includes stealth fifth-generation fighters, advanced bombers including stealth H-20, large transport aircraft (Y-20), attack helicopters, *AWACS (Airborne Warning and*

Control System), and Unmanned Aerial Vehicles (UAVs).¹⁴ Like the PLAN, China wants to make the PLAAF a formidable air force in the world quantitatively as well as qualitatively. However, its expeditionary experience has been very limited and its anti-submarine warfare (ASW) capabilities are weak. It is trying to gain experience in faraway operations through joint exercises with friendly air forces such as Turkey, Russia, Thailand, Central Asian Republics, and Pakistan.¹⁵

China's intention to achieve over-water dominance can be seen in its naval modernisation program launched in the 1990s. Until then, China's main security focus was on the northern continental theatre, however, with the normalisation of relations with the former Soviet Union, Beijing shifted its attention to the maritime theatre. Before the 1990s, China's focus on the maritime domain was to prevent an amphibious invasion by sea and the concept of aerial coverage on the maritime front was to protect the coastal areas and heavily relied on land-launched cruise missiles to counter the enemy invasion. As the changes in modern warfare brought by technology which was demonstrated during the 1991 Gulf War, Chinese leadership understood the importance of aerial dominance in a theatre and has given considerable attention to modernise its Air Force, including naval aviation. Indeed, the PLA Naval Aviation and the expeditionary capabilities of the PLAAF would serve as the aerial coverage required for China's military operations in the Indian Ocean region (IOR).

PLA Naval Aviation and the IOR

PLA Naval Air Force/PLA Naval Aviation (PLAN AF) was established as a sub-unit of the PLA Navy in 1949 and became one of the PLA Navy's five operational branches in 1952.¹⁶ The former Soviet Union continued as the source of aircraft for the PLA NA and initially inducted *Tu-2* bombers, *Mig 17s* as *J-5*(licensed production), and *Mi-4* helicopters as *Z-5*, and later through reverse engineering *IL-28* transporters and *Tu-16* bombers were made as *H-5* and *H-6* respectively. When China launched naval modernisation in the 1990s it sought to enhance the capability of naval aviation also, and in 1997 ordered 38 Russian made *SU-30's* naval version, a maritime fighter aircraft comparable to the American McDonnell Douglas F-15E Strike Eagle, and Russia's *Sukhoi* Aviation Corporation delivered China specific *SU-30 MKKs* in

2000.¹⁷ In 2001, China renegotiated and ordered 38 improved versions of SU-30MKKs with upgraded avionics and maritime strike capabilities, known as *Su-30 MKK2*, and another 24 were ordered in 2003, all delivered in 2004. This variant also features a new C4ISTAR (command, control, communications, computers, intelligence, surveillance, target acquisition, and reconnaissance) suite as well as a new mission computer.¹⁸

Today, China's naval aviation consists of shore-based aviation assets and aircraft carrier. Shore-based aviation assets are maritime strike aircraft and long-range bombers as well as helicopters. Major inventories of the PLAN NA are 2 regiments with H-6DU/G/J bombers, 1 brigade with J-10A/S Firebird; and Su-30MK2 Flanker G, 1 brigade with J-11B/BS Flanker L, 1 brigade with J-11B/BS Flanker L; and JH-7A Flounder, 1 brigade with J-8F Finback; and JH-7A Flounder.¹⁹ Also, the PLANAF has 1 brigade ground attack capability with JH-7 Flounder and 2 regiments of anti-submarine warfare with KQ-200.²⁰ PLANNA's ELINT/ISR/ASW capability includes 1 regiment with Y-8JB/X; Y-9JZ; KQ-200, Airborne Early Warning & Control system comprises 3 regiments with Y-8J; KJ-200; KJ-500, and 1 regiment transportation with Y-7H; Y-8C; CRJ-200/700.²¹ The PLA NA has a total of 394 combat capable aircraft, which include 45 bombers (27 H-6G/G mod and 18 H-6J), and 24 Russian-made Su-30MK2 *Flanker G*.²²

China has a total of 60 indigenously built *J-15 Flanker* carrier-strike aircraft for its three aircraft carrier.²³ China's Shenyang Aircraft Corporation (SAC) developed *J-15* when the first carrier *Liaoning* neared its completion for commissioning, using a *T-10K* prototype plane acquired from Ukraine in 2001 which itself was a derivative of the Russian *SU-33* fighter, and a successful take-off and landing expedition was taken place from the deck of *Liaoning* on November 25, 2012.²⁴ The *J-15* is a two-engine fourth-generation carrier-borne aircraft, comparable to the US Navy's *F/A-18C/D Hornet* and *F/A-18E/F Super Hornet*, French *Rafale M*, and the Russian *Mig-29K*.²⁵ It has a combat radius of 1,500 kilometers, and can approximately carry 12 tons of weapons including PL-12 beyond visual range air to air missiles (BVRAAMs); PL-7, PL-8, PL-9, AIM-9L/M short-range air-to-air missiles (SRAAMs), YJ-91 anti-radiation missiles, YJ-83K anti-ship missiles, and KD-88 air to surface missile, as well as various bombs, including guided ones.²⁶ China has also developed a carrier

version of the fifth generation fighter aircraft J-20 as J-35, which will be operated from the fourth carrier.²⁷

PLAN AF's ship-based helicopters are 33 (14 Ka-28 *Helix* A; 14 Z-9C; 5 Z-18F) anti-submarine warfare (ASW) helicopters, 12 helicopters for airborne electronics warfare, 18 multipurpose helicopters, and 11 helicopters for search and rescue operations.²⁸ China is reportedly also developing a carrier-based airborne early warning (AEW) aircraft, called the KJ-600, that is similar to the U.S. Navy's carrier-based E-2 Hawkeye AEW aircraft, and also a stealth drone aircraft.²⁹ In June 2022, China unveiled the world's first 'autonomous seaborne drone-carrier' named *Zhu Hai Yun*, which can be controlled remotely and navigate autonomously in open water and can carry 'dozens of drones, unmanned ships, and submersibles'.³⁰ From the Soviet era aircraft to indigenously made modern aircraft and bombers, China's naval aviation has the capabilities to conduct attacks not only in the western Pacific but also towards the Indian Ocean.

Aircraft Carrier

An Aircraft Carrier is the most powerful weapon system for offensive and defensive purposes as well as to expand over-water dominance beyond one's periphery. Even though it was Mao's dream to expand Chinese influence across the globe, the Deng-Huaqing duo took the initiative in the 1980s to expand China's naval influence beyond the East Asian waters by sending its first ever foreign naval expedition to the Indian Ocean for a four-month sojourn during the 1985-86 period.³¹ The Chinese military leadership also harboured having an aircraft carrier both as a national prestige as well as to project its power beyond the East Asian theatre. They advocated the importance of an aircraft carrier necessary to make the PLAN from a coastal navy into a blue water navy in a phased manner from 2000 through 2050.³² Indeed, the aircraft carrier was considered 'indispensable weaponry' in the final stages of Admiral Liu Huaqing's island chains strategy that aims to establish Chinese dominance between the areas of the second and third island chains, which includes the Pacific and the Indian Ocean, during the 2020 to 2050 period.³³ Admiral Liu had famously said in 1987 that "Without an aircraft carrier, I will die with my eyelids open; the

Chinese Navy needs to build an aircraft carrier,” using a saying that refers to dying with an unfulfilled wish because China lacked the technology and financial position to own an aircraft carrier at that time.³⁴

Owning an aircraft carrier had indeed been a fascination for China for a long time. It purchased Australia’s decommissioned carrier HMAS *Melbourne* in February 1985 for accustomed to carrier operations but that had to be broken up for scrap because, before its departure for China, the Australian navy stripped *Melbourne* of all electronic equipment and weapons and welded her rudders into a fixed position so that she could not be reactivated.³⁵ China also attempted to purchase the blueprints of Spain’s proposed conventional takeoff/landing ship *Empresa Nacional Bazán* during the 1995-96 period but the negotiations didn’t become successful.³⁶ It then purchased a former Soviet *Kiev*-class aircraft carrier from Ukraine in 1998, which was refurbished in China with the name *Liaoning* (Type 001) that entered service in 2012. The second carrier, *Shandong*, modelled after *Liaoning* and a fully indigenous one, was commissioned in 2019.

The displacement of *Liaoning* is 60,000 to 66,000 tons and can accommodate an air wing of 30 or more fixed wing airplanes and helicopters, including 24 J-15 fighters.³⁷ The displacement of *Shandong* is estimated at 66,000 to 70,000 tones, with a wing of 44 aircraft that include 36 J-15 fighters.³⁸ Both *Liaoning* and *Shandong* launch fixed-wing aircraft using a “ski ramp” at the ship’s bow. The third carrier, Type 003 *Fujian*, a larger super-carrier with more than 80,000 tons of displacement, was launched in June 2022.³⁹ It is roughly comparable to the U.S. Navy’s Ford Class and is using EMALS (electro-magnetic aircraft launch system) in its deck for the smooth launching of aircraft.⁴⁰ However, press reports in December 2021 stated that CATOBAR (Catapult Assisted Take-off But Arrested Recovery) version aircraft will be operated from *Fujian* and China has developed a second generation J-15 *Flanker*, an upgraded catapult capable version, to be operated from *Fujian*.⁴¹ With a combat radius of 1500km, the J-15 *Flanker* can strike targets up to the middle of the Bay of Bengal from a carrier operating in the western part of the South China Sea.

China’s all three carriers are conventional diesel powered ships while mulling to build the fourth one as nuclear powered and is expected to achieve a breakthrough

in nuclear-powered technology by 2027.⁴² However, US analysts believe that the fourth one will also be a conventional carrier because ‘China’s naval nuclear reactor technology is not advanced enough to support an aircraft carrier’.⁴³ The latest J-35 carrier fighter will be operated from the fourth carrier which has a combat range of 2000 KM, providing extended aerial coverage for maritime operations.⁴⁴ Aircraft carrier is crucial for the PLAN to provide air protection for the surface ships in the Indian Ocean and China requires a minimum of four carriers to permanently deploy one carrier in the Indian Ocean throughout the year. As per the *Economist*, China plans to build a fleet of somewhere around six carriers by 2030.⁴⁵

PLAAF’s expeditionary role

The PLAAF’s over-water dominance towards the Indian Ocean depends on the advancement of its long-range precision strike capabilities. The PLAAF became a ‘strategic air force’ in the 2000s but was still focusing on the near seas to ensure ‘active defence’.⁴⁶ ‘Strategic air force’ notionally meant “the ability to directly support national policy objectives and achieve a wide range of strategic goals”.⁴⁷ When Xi Jinping assumed office in 2013, the expeditionary nature of the PLAAF gathered momentum. During his visit to the PLAAF Headquarters in April 2014, President Xi called on to “accelerate the construction of a powerful people’s air force for offensive and defensive operations,” and emphasised the need “to defend China’s maritime interests and strengthen its over-water capabilities”.⁴⁸ Similarly, the 2013 edition of *Science of Military Strategy* highlighted the need for “shifting the strategic defence from coastal periphery to the external forward edge”, and the want for “building overseas strategic strong points that depend on the homeland, radiate into the surrounding areas, and move toward the two oceans”.⁴⁹ It also called for the PLA Air Force to have an “effective combat radius (platform plus missile range) of 3,000 km from China’s borders,” effectively covering the aerial distance up to Guam.⁵⁰

China’s military leaders have long advocated the importance of far seas over water dominance in China’s military strategy. In 2014, in a speech by the then vice-Commander of the PLAAF, General Ma Xiaotian, stated, “Winning the initiative in the air is important in effectively responding to all kinds of security threats at sea....

[We must] fully recognize the new circumstances in the defence of maritime rights. [It] gives the Air Force new meaning to accelerate the transition from territorial air defence towards attack and defence.... [We must] transform the ‘center of gravity’ of sea operations towards the employment of air power.”⁵¹ When Ma became the PLAAF commander, he argued in 2015 that “because our national development, maritime rights protection, foreign economic activities, and non-war military actions are increasing by the day, it will be necessary for us to further increase our awareness of the urgency of making preparations for maritime military conflict properly.”⁵²

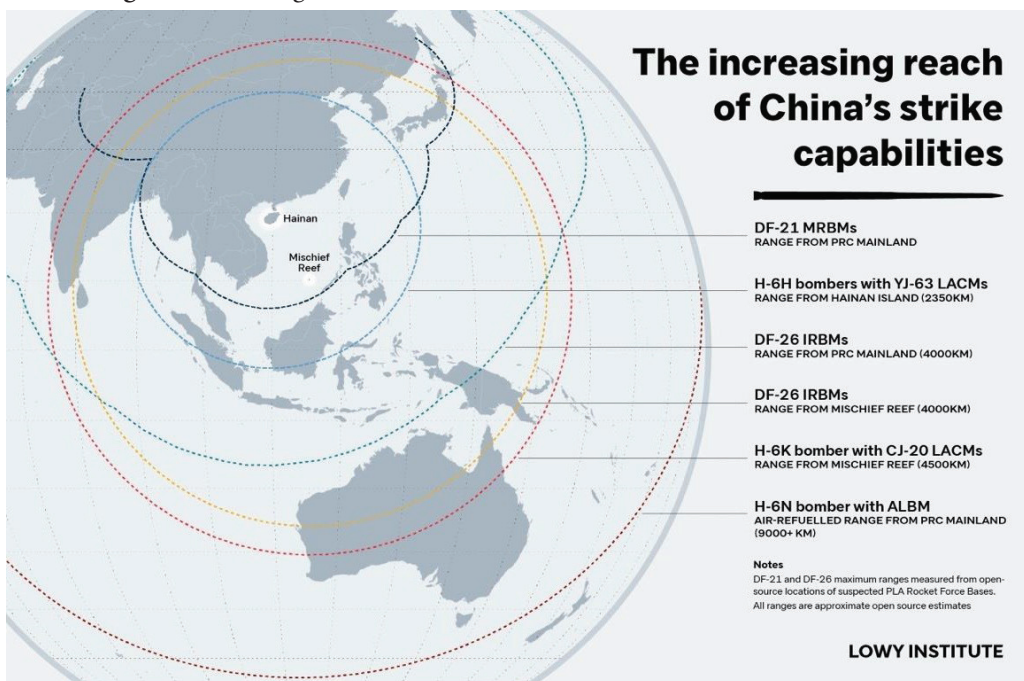
China developed a new long-range strategic bomber H-6N, capable of launching hypersonic as well as ballistic missiles, and the bomber was revealed in the PLAAF’s 70th anniversary parade in 2019.⁵³ The H-6N is reportedly a refurbished and advanced version of the Tu-16 *Badger* bomber, with a combat range of 3000 km and in-flight refueling capability.⁵⁴ A video appeared in a Chinese military magazine *Modern Ships in late 2019* demonstrating the launch of China’s Air Launched Ballistic missile (ALBM) CH-AS-X-13, an air-launched variant of the DF-21, from the H-6N.⁵⁵ The Pentagon had in 2018 reported that China was developing a nuclear-capable, air-launched ballistic missile, which can be fired from its strategic bombers.⁵⁶ This suggests that the combination of DF-21 missile -1700 KM or 1500 km range CJ 20 cruise missile- plus the approximate operational range of 1500 km of the H-6N would give the PLAAF enough firepower to target the US base of Guam, and Carrier Strike Groups even outside the second island chain in the Pacific. It can also target the Indian military assets and naval platforms in the Indian Ocean too (Figure 1).

China’s Southern Theatre Command (STC) is primarily responsible for the Indian Ocean operations. As a maritime command, the STC’s operational area is the South China Sea and is also responsible for assuring the security of sea lines of communication (SLOCs) passing through the Indian Ocean, China’s critical lifeline for energy. In 2017, the chief of the Southern Theatre Command General Wang Jiaocheng was replaced by Vice Admiral Yuan Yubai, former commander of the PLAN’s North Sea Fleet, the first time ever in the history of the PLA that a naval officer heading multi-service forces of one of its regional combatant headquarters.⁵⁷ Given the strategic significance as well as the vastness of the maritime areas to be

covered, the STC has been the first command to receive PLAN's H-6J maritime strike bombers.⁵⁸ H-6J bombers took part in PLA's coordinated air and naval forces exercise in the East China Sea in June 2022, and three H-6 bombers (two H-6J and one H-6K) flew past Miyako Strait into the Pacific Ocean, a demonstration of its long-range precision strike capability.⁵⁹ One H-6J can carry four YJ-12 anti-ship cruise missiles, while PLAAF's H-6K is equipped with electronic countermeasure pods for jamming enemy radar, apart from carrying six land attack cruise missiles (LACM).⁶⁰ Similarly, China's second carrier *Shandong* entered service in 2019 at Sanya in Hainan Province under the Southern Theatre Command.⁶¹ China's air assets in the South China Sea are going to be a major aerial threat to India in the Indian Ocean. China has equipped various military outposts in the artificial islands in the South China Sea with hangars for fighter aircraft and installed advanced anti-ship and anti-aircraft missile systems, and military jamming equipment.⁶² The Fiery Cross reef in the Spratly Islands group has a runway long enough to land a Chinese H-6K bomber, which has a 3000 km combat range and can target up to the west coast of India with a 1500km range land attack cruise missiles (LACM).⁶³ With one-time aerial refueling, the entire Indian Ocean will come under the range of Chinese bombers, highly vulnerable to Indian military assets as well as the aircraft carrier deployed in the Indian Ocean (Figure 1).

With an eye on aerial dominance in the Indian Ocean, China has built an airfield and a naval base closer to the Indian Ocean at Cambodia's Sihanoukville in the Gulf of Thailand. *The Washington Post* in June 2022 reported that "China is secretly building a naval facility in Cambodia for the exclusive use of its military" on the northern portion of Cambodia's erstwhile US Ream Naval Base on the Gulf of Thailand.⁶⁴ Cambodia and China had secretly signed an agreement in 2019 to enhance the infrastructure including communication and surveillance systems, radar facilities, and long wharves to enable larger foreign warships to dock with Chinese funds, reported the *Wall Street Journal*.⁶⁵ At the Dara Sakor airfield, China has built a 2-mile long runway, big enough for China's long-range bombers and military transport planes to operate.⁶⁶ As per international law, "all acts of hostility in neutral territory, including neutral lands, neutral waters, and neutral airspace, are prohibited,"⁶⁷ so without concurrence of the host country China cannot use the

Figure- 1: Coverage of China's bombers and missiles from Mischief Reef, SCS



Source: Thomas Shugart, "Australia and the Growing Reach of China's Military", *The Lowy Institute*, August 9, 2021, <https://www.lowyinstitute.org/publications/australia-and-growing-reach-china-s-military>.

foreign territory for a belligerent act. However, given the economic interdependence between China and Southeast Asia -the Association of Southeast Asian Nations (ASEAN) became the largest trade partner of China in 2022⁶⁸- and Southeast Asia's economic dependence on China has been increasing in the 'America First' era of Washington,⁶⁹ Beijing could arm-twist the regional states to use their airspace for PLAAF's military operations in the Indian Ocean. Beijing has already used economic coercion against Japan in 2010⁷⁰ and Australia in 2020,⁷¹ the same could also be applied to the Southeast Asian states to comply with China's security demands. Similarly, if China's 'all-weather' friend Pakistan or Myanmar allows its territory for the Chinese planes to refuel, then PLAAF's aircraft will be able to target Indian assets in the Indian Ocean from airfields in western China. In recent times, China has enhanced its airfields close to the Indian border, including the Hotan, Gar Gunsa,

Kashghar, Hopping, Dkonka Dzong, Linzhi, and Pangat airbases in the Xinjiang and Tibet regions.⁷² The PLAAF has already deployed Sukhoi-30s and six H-6 bombers with KD-63 cruise missiles at Kashgar airbase in Xinjiang.⁷³

Challenges and Limitations for China

China faces considerable challenges in extending its air cover into the Indian Ocean; from geographical disadvantages to doctrinal and technical aspects. Firstly, since China does not have foreign air bases in the Indian Ocean Region (IOR) it has to depend on home-based aerial assets, while for carriers it has to cross narrow channels in the Southeast Asian archipelago. For home-based air coverage, geography creates the most obstacle for aircraft to operate freely in the Indian Ocean. Unlike ships which can pass through narrow channels, either between two islands (Sunda and Lombok) or the waters dividing nations like the Malacca Strait, as they are called international shipping lines, fighters cannot fly freely through the air space of Southeast Asia, if they have to transit 'sovereign airspace' it requires host-country's consent.⁷⁴ The 1944 Chicago Convention on International Civil Aviation stipulates that state aircraft (military, police, and customs) are not allowed to traverse the sovereign space unless it is authorized by some special agreement, and also the necessary arrangements have to be made to ensure safety while navigating the state aircraft.⁷⁵

However, overflights of sovereign territory are subject to tracking and interdiction, which may lead to counterproductive. Besides, the refusal of countries to grant overflight rights can create significant operational problems. In a hostile environment, even friendly countries may not grant permission to use their airspace. For example, US strike aircraft based in Britain were not allowed to fly over the airspace of France and Spain for air strikes on Libya in 1986, it had to fly over international waters including through the Strait of Gibraltar.⁷⁶ As a result, the search for airpower access to the IOR from the home-based assets is still an insurmountable task for the PLAAF.

Secondly, China currently pursues a defensive military posture towards the Indian Ocean. As mentioned elsewhere, the PLA's priority is to defend the near seas while its far seas mission is to 'protect maritime rights and interests and nuclear

counterattacks'.⁷⁷ The far seas mission is predominantly a PLAN's objective and strategic submarines are used for nuclear counterattacks from oceans. Its aircraft carrier is not yet ready to take up operational missions in the Indian Ocean, they are still undergoing operational training in the East China Sea and the South China Sea. Similarly, using airfields of either the Indian Ocean littoral states or Southeast Asian countries including Cambodia for aerial missions is going to be highly improbable due to the pressure from the US as well as India. New Delhi can take leverage of the Quad partnership to dissuade the regional countries from using their territory or airspace against India as the US has a considerable influence over them than that of India.

Thirdly, PLA Air Force's (PLAAF) operational experience beyond the East Asian theatre has been very limited. The PLAAF lacks real-time combat experience as it has never been involved in aerial combat, not even being used in the 1962 border conflict with India or the Vietnam war of 1979. It has also not participated in any of the peacekeeping missions, humanitarian assistance and disaster relief missions, or any other limited military tasks under the United Nations (UN). UN international peacekeeping missions with other countries' forces in distant regions are considered operational experiences in an unfriendly environment. Only once in PLAAF's history has it participated in military operations other than war (MOOTW) was in 2011 during the Libyan crisis when large-scale Chinese nationals were evacuated from Libya. However, after the Libyan evacuation, the Chinese government conducted a few more noncombatant evacuation operations (NEOs) in the IOR and nearby areas, including the Ebola crisis in November 2014, and evacuation of the Chinese nationals from Iraq in 2014 and Yemen in 2015, but PLAAF was not used for these missions due to unknown reasons.⁷⁸

Fourthly, as per China's security strategy far seas are the secondary objective of the PLA, primarily PLAAF has to focus on East Asia and the South China Sea theatre. The PLAAF's primary objective is to gain real supremacy within the area of the first island chain and also to keep enemy forces away from the second island chain area. Even if China settled the Taiwan problem in its favour then Japan would remain a major roadblock to China's ambition of a full spectrum dominance in the Western Pacific. Unless China gets complete dominance in the Western Pacific it will not shift its arsenals to the Indian Ocean.

Fifthly, China's overseas military assets in Djibouti or any MSR (Maritime Silk Route) assets in the Indian Ocean littoral area are inadequate to facilitate PLAAF's operational requirements. Pakistan is the only country that hosts a seaport and airport nearby at Gwadar which can be utilised for military purposes because of the close military relationship between the two. All the ports China has built in the Indian Ocean region including the Djibouti base can be blockaded by joint operations of the Indian and the US navies in a real-time crisis. Similarly, using Pakistan airspace by the PLAAF amounts to be tracked by India as the Indian Air Force actively operates 20 airbases under Northern and Southwestern Air commands along the India-Pakistan border. Indian Navy's western naval command based at Bombay can create a blockade against Pakistan's major ports as was in the case of the 1971 Indo-Pak war.⁷⁹ This is the same case for PLAAF's operations through Myanmar airspace to target India's assets in the Indian Ocean which can be shot down by the Indian Air Force before the aircraft reaches the actual theatre.

Sixthly, it is not proven whether China's advanced aerial systems are technologically efficient for faraway combat operations. Even though China claims that its latest aerial systems are at par with similar categories of the US' advanced systems. In practice, China's modern aircraft is either a modified Soviet-era system or a copied version of the US systems, so the technological modernisation is not incremental. For instance, J-20 is China's fifth generation stealth fighter aircraft but is reportedly developed with stolen technology from the US systems of the F-22 Raptor, and F-35 Lightning, while the J-35 is a stolen technology of the US' B-2 stealth bomber.⁸⁰ The composite material being used in the Chinese aircraft may not technically be at par with the US systems. So, the Chinese systems would not have the same level of agility that an advanced fighter aircraft of the US could perform in a war.

Seventhly, it is believed that China's anti-submarine warfare (ASW) capabilities are not advanced enough to protect the aircraft carrier from submarine attacks. China's existing ASW strategy is largely dependent on surface ship anti-submarine capabilities; its aviation anti-submarine is based on Z-9C, Ka-28, Helix A, and Z18F helicopters.⁸¹ These systems would be sufficient in the shallow water bodies of the Yellow Sea and East China Sea whose average depth is 40 meters and 350 meters respectively, while the average depth of the SCS is 1,200 meters and China

is attempting to covert the SCS as a Chinese lake to prevent enemy submarines operating there.⁸²

Similarly, surface ships are on the surface water and face serious threats from underwater, so aviation anti-submarine mechanisms can protect carriers from underwater threats, particularly in the far seas. Maritime Patrol Aircrafts (MPA) are powerful assets in ASW operations as they have more range, endurance, and speed, can carry more payload as compared to ASW helicopters, and can be deployed in support of the fleet.⁸³ China's maritime patrol aircraft KQ-200 (Y-8Q) entered service in 2018, which China has less than 20 in number,⁸⁴ and are largely doing reconnaissance around Taiwan.⁸⁵ The KQ-200 is based on the Soviet Antonov An-12 and is technically not at par with the US P-8I Poseidon that the Indian Navy operates, and a Y-8 was reported to have crashed into the South China Sea in March 2022, killing all seven crew members onboard.⁸⁶ However, the US Department of Defence report in 2022 on China's Military Power observes that "it will still require several years of training and systems integration for the PLAN to develop robust offensive deep water ASW capability".⁸⁷

Finally, an aircraft carrier is a highly costly weapon worth around 3-5 billion dollars so much so that loss of it is a heavy loss for the nation. Even though the carrier strike group (CSG) comprises systems to protect the carrier from aerial, surface and underwater attacks it would need a mix of ships to provide the required protection. Besides, sinking an aircraft carrier would indeed be a strategic shock for the nation. Apart from submarines, with supersonic Brahmos cruise missiles, fitted on surface ships. India can also target Chinese aircraft carrier from longer ranges the moment it enters the Indian Ocean water crossing the narrow straits of the Southeast Asian archipelago. Carriers can also be targeted by the Indian Air Force operating from the Car Nicobar Air Force Base or from Thanjavur air station where the Indian Air Force has deployed one squadron of SU-30 MKI fighter aircraft. In this regard, the Chinese aircraft carrier would be highly vulnerable to Indian attack with submarines and fighter aircraft in the Indian Ocean.

Conclusion

In recent times, China has been enhancing its aerial capability to dominate the over-water domain in the Western Pacific theatre. Chinese warplanes frequently intrude into the air defence identification zones (ADIZ) of Taiwan and Japan, demonstrating Chinese assertiveness as well as its proven capabilities of power projection. China's air force modernisation with fifth-generation fighter aircraft and hypersonic weapons has led to a competition for aerial dominance in East Asia; Japan is vying for developing 6th generation fighter aircraft program in collaboration with the United Kingdom and Italy,⁸⁸ while the US is going ahead with the *B-21 Raider* bomber, the world's first sixth generation jet⁸⁹. Until China resolves the Taiwan question, it will be preoccupied with the East Asian theatre. But at the same time, a simultaneous two-ocean navy means PLAAF has to provide aerial coverage for the PLAN in both oceans.

China could also launch independent air operations against India in the Indian Ocean, following a land skirmish in the Himalayas between the two nations. China fears that India would attempt to interdict the Chinese SLOCs in the Indian Ocean during an India-China border war in the Himalayas which will force China to end the war quickly because without the energy coming from the Middle East and Africa, China cannot prolong the war. China could arm-twist its close partners- Pakistan and Myanmar, or the Southeast Asian states, shall the US not pressurised them from giving their air space for China to use against India. In this situation, China's Western and Southern Theatre Commands could launch simultaneous aerial operations against Indian aircraft carrier, platforms ships, command and control stations in the peninsula, and Indian military assets in the Andaman and Nicobar Islands.

To overcome the bottlenecks of the PLAAF in the Indian Ocean, China may establish a dual-use airfield, on the lines of dual-use MSR ports, in the littoral countries, notably in the East African region. The 2022 Department of Defence report states that "the PRC is likely already considering and planning for additional military logistics facilities to support naval, air, and ground forces projection", other than Djibouti base, in faraway regions.⁹⁰ A dual-use airport in the African continent on the western side of the Indian Ocean and a naval base-cum-airfield in Cambodia

from east of the Indian Ocean would be enough to provide aerial support for the PLA Navy operations in the Indian Ocean as well as to neutralise the Indian threat. Undoubtedly, Chinese MSR ports along the littorals and dual-use airports on both sides of the Indian Ocean would mount significant challenges for the Indian Navy in its backyard.

Policy Options for India

As the primary area of interest of the Indian Navy is the Indian Ocean which includes 'the Arabian Sea, Bay of Bengal, Andaman Sea, and their littoral regions',⁹¹ China's military forays into the Indian Ocean is a security threat to India. To deter the Chinese aerial threat in the oceanic flank which is mostly to come from China's Southern Theatre Command, New Delhi has to devise an 'active denial strategy' with its own A2/AD capabilities in the eastern part of the Indian Ocean. An 'active denial strategy' requires maintaining a forward military presence but be oriented toward denying an opponent the benefits of military aggression, rather than trying to ensure a decisive defeat".⁹² The entry of Chinese naval ships into the Indian Ocean will be from the South China Sea and the aerial threat is also from there, denying their entry to the Indian Ocean from the east would be the most appropriate strategy to counter China in the Indian Ocean. According to a study, the average cost of an A2/AD capability is about one-fifth of the cost of the power-projection capability that it could neutralize in war.⁹³ In this regard, an 'active denial strategy' would be more economically prudent than a naval competition between China and India in the Indian Ocean for dominance. For an 'active denial strategy' in the Indian Ocean, there are three levels with which India can neutralise the aerial and naval threats from China before reaching the Indian Ocean:

Andaman-based A2/AD Capabilities. An anti-access area-denial capability in the eastern part of the Indian Ocean could deter the Chinese aerial as well as naval threats. Strengthening the Andaman and Nicobar Command by modernising airfields and also by installing air defence systems with powerful long-range radars, and Surface-to-Air Missiles (SAM),⁹⁴ could counter the aerial threat. Indian Navy's 2015 *Maritime Doctrine* highlights the importance of 'integral air assets' and the

lack of it would ‘severely constrain the navy and be largely vulnerable in undertaking operations within hostile aerial maritime strike range.’⁹⁵ The mainstay of airpower of the IAF is SU-30 MKI and its operational radii of action is 1,500 kilometers, which can increase to over 2,000 kilometers with one aerial refueling and can be operated from many international airports, major naval airbases, and its air force stations at Trivandrum, Sullur, and Thanjavur as well as from the Andaman. From the Andaman airbase, the SU-30 MKI can cover a significant part of the South China Sea and thus can effectively deter China’s aircraft carrier even before entering the Indian Ocean (Figure 2). India has robust anti-submarine warfare capabilities with P-8I Neptune maritime patrol aircraft which could detect and neutralise Chinese submarines before entering the theatre. Also, the three aircraft carrier plan of the Indian Navy for strengthening the ‘integral air assets’ would bolster the A2/AD capabilities. Besides, the deployment of attack submarines in the eastern Indian Ocean will be a force multiplier in India’s A2/AD capabilities.

Figure 2: Combat Radius of SU-30MK from the Andaman and Nicobar Command



Source: Air Marshal Anil Chopra, “Unsinkable aircraft carriers: India’s island territories have great strategic potential which must be realised”, Firstpost, September 23, 2022, <https://www.firstpost.com/opinion-news-expert-views-news-analysis-firstpost-viewpoint/unsinkable-aircraft-carriers-how-indias-island-territories-are-great-strategic-potential-11314321.html?s=08>

Bay of Bengal Security Community. India needs to strengthen its security cooperation with the littoral countries of the Eastern Indian Ocean. New Delhi can consider creating a security community grouping of countries from both South Asia and Southeast Asia that share the Indian Ocean waterbody which would help negate using their airspace by China against India.

Air Domain Awareness (ADA) with Quad members. Cooperation on Air Domain Awareness with the Quad members particularly the US will help gather intelligence about PLAAF's preparations targeting India. The US has established early warning systems in all the domains- land, sea, and space- to monitor China's military activities, and early warning information from the US will help deter incoming bombers and fighter aircraft targeting India.

Even though China is a superior military power to India the geographical constraints and distance should be made advantageous by New Delhi. China has adopted an A2/AD strategy in the western Pacific to prevent the US, while the US is now looking for long-range precision strike capabilities under the Pacific Deterrence Initiative (PDI) and also formulating an 'active denial strategy' against China in the near seas so that China would not be able to target the US bases in the Western Pacific as well as its allies' territories. In a similar manner, an 'active denial strategy' against China in the eastern Indian Ocean can effectively counter the Chinese aerial as well as naval threat against India.

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Wide-Area Ocean Electronic Intelligence Satellites: Vital MDA Tool for Detecting Proponents of China's Grey Zone Operations in The Indian Ocean

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The Chinese grey zone activities generally involve the deliberate pursual of political objectives through carefully designed operations. The tenets of such grey zone missions call for not seeking decisive results quickly; ensuring that such missions do not escalate into open conflict; and use of all resources at the disposal of nation-States, including non-military and non-kinetic means. In terms of its application in the maritime domain, Peter Layton has posited that grey zone activities can be best understood through an interplay of two important variables. These are, whether violent or non-violent actions are resorted to; and whether military instruments are used or not.¹ Such interplay would result in four possible outcomes, as shown in the four quadrants depicted in Figure 1. While none of these four outcomes can be considered as exclusive to the others, a wide range of encompassed possibilities are nevertheless, covered.

Since 'Playing by the rules China' is a highly optimistic scenario, whose probability of occurrence seems to be pretty unlikely in the context of current geopolitical environment; it would not be totally out of place to discount this scenario altogether. At the other extreme, 'Do as you are told China' would lie at the limits of grey zone activities with serious risk of escalation into a conflict; and is hence not being considered within the scope of this article.

That leaves two plausible scenarios. The first one is the 'Whatever it takes China', where non-military means and assets are used in a volatile fashion day-in-

Figure 1: Chinese Grey Zone Possibilities encompassing Maritime Domain



Source: Peter Layton

and-day-out, to harass the adversary and keep him in a constant state of frustration and tenterhooks. The second situation relates to 'Pushing the envelope China' where greater and more visible use of the Chinese naval assets would be made in a non-violent but assertive way — with the threat of 'use of force' being inherently implied by virtue of their mere presence.

Chinese Maritime Grey Zone Operations in the South China Sea (SCS)

The world has been watching the last two scenarios playing out in the South China Sea, with due concern. A combination of the grey zone tactics from this playbook are being aggressively pursued against Vietnam and the Philippines, in particular. The Scarborough Shoal has virtually been made inaccessible to the Philipino fishermen and law enforcement authorities since 2012. At the same time, the Second Thomas Shoal has become a veritable battleground of sorts, with the Chinese Coast Guard ships and maritime militia vessels physically obstructing the Coast Guard ships and logistics resupply vessels of the Philippines. They have even gone to the extent of

engaging in willful collision on multiple occasions over the past year — the latest being on 05 March 2024.²

A milder intensity of these activities has been witnessed vis-à-vis Malaysia and Brunei, which have comparatively limited disputes and are located a little farther. Indonesia is probably being lulled into a false sense of security by the oft-repeated and disarming Chinese promises with respect to its Natuna group of islands. The mildest manifestation of these grey zone tactics was witnessed when the Chinese Ministry of Natural Resources released a new map of China on 28 August 2023, depicting 10 dash lines in the South China Sea — with the tenth dash extending due east of Taiwan.³

Possible Contours of China's Maritime Grey Zone Operations in the Indian Ocean Region (IOR)

While the Chinese maritime grey zone operations in the SCS have been growing increasingly aggressive by the day; the nature of their maritime grey zone operations can be said to be a little more nuanced in the IOR. The vast region in terms of area — about 73.6 million square km — affords ample sea space to the Chinese maritime assets to engage in grey zone missions. These missions can possibly play out through two specific lines of effort, namely: the deployment and activities of Chinese 'special purpose' ships; and their distant water fishing fleets engaging in illegal or unlawful acts, as per their capabilities and mandates.

China has been deploying an array of 'special purpose' ships in the IOR over the past two decades. These ships are equipped with advanced technological hardware and capabilities for data collection, collation, theme-based segregation, analysis and distribution in different domains. The Chinese survey ships have also been deployed for underwater survey tasks on request from India's neighbouring countries like Pakistan, Sri Lanka and Maldives.⁴ Some such ships which require special mention are mentioned below:

- Intelligence collection ships (Dong Diao class, Type 815)
- Deep-sea Research vessels with/without submersibles (Xiangyanghong series)

- Hydrographic survey vessels (Shiyan-6/7 types)
- ‘Yuan Wang’ series of space tracking and telemetry ships

Similarly, some probable grey zone activities of the Chinese ‘distant water’ fishing fleet — whether acting unilaterally or within the fleet or in combination with either ‘special purpose’ ships or even in conjunction with the People’s Liberation Army (PLA) naval ships — are mentioned below:

- Effect rendezvous (R/V) with the PLA Navy ships and act on their orders
- Operate in collusion with ‘special purpose’ ships
- Cyber activities inconsistent with fishing
- Underwater data collection by employing probes, buoys or UUVs
- Illegal, unreported, and unregulated (IUU) Fishing in Indian Maritime Zones

Maritime Domain Awareness (MDA): Pre-requisite for Countering China’s Maritime Grey Zone Operations

In order to counter the Chinese grey zone operations in the maritime domain, particularly in the Indian Ocean, it is imperative that the countries invest in building a comprehensive MDA architecture. This architecture should be built around many sources and technologies; must be reliable, accurate, user-friendly, agile, easy to access; and also amenable to dissemination in shortest possible timeframe. Some such sources are as follows:

- Space-based surveillance technologies
- Maritime reconnaissance (MR) and airborne early warning (AEW) aircraft
- Long range UAVs, both, shipborne and shore-based
- Joint and single service identification systems to discern between ‘friend and foe’

- Effective cyber-space monitoring capability to safeguard own information
- Sub-surface surveillance including mobile and static systems, deployable either from ships, submarines or aircraft
- Robust networking infrastructure to provide high-speed large-bandwidth connectivity for multi-media data sharing

The space-based surveillance technologies — out of those mentioned above — are progressively becoming the most important means of building a comprehensive MDA picture. India, on its part, has taken some stellar initiatives towards erecting the MDA effort in the IOR, particularly against non-traditional threats.

Information Fusion Centre for IOR (IFC-IOR): One such initiative is the establishment of IFC-IOR, which was established in Gurgaon on 22 December 2018. The Centre functions under the operational control of the Indian Navy; and aims to strengthen maritime security in the IOR and beyond, by building a common maritime situation picture. It also acts as a maritime security information-sharing hub for the region. IFC-IOR gets its data for collation, analysis and fusion from various sources, as mentioned below:

- Information of vessels at Sea from National Automatic Identification System (AIS) Chains
- Space-based AIS Data from Resource-sat series of satellites
- Data from Coastal Radars
- Long Range information and Tracking (LRIT) data
- Information from ‘White Shipping Agreement’ Partners
- Maritime Security Information System (MSIS)
- Information from International Maritime Organisation (IMO) departments and organisations
- Information from the Indian Ports Association with respect to the International Ship and Port Facility (ISPS) code

International Collaboration of IFC-IOR towards Comprehensive MDA: Since its inception, IFC-IOR has established working level linkages with more than 25 nations and 45 multinational organisations/maritime security centres. To achieve better correlation, compressed information processing cycles and timely input distribution across the region, IFC-IOR also hosts International Liaison Officers (ILOs) from 13 partner nations. These include the uniformed representatives from Australia, France, Italy, Japan, Maldives, Mauritius, Myanmar, Sri Lanka, Seychelles, Singapore, United Kingdom, and the US; with Bangladesh becoming the latest entrant in December 2023.⁵ A combined team of Indian Naval personnel and ILOs, duly assisted by civilian analysts monitors the IOR and adjoining seas; for developing a deeper understanding on varied maritime issues including piracy, armed robbery, contraband smuggling, IUU fishing, irregular human migration (IHM); and possible links of these non-traditional threats with maritime terrorism. The IFC-IOR extensively collaborates with other Information Fusion centres operating from Singapore, Madagascar and Seychelles; as also with the Information sharing centres associated with the Djibouti Code of Conduct (DCOC) grouping — Sanaa in Yemen, Mombasa in Kenya, and Dar-es-Salam in Tanzania — For two-way information flow.

Indo-Pacific Maritime Domain Awareness (IPMDA) Initiative: In addition, the QUAD group of countries are seriously working to operationalise the IPMDA at a much broader scope and larger scale. IPMDA is a technology and training initiative to bring increased transparency to the critical waterways within the Indo-Pacific region. IPMDA harnesses innovative technology, such as commercial satellite radio frequency (RF) data mining, to provide near-real-time electronic intelligence (ELINT) to its partners across South-east Asia, Indian Ocean, and the Pacific. IPMDA also supports the ability of Indo-Pacific partners to rapidly detect and respond to a wide range of challenges involving illicit maritime activities.⁶ The QUAD countries have accordingly launched a series of regional pilot projects, to collate and deliver RF data to maritime agencies in the region.

Wide Area Ocean ELINT Satellites: Vital MDA System for Detecting China's Grey Zone Operations

It has been argued earlier that Chinese special purpose ships and its fleet of distant water fishing vessels would presumably be the main players which would engage in grey zone operations in the IOR. While the first set of ships would be obligated to keep their AIS transponders on, and hence may not become 'dark ships; they would certainly generate RF transmissions over a wide spectrum, ranging from mobile satellite phone devices, VHF/UHF communication channels, to navigation and specialised radar systems operating in super-high frequency (SHF) bands.

The distant water fishing fleet vessels, on the other hand, would be the most likely candidates for going 'dark' — by switching off their onboard AIS transponder — when they decide to engage in missions inconsistent with legal and authorised fishing activities. However, even with the AIS transponder turned off, the very nature of communication and marine navigation at sea — whether external or internal — would demand that such vessels radiate in certain RF bands like the VHF, UHF and/or satellite telephony.

The space-based ELINT system should therefore, have the capabilities for detection of emissions over a broad RF spectrum, and across a large sea area. The system should also cater for analysis and relay of this RF information to the earth stations or command and control centres in 'as real-time Basis' as possible. Since the required area of coverage, per-force has to be quite large, it would suffice if such a system could just confirm the presence or absence of an object of interest through the detection of its RF signal, even with approximation in locational accuracy. Subsequently, other remote sensing satellites with high-resolution payloads — electro-optical (EO), synthetic aperture radar (SAR), infra-red (IR) or radar for instance — may be cued on to the indicated area for localising, classifying, identifying and tracking the object with pin-point accuracy. These efforts may also be complemented with other assets like the MR aircraft, UAVs and shore-/ship-based radar and electronic warfare (EW) systems, as required. It must however be noted that the whole ISR chain can commence in most cases, only on the reception of initial input from the wide-area ocean-reconnaissance ELINT satellite cluster.

However, India does not have a wide-area ocean reconnaissance satellite cluster of its own; though the DRDO, in collaboration with ISRO has sent a single Electro-Magnetic Intelligence Satellite (EMISAT) under ‘Project KAUTILAYA’ in a 748 km sun-synchronous polar orbit on 01 April 2019.⁷ On the other hand, China possesses multiple such clusters which form part of a comprehensive network of ‘Yaogan’ earth observation system. It comprises a number of remote sensing satellites — having different payloads and in widely differing orbits — in addition to the ELINT clusters.⁸

Since the requirement of wide-area oceanic ELINT coverage is inescapable, India is collaborating with the US under the rubric of QUAD’s IPMDA arrangement to build a comprehensive MDA picture for the region. To that end, it is implied that India may be looking for a pilot project with a private US satellite company, the ‘Hawkeye 360’, which already has seven wide-Ocean-Area ELINT satellite constellations in orbit.⁹ The company provides various data and value-added services like the space-based RF signal raw data, detection and geo-location of such RF signals, as also GPS interference detection solutions. Figure 2 below provides the basic technical and operating details of ‘Hawkeye 360’ ELINT system.¹⁰

Figure 2: ‘Hawkeye 360’ ELINT system – Basic technical and operating details

Hawkeye-360 – Basic Details
➤ 7 constellations of 3 satellites in different orbits (Total of 11 clusters planned)
➤ About 600 KM Altitude
➤ Revisit Frequency – Nearly 1 per hour [Up to 24 inputs per day]
➤ Different RF receiver payloads covering entire radio communication and Marine Navigation Radar frequency bands
➤ 150 MHz to 10,000 MHz [VHF, UHF, L1 BAND GPS, S BAND AND X BAND]
➤ Coverage around any one spot – About 3500 KM Diameter
➤ Can cue any two sensors at a time on demand
➤ Offers geo-location of emitters or raw data as desired, in specified sector of interest
➤ Processed data with classification also provided for specific objects

Source: Various Hawkeye 360 Catalogues

The Hawkeye 360 satellite clusters can, in addition, detect the global positioning system (GPS) jamming signals and also geo-locate their sources. The indispensability of GPS as the lifeline for safe navigation of ships, aircraft — and even vehicles on land — all across the world is universally recognised. However, the low strength of GPS signals renders them quite susceptible to accidental or intentional interference. In recent years, certain countries and even non-state actors have shown the capabilities to jam or spoof the GPS signals in order to downgrade the operational activities of targeted country or group; and thus, gain asymmetric advantage. ‘Hawkeye 360’ can tune the satellites’ GNSS antennas to detect and geolocate signals in the GPS L1 wideband frequency range. Mapping of interfering emitter locations by ‘Hawkeye 360’, will then enable the affected party to deploy suitable countermeasures.

It is however, nobody’s case that the RF signals detected and geo-located by Hawkeye 360’s Wide-area Ocean ELINT satellite clusters will alone, provide the whole solution to the vexed ISR challenges in the Oceanic domain. Rather, a holistic MDA picture can only be built when different means of space-based data collection — like AIS, EO and SAR — are used in a synergistic fashion to plug data gaps, with each system complementing the other. Similarly, AIS data alone can be an incomplete and unreliable source for monitoring maritime activity, since it is contingent upon the subject vessels voluntarily transmitting their position and identification information via their AIS transponders. In a situation where a vessel either turns off its AIS transponder or falsifies (spoofs) its AIS signal, RF data from ELINT satellites becomes quite invaluable in its subsequently tracking. The fusing of such RF data with other modes of data collection therefore, helps ‘connect the dots’, thus enabling ‘dark ship’ detection with greater certainty. Consequently, this integrated architecture provides a robust approach to ISR and positive identification in the vast maritime domain.

Innovative Exploitation of Indigenous Space-based Technologies to detect China’s Grey Zone operations in IOR

While bilateral and multilateral collaborations towards the usage of space-based MDA in mitigating Chinese grey zone operations in the IOR are parts of one approach;

India is concurrently augmenting its own capabilities by using the innovative skill sets of the new generation, with adequate handholding from DRDO and ISRO. One such endeavour is the '*Sindhu-Netra*' micro-satellite with AIS payload, which is dedicated solely for meeting maritime requirements. It is an Indian technology demonstration satellite funded by DRDO, and built by the students of Hyderabad based PES University. It was launched in February 2021 to track merchant navy ships in the IOR. It is claimed that the satellite, if required, can also receive AIS signals in specific areas such as the South China Sea, or the piracy-prone areas near the Gulf of Aden and the African coast.¹¹

In addition, some innovative exploitation of ISRO developed safety applications for fishermen's safety can also be explored to geolocate vessels of interest, which may be observed to be operating in the Indian maritime zones by the Indian fishermen. '*Nabh mitra*'¹² and '*Sagar Mitra*' are two such applications which are capable of sending distress messages from fishermen at sea via a two-way SMS service from their Android phones.¹³ The fishermen have to just report the vessels of interest, if encountered at sea, over SMS. The same action can be followed for reporting the Chinese distant-water fishing vessels if they are observed to be engaged in activities other than fishing. An institutionalised system of interaction between the maritime security agencies, the concerned State governments and the fishing community — Something along the lines of an erstwhile 'war watching' organisation — will of course, have to be built and sustained, for this initiative to become an effective tool of surveillance.

'MapMyIndiaNavIC' (sic) is yet another ISRO developed application (app) for facilitating the safety of fishermen, which may be used for same purpose. The app provides the following specific features:¹⁴

- Live location of the fisherman on the map
- Current position of the fisherman from the international maritime boundary
- Audio-visual alert when the fisherman is about to cross the boundary
- Location for potential fishing zones - tuna or normal

- Way point navigation from current location to selected potential fishing zone
- App works completely offline

Provision to receive Emergency Messages - high tide wave, cyclone, etc.

The most important feature of this app is that it has the Indian maritime boundaries digitally marked in the background; and alerts the fisherman when he is about to cross that boundary. This feature will enable the fisherman to ascertain whether the Chinese fishing vessel or a special purpose ship which he encounters at sea, lies inside the Indian maritime boundary or in its proximity. This feature, if utilised correctly, can be a game changer, as it will provide digitally verifiable evidence about the suspect vessels which may be engaging in grey zone operations within the Indian maritime zones.

Conclusion

The Indian Ocean comprises a vast oceanic expanse encompassing more than 73 million square km. Even the Arabian Sea — a smaller portion of the Indian Ocean — spanning about 3.8 million square km covers a large area. The challenge of ensuring effective surveillance of such vast seascapes — whether by terrestrial resources or space-based systems or a combination thereof — requires no reiteration. This challenge gets further amplified if one were to specifically look out for objects which may ultimately threaten the maritime security of India either in-, from- or through sea. India, having developed a credible space programme over the last half-century — encompassing all space-related technology domains including manufacturing of satellites and carrier rockets as well as their launching — is a recognised space power in its own right.

However, the entire Indian space programme lies in the non-military domain and is under the control of civilian administration. Thus, the Defence Forces' requirement of satellite-based applications, per-force, becomes one of the many national level requirements — most of which are for civilian purposes. In such existing circumstances, it was quite difficult for the defence forces till the recent past,

to pitch for the creation of exclusive space-based infrastructure, assets and processing facilities solely for their dedicated usage. The rapidly changing regional geopolitical landscape — particularly over the last decade and a half — has, however, forced the national policymakers to acknowledge the consequential threat to national security, and the utmost need to exploit the space-based assets towards mitigation of such threats.

In the maritime domain, the communication satellite *Rukmini* was the first asset provided for dedicated use by the Indian Navy. Similarly, military requirements have progressively found increasing priority and precedence in many remote sensing satellites and their payloads. While these developments have certainly improved the level of regional MDA, the insignificant area actually covered on the ground — given the inadequate number of satellites and their limited swathes — vis-à-vis the vastness of the Indian Ocean, renders the challenge quite insurmountable. This is where the indispensability of wide-area ocean reconnaissance ELINT satellites cluster(s) to kickstart the entire ISR process, by facilitating the first line detection of all relevant vessels in the Indian areas of maritime interest — including the possible Chinese ‘grey zone’ protagonists — comes in. Hence, the critical requirement of this space-based system, which is directly linked to India’s maritime security, needs no further emphasis.

Finally, it is posited that the generation of Comprehensive Space-based MDA is only a means to monitor and localise the possible proponents of Chinese ‘grey zone’ activities in the region, and as such, is only the first step in the mitigation of such threats. The next and more important step would be to erect comprehensive infrastructure and build capabilities to counter this threat. Most importantly, due consideration must be accorded while planning of relevant countermeasures, to ensure that own actions do not inadvertently escalate the situation to a point that it degenerates into open conflict.

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Naval Drones – Force Multipliers in Maritime Operations

Captain Kamlesh K Agnihotri (Retd)

It is a well-known dictum that “*there are no runners up in war.*” The nature of warfare in the context of this unforgiving truism has per-force, been transformative; wherein the singular aim has been to win at all costs. Therefore, the warring parties often resorted to innovative means and out-of-box innovations to surprise the adversary with regard to their Force’s strength and intent. The advent of the Industrial Revolution and the consequent development of technology changed the nature of warfare forever. As technology matured and its benefits in gaining asymmetrical advantage over the adversary became apparent, technology started becoming the main driver for formulating the strategy of warfare.

Various technological applications of warfare did surprise the adversary when they progressively appeared on the scene for the first time. Two centuries down the line, the nature of warfare has now evolved into an era of high-technology enabled disruptive weapon systems and platforms, wherein vigorous technological innovations to ensure surprise to the adversary – and consequently ensure victory – is the norm. The multi-domain unmanned systems – in air, land, sea-surface and underwater – are one among many such high-technology means of warfare.

This article covers unmanned systems in the maritime surface and under-sea domain only. Thus, the envisaged operational roles of unmanned surface vessels (USVs) and the unmanned underwater vehicles (UUVs) in pre-conflict, and conflict scenarios have been discussed in detail. Their potential as a force-multiplier during warfare when they are used in innovative ways, has also been investigated. The status of their development and operational usage in India has also been dwelt upon

in detail. This has been followed by the recommended roadmap for their optimal utilisation to engender effective maritime security in the proximate Indian Ocean region, in the future.

Envisaged Operational Role of Naval Unmanned Systems

The use of naval unmanned systems—which includes USVs and UUVs/submersibles – has seen accelerated expansion since the start of the new millennium, wherein these systems are progressively becoming an integral part of modern-day warfare, both, in traditional and non-traditional domains. In fact, unmanned systems have become the preferred option for many missions which may either be highly repetitive, requiring longer sustenance or pose unacceptable risks to the attendant crew. Their use in a hostile environment—besides being cost effective—is also seen as less escalatory when compared to usage of other conventional military hardware or platforms.

The preference of policymakers and operational commanders to utilise unmanned systems has increased steadily with the growing capabilities of these systems to augment or supplant human beings in the conduct of various operations. In areas protected by mines or threatened by integrated air defence systems (IADS) where operational planners would like to minimise the risk to human lives, unmanned systems will certainly provide a viable alternative.

Such unmanned systems would be particularly useful for conducting operations in environments containing nuclear, biological, chemical, or radiological contamination. For instance, after the 2011 Fukushima nuclear disaster in Japan, robots were used to conduct on-site survey of the facility after the calamity when it was reckoned to be too dangerous for human exposure.¹ Subsequently, if such unmanned systems become irreversibly contaminated, and the cost/effort involved in decontaminating them is considered to be too high/unacceptable, then they can be easily abandoned without significant losses.

Some other scenarios which have not been fully explored yet, but may pose significant physical and mental problems to the human body during sustained operations. Unmanned systems can greatly mitigate many of them. Some obvious

examples relate to undertaking high gravity force manoeuvres, operating at very high altitudes, sustaining great pressures at depth, or remaining submerged for long periods of time. Humans require life sustaining systems in these environments, which add size, weight, and complexity to current manned vehicles. The unmanned systems will clearly obviate the need for all these requirements.

Besides the risk to human lives, unmanned systems also offer advantages of consistent performance and effectiveness for monotonous missions such as long-term, persistent surveillance. It is challenging for humans to spend hours conducting surveillance and maintain the same level of awareness and attention to detail. The algorithms in associated computers/ processing systems can be programmed to detect patterns and unexpected anomalies, and present them for further review by human analysts, thus aiding in informed decision-making.

As the diversity of tasks has increased, types of unmanned systems have also proliferated. These systems come in all shapes, sizes, forms, and configurations, and are generally built as per role and mission specifications. They can either be configured for standalone single mission or a combination of one or more roles. The specific operational missions of the USVs and UUVs will be covered separately in the undermentioned sections—though there are certain commonalities in these roles because of their inherently unmanned nature and the associated advantages and limitations.

Unmanned Surface Vehicles (USVs) – Operational Missions and Roles

Some missions and roles in conventional warfare where USVs can prove to be great force-multipliers – and which have been listed as per role priority accorded by the UN Navy’s USV Master Plan of 2007 – are mentioned below:²

1. Mine Countermeasures (MCM)
2. Anti-Submarine Warfare (ASW)
3. Maritime Security (MS)
4. Surface Warfare (SUW)

5. Special Operations Forces (SOF) Support
6. Electronic Warfare (EW)
7. Maritime Interdiction Operations (MIO) Support

Mine Countermeasure Role

The main aim of MCM is to provide safe transit passage to a large number of fleet ships, including high-value assets like aircraft carrier formations and amphibious forces. This requirement consequently translates into the sanitisation of a large sea area, particularly at entry/exit routes to the harbours and in restricted navigation areas and narrow channels/choke points. In order to fulfil this objective without damaging one's own assets and crew, the USVs – as well as the UUVs work separately or in tandem and play a vital role as MCM entails the conduct of these 'dirty, dull and dangerous'³ tasks. They provide long time-on-task, which allows sustained mine hunting and sweeping cover at huge cost saving and risk reduction; thus, increasing the effectiveness of dedicated MCM ships.

The MCM USVs provide the Force Commander with the capability to conduct comprehensive MCM ranging from intelligence collection about mined waters to first response MCM at safe stand-off ranges, thus enabling effective conduct of subsequent fleet operations. The intelligence about mined waters also provides the option to the Force Commander to bypass the dangerous area altogether, if there is a chance to do so. MCM operations by USVs will open transit lanes for forced entry missions, clear operating areas for naval forces, and enable protection for amphibious forces, keeping manned forces clear of danger, all the while. In addition, the actual force multiplication effect generated by the use of USVs in MCM role comes through the lesser consumption of time taken for safe passage and access to the contested area; as also the confident execution of the operational plan.

Anti-Submarine Warfare (ASW) Role

Increasing submarine threat from potential adversaries, particularly in tropical waters calls for establishing and maintaining an effective and credible ASW capability. It

is also a given that there will never be enough manned assets to cover a large area associated with either defending approaches to harbours and other shallow waters; or sanitising the carrier strike group/expeditionary amphibious forces operating and transiting areas against a submarine threat.

Hence, USVs offer significant force multiplication for ASW operations because they can perform the ASW mission at some level of autonomy. This enables the manned combatants to become free from this task and thus be employed for other more pressing operational tasks. USVs in ASW role also provide an additional layer of defence-in-depth for the manned surface group as also reduce risks to the manned platforms that would otherwise have been conducting the ASW mission themselves. In any case, USVs can serve as offboard sensors, thereby extending the range of detection and sanitization effects without increasing risk. The manned mother ship functions as the control and coordination centre for numerous USVs, thus providing the economy of effort while enhancing decision-making inputs. The US Navy envisages the undermentioned concept of operations for exploitation of USVs in ASW role:⁴

- employment of non-lethal weaponry by USVs
- employment of lethal weaponry by USVs
- accumulation of intelligence information on threat submarines by USVs
- USVs engaging in diversionary manoeuvres to create a deterrent or distracting effect against threat enemy submarines

Maritime Security Role

The maritime security role comprises securing ports, harbour approaches and navigational channels; and protecting ship and maritime infrastructure (piers, docks, anchorages, warehouses) from a wide spectrum of threats ranging from conventional attack to special operations to specifically targeted terrorist attacks. The generation of comprehensive Maritime Domain Awareness (MDA) plays a major part in the implementation of effective maritime security. A list of maritime security tasks for which the USVs can be employed is as follows:⁵

- Strategic and tactical intelligence collection: Signal, Electronic, Imagery (SIGINT, ELINT, IMINT)
- Chemical, Biological, Nuclear, Radiological, and Explosive (CBNRE) detection and localisation
- Harbour and Near-shore monitoring
- Deployment and monitoring of expendable surveillance sensors/arrays
- Specialised mapping and object detection and localisation
- Non-lethal and lethal threat deterrence
- Monitoring boat traffic in rivers/ inland waterways for personnel, contraband or weapons smuggling, and other illegal activities

Surface Warfare Role

Surface Warfare capability for USVs is quite similar to some other aspects of the maritime security role. As mentioned earlier, it also incorporates the engagement of more difficult threats further offshore as well as in high seas. Such USVs need to have a larger hull, be capable of doing higher speeds (30-40 knots), be equipped with MDA and ‘identification friend or foe’ (IFF) wherewithal and be armed with role-specific armament payload. These USVs can carry out Coastal/ Homeland Security/ Port Security Patrol, support special force operations and also engage hostile targets – in modes either remotely controlled by an operator, or semi-autonomously, or fully autonomously.

Special Operations Forces (SOF) Support Role

The aim of SOF is to achieve disruption by ‘hit and run’ to achieve asymmetrical advantage using surprise as the main element, rather than traditional ‘force on force’ kind of warfare. SOF units require support for conducting missions involving unconventional warfare, counterterrorism, reconnaissance, and direct action, clandestine missions in enemy held territory, etc. The USVs can support such SOF activities by way of Intelligence, Surveillance and Reconnaissance (ISR)⁶ using standard or non-standard sensors, and by providing transportation and material

support. Innovativeness to enhance stealth and ensure non-attributability of blame would play a great role in form, size, design, and features of such USVs.

Electronic Warfare Role

USVs have broad role in application of naval and joint campaigns to support conventional warfare, irregular warfare, and internal security through strategic use of electronic warfare and Information Operations. This capability is used in synergy with the Maritime Security (MS) mission. The best part is that the USVs can be programmed to always engage in this activity in a secondary role also, while they continue to perform their primary tasks. The USVs, suitably equipped with an Electro-Optical/ Infrared (EO/IR) sensor on a retractable/extendable mast, can be used as picket ships ahead of, or on flanks of the carrier formation or expeditionary group, to conduct passive signal detection and threat warning for the battle group. The provision of chaff launchers or jammers on such USVs or even additional dedicated ones will enable them to be used for anti-missile defence as well.

Maritime Interdiction Operations (MIO) Support Role

Activities undertaken by naval forces to divert, disrupt, delay, or destroy the enemy's military potential before it can be effectively brought to bear against own forces, generally fall under the ambit of MIO. This implies that MIO by default, is a manned mission. The intended role of USVs is to support this manned mission by way of increased domain awareness in the existing area of relevance. This requirement would entail the deployment of a small USV that can precede a boarding party by investigating the target vessel above and below the waterline. For this role, its payload would likely include ISR, EO/IR, CBRNE and Weapons of Mass Destruction (WMD) detectors, and possibly even, remotely operated vehicles (ROVs), UUVs, and UAVs.

Unmanned Underwater Vehicles (UUVs) – Operational Missions and Roles

The US Navy defines an unmanned underwater vehicle as *“a Self-propelled submersible whose operation is either fully autonomous (pre-programmed or real-time*

*adaptive mission control) or under minimal supervisory control; and is untethered except, possibly, for data links such as a fibre optic cable.*⁷ By this definition, the UUVs are expected to possess certain unique operational advantages related to autonomy, risk reduction, low profile, flexibility of deployment, adaptability, and persistence. These features would enable them to deploy or retrieve devices at/from the seabed and water column; gather, transmit, or act on all types of information in the undersea realm; and engage targets lying above and below sea surface, at sea bottom; or in the air, and even on land.

While the operational roles envisaged for the USVs have been explained above, there are certain commonalities with those stipulated for the UUVs too, the minor difference being in the operating realm – the former operating on the sea surface, and the latter, underwater. The US Navy’s UUV Master Plan of 2004 lists the following roles for its UUVs in the order of priority:⁸

1. Intelligence, Surveillance, and Reconnaissance
2. Mine Countermeasures
3. Anti-Submarine Warfare
4. Inspection / Identification
5. Oceanography
6. Communication / Navigation Network Node
7. Payload Delivery
8. Information Operations
9. Time Critical Strikes

Intelligence, Surveillance, and Reconnaissance (ISR) Role

The envisaged ISR roles for UUVs are generally consistent with the ‘maritime security’ role in respect of the USVs,⁹ the only difference being in their domains of operation. Their unique features enable them to undertake these activities at long standoff distances, operate in shallow waters, work autonomously, and provide a

level of clandestine capability which is not available on other systems. UUVs can increase the intelligence collection extent of manned platforms into inaccessible or disputed areas without endangering high value assets and their crew; and achieve force-multiplication effect by raising the number and density of sensors in the undersea battlespace.

Mine Countermeasure Role

There is great similarity between the MCM roles of USVs explained in the earlier section, as well as those of UUVs. In fact, the UUVs in many cases, can be used by the USVs as supporting equipment to carry out underwater reconnaissance of mined areas (detection, classification, identification, localisation), sweeping/ clearance of floating, moored and seabed mines (neutralization, breaching) and protection operations against mines (Spoofing, jamming). The real utility of UUVs however, lies in time-stamped collection of oceanographic data in peace time, wherein collated data on currents, waves, bathymetry, water visibility, seabed physical parameters, seaweed density, sand bars, etc. can be used to highlight pattern inconsistencies and facilitate change detection to determine mineable areas; and mine-like objects.

Anti-Submarine Warfare Role

The role similarity between USVs – as mentioned in earlier section – and UUVs extends to the ASW realm also. The added advantage is in their clandestine modus-operandi, which can be best leveraged when they operate close to enemy harbours, narrow channels and choke points. They can also act as mobile mines if required and so tasked; wherein they can independently detect a target, navigate towards it, and collide with it below the waterline in self-destruct mode.

Inspection/ Identification Role

As part of port defence and force protection architecture, the infrastructure like jetties, moorings, piers, drydock gates, as also the hulls of docked ships and ‘port operations support’ vessels are required to be regularly inspected against terrorist

and sabotage threats. Since the areas in question are large, substantial amount of manpower and effort would be required to achieve their fool proof sanitisation. Instead, these tasks—including identification of dangerous objects like depth charges, limpet mines and other underwater ordnance and their disposal—can be carried out from safe standoff ranges by deploying UUVs. The UUVs thus provide an alternate option to conduct multiple, rapid hull and other underwater structures in a cost-effective fashion; thereby sparing the divers and support staff for more complex tasks requiring real-time human intervention.

Oceanography

UUVs are the best suited equipment to carry out critical tasks such as collection of hydrographic, oceanographic, and meteorological data in all sea states and conditions. By implication, they become a great force multiplier to manned platforms in provision of near real time data to the tactical commander at sea at required frequency and locational comprehensiveness, as aid to decision making. When used in conjunction with remote sensors, other ocean data, and models; UUV-acquired data provides combat units with critically required advance knowledge of environmental parameters such as bathymetry, tides, waves, currents, acoustic propagation characteristics, locations of navigational hazards, and other objects of interest.

Undersea Communication/ Navigation Networking Role

The UUVs can provide undersea communication and navigation relay function for a wide variety of platforms. As a communications relay, the primary task would involve the provision of connectivity to static underwater sensors, chains or systems. UUVs, because of their mobility, can establish links with underwater stations and other surface platforms and even space-based systems. The obvious advantages of using UUVs in submerged communications role include extended standoff distances and greater accessibility to remote areas. Potential users of this facility would include other UUVs, submarines, Special Forces units, and other recipients where clandestine communication is desirable.

Payload Delivery Role

Payload delivery is not a task per-se; but is required in support of many underwater missions like MCM, ASW, Oceanography, Support for special operations, and time critical strikes. The UUVs in this role, would simply become a means of underwater transportation; and will provide the energy, navigation, autonomy, and payload deployment systems which may be needed to accomplish those missions. The size and endurance of such UUVs will naturally depend on the weight of the payload and the distance to which it is required to be transported.

Information Operations (IO) Role

The UUVs' capability to operate clandestinely in shallow waters and areas too hazardous for a manned platform to operate in, makes them the ideal platform for IO missions – aimed at deceiving, deterring, and disrupting the adversary. The UUVs appear to be most suitable for two IO roles, viz., as communications/ computer node jammers, and as submarine decoys.

Time Critical Strikes (TCS)

The US Navy considers the TCS as one of the lowest priority missions for UUVs, because an autonomous weapon launch capability is still regarded as unethical and controversial. Till such time, human control of weapon launch will be the norm, this capability will probably be kept on hold in the foreseeable future. However, there is no denying that UUVs can provide low-risk, high-payoff strike mission results, providing an ability to clandestinely deliver weapons closest to the adversary's vital assets/vital points, in extremely compressed time frame.

Innovative Employment of USVs and UUVs in Support of Naval Operations

The different roles and methods in which the USVs and UUVs can be operationally utilised, have been discussed in the earlier section. The combination of one or more features or roles of these unmanned systems in innovative ways can deliver

asymmetrically high outcomes in the most cost-effective manner with minimum economy of effort. Certain advanced applications of these unmanned systems are also being conceptualised. Though some such applications are being tested at demonstration or ‘proof of concept’ stage in the US, the Chinese technologists are also working on these ideas. While there is no limit to the innovative usage potential of unmanned systems, some known applications currently under preliminary development are discussed in brief in the succeeding paragraphs.

Innovative Usage of USVs

The USVs can be utilised in many innovative ways. Armed mini- or micro-USVs can be used to swarm a large warship or a target of interest. The two known ways in which China intends to use the USVs to gain tactical advantage over the adversary relate to their use as swarms around the high-value assets of the opposing force; and for coastal assault by incorporating amphibious characteristics to the USVs for use, both at sea and on land.¹⁰

In an innovative display of USV employment, a Chinese company demonstrated coordinated formation manoeuvres by 56 mini USVs—called ‘shark swarm’ – sometime in 2018, a video of which was released by *Global Times* on 31 May 2018.¹¹ The mini USVs, moving at high speeds, formed various patterns, shapes and Chinese characters, without colliding with each other. They also formed the shape of an aircraft carrier, while another larger unmanned boat waded directly into the formation, imitating the take-off of a fighter aircraft from the notional carrier’s flight deck.¹² The military potential of such USVs moving in large numbers at high speed to overwhelm the adversary warship’s defences, by swarming all around it, are more than obvious. The Chinese private Industries’ plans to collaborate with the defence industry to further develop USVs and related devices for reconnaissance, command, attack and other sea battle functions were reflected in one such statement to the effect that “*Unmanned swarm boats can be used with high efficiency in escorting, mine sweeping, intelligence gathering and amphibious operations.*”¹³

China also claims to have successfully tested the World’s first armed amphibious USV on 08 April 2019. The USV, named Marine Lizard (Hai Xiyi), is 12 m long,

has a trimaran hull; and is propelled by a diesel-powered hydrojet, enabling 50 knots speed. When approaching land, the USV can release four track units from under its hull which find traction to climb the beach. The amphibious USV can reportedly sail autonomously, avoid obstacles and plan routes with the help of indigenous Beidou satellite navigation network. The amphibious USV is also capable of integrated operations with other units in the theatre.¹⁴

China has been conducting trials of a large, unmanned cargo ship named '*Jindouyun*' since 2017. The prototype USV carried out its first trial cargo delivery run in December 2019, wherein its networked and distributed control systems and cyber-physical algorithms, enabled the Cargo USV to carry out autonomous navigation, track management, obstacle avoidance, and controlled berthing, sailing and other decision-making functions.¹⁵ Since, Chinese maritime administrators are exploring the feasibility of commercial operation of these cargo USVs in the transport, supply and marine sectors in due consultation with the IMO,¹⁶ it is not entirely inconceivable that such ships can be programmed for rogue behaviour to possibly collide with the adversary's warships in narrow channels, restricted waters or choke points. While such 'incidents' may possibly be explained away as having occurred on account of technological malfunction; the diabolical plan of putting that combat unit of the adversary out of action for some duration at the minimum, would have been achieved.

Innovative Usage of UUVs

The most innovative use of UUVs is in the form of Extra-large UUVs (XLUUVs), wherein there is an ongoing effort to manufacture as large a UUV as is possible, and equip it with as many capabilities as feasible vis-à-vis manned submarines. In the absence of human element, advanced artificial intelligence algorithms would control their autonomous navigation, collision avoidance, depth keeping, and combat mission suite.

The US, as the foremost technologically advanced nation is running the '*ORCA*' research and development project, wherein five prototype XLUUVs based on Boeing's '*Echo Voyager*' are being developed for operational use in combat, alongside the US

Navy manned ships and submarines. While the details of the ‘*ORCA*’ project are classified, Boeing’s ‘Echo Voyager’s’ dimensions – 51 feet long with rectangular cross section of 8.5X8.5 feet, weight about 50 tons – provide an indicative assumption of its size. The ‘Echo Voyager’ XLUUV can attach an additional modular 34 feet long payload, increasing its final length to as 85 feet. The US Navy reportedly commenced the underwater testing of ‘*ORCA*’ XLUUV on 04 April 2023.¹⁷

China, considering itself as the technological peer competitor of the US, has developed its own XLUUV named ‘HSU-001’; and unveiled it for the first time during its National Day military parade on 01 October 2019.¹⁸ While details of its capabilities and dimensions are not yet available, maritime analysts believe that such vessels can carry smaller UUVs, mines or torpedoes. They can possibly be carried to deployment locations onboard regular submarines, warships, landing ships or even large helicopters, and thereafter deployed for wide-ranging tasks associated with manned submarines. Given the nature of undersea warfare, stealth, autonomy, and scope of operational tasks which are beyond the capabilities of manned submarines/submersibles; these XLUUVs will indeed prove to be huge force multipliers during futuristic warfare.

Status of development of USVs in India

Though the Indian Navy has been using radio-controlled target boat (RCTB) since 1990s for practice firing by ships’ guns, the boats have been imported from abroad. The boats measuring about 7 meters long, displacing about 2 Tons, capable of cruising at 15-20 knots with maximum speed of 35 knots and controllable from 20-25 km away, provide a high-speed manoeuvring target for realistic surface action firing practice by ships. These boats which continued to be used after life extensions were sought to be repaired through open tender bidding by Naval Dockyard, Mumbai in 2016.¹⁹

The Indian Navy’s Directorate of Indigenisation has sought to develop remote controlled target boat (RCTB)—amongst a list of other products—through private industry participation, as laid down in its Indian Naval Indigenisation Plan (2015-2030) document.²⁰ While the document is quite aspirational, not much is known

about the actual progress on the ground. Some expectations about the production of a USV in India were raised, when a model of Seagull USV was presented by Elbit Systems of Israel to the Garden Reach Shipbuilders & Engineers (GRSE) during Def-Expo 2018. The attendant insinuation was that the two firms will jointly build this USV.²¹ For the record, Seagull is a 12-meter long USV that can be operated from a mother ship or shore station. It provides multi-mission capabilities including ASW, MCM, EW, maritime security, and underwater commercial missions.²²

It is quite apparent from the above discussion that research and development on USVs in India is at a very nascent conceptual stage only; and whatever little is available in service, is all imported. The need for indigenisation is now being articulated in the 2030 timeframe.

Status of development of UUVs in India

Research and development scenario in India, in respect of UUVs is far better USVs. The Defence Research and Development Organisation (DRDO) is currently designing and building multiple types of Autonomous Underwater Vehicles (AUVs)—under generic category of UUVs—to meet naval requirements. These range from small slow-speed vehicles to military-class, free-flooding ones weighing up to 1.7 tons. These are meant for various maritime security roles like surveillance and mine counter measures in ports/harbours, coastal waters, as well as in deep seas.²³

One such vehicle is the 4 meter long, 1.4 meter wide, flat-fish AUV, designed for the Indian Navy. It can travel at about 4 Knots (7kmph) and dive up to 300 meters depth. Weighing about 1500 kg, the AUV has two interconnected cylindrical pressure hulls. The robotic vehicle is fully pre-programmed—in terms of algorithms and mission requirements – and is piloted by an onboard computer. Since the thrusters are inside the pressure hulls, it is externally vibration free.²⁴ The Indian Navy, apparently satisfied with its trial performance and potential for future operational usage, ordered 10 such systems.²⁵ **Figure 1** below shows a representative picture of the flatbed AUV.

The Central Mechanical Engineering Research Institute (CMERI), Ranchi, has also developed and patented a UUV named AUV-150. This UUV, built in active

Figure 1: Flatbed AUV: Representative Picture



Source: India Defence Blogspot

collaboration with DRDO, is 4.9 meter long with half meter diameter; and is capable of seabed mapping, coastal surveillance, mine countermeasures oceanographic measurements, surveying and underwater photographic inspection. It is capable of both, RF, and acoustic communication; and is role stabilised for better mission performance, even during rough weather. Its slight positive buoyancy enables better diving control and prevents it from getting lost at sea in case of malfunction.²⁶ Figure 2 below shows a picture of AUV-150.

UUV Development by Private Sector

M/S Larsen and Toubro Defence have also carried out design and development of a series of AUVs for the Indian Navy. These include 'Adamyā', 'Amogh' and 'Maya' AUVs. A representative picture of 'Adamyā' and 'Amogh' AUVs is shown at Figure-3.

Figure 2: AUV-150



Source: CMERI

'Adamyā' can be launched from the torpedo tube of a submarine. It is 5825 mm long with 533 mm diameter, and weighs 1012 kg. The AUV with contra-rotating propellers, has endurance of 8 hours, can operate up to depth of 500 meters, and has maximum speed of 6 knots. It can carry different payloads depending upon mission requirements. 'Amogh' AUV is a third generation AUV, developed in collaboration

Figure 3: 'Adamyā' and 'Amogh' AUVs: Representative Picture



Source: L&T Defence

with M/S Edgelab, Italy. It is designed for hydrographic and underwater surveillance. It measures 5700 mm long with 700 mm diameter, and weighs 1000 kg. The AUV has an endurance of 22 hours, can operate up to depth of 1000 meters, and has maximum speed of 5 knots. “*Maya*’ is a small and modular AUV capable of carrying scientific and commercial payloads up to 4 kg till 200-meter depth. It is 1742 mm long with 234 mm diameter and weighs 55 kg. The AUV has maximum speed of 3 knots, and endurance of 8 hours. It can be used for undersea inspection, and as an expendable underwater Target.”²⁷

Recommended Way Ahead

The maritime threat quotient for India from both, traditional as well as non-traditional sources has been on the increase. Ever-increasing Chinese naval footprint in the Indian Ocean Region, particularly since the commencement of the Gulf of Aden anti-piracy escort task in 2008, clearly indicates that China will be permanently present in India’s primary areas of maritime interest. Pakistan’s concept of operations against India, as mentioned in its first ever maritime Doctrine of 2018 articulated an “*approach of provocative and flexible mobility using sea space...*” and to “*...hit first with maximum effects and minimum application of force.*”²⁸ The 26/11 Mumbai attacks by State-supported terror group, have enlarged the scope of maritime based threats to India’s security, like never before.

Since it is a given that every mile of India’s maritime zones cannot be sanitised by manned platforms on a continuous basis; it is imperative to use technology and its applications to undertake major portion of this task—which is indeed being implemented too. The USVs and UUVs, with their inherent operational advantages with respect to autonomy, human safety, stealth and accessibility; thus, have a major role to play in the Indian maritime security architecture. The US has been using its sail-drone USVs for continuous surveillance in and around the Strait of Hormuz to ensure safety of its ships as well as security of this vital global energy SLOC. The US Navy has created an altogether new ‘Task Force-59’ under its Bahrain-based Central Command to integrate the unmanned systems with its manned fleet ships, and regularly conducts manned-unmanned teaming exercises to validate the concept for use in future wars.²⁹

While India has not been able to leverage the USV technology to indigenously develop unmanned boats, the track record of DRDO, particularly its Visakhapatnam-based Naval Science and Technological Laboratory (NSTL), in designing and prototyping UUVs has been quite remarkable. Therefore, this existing indigenous research, development, design, and manufacturing base must be rapidly leveraged towards operationally viable military products. The Indian Navy's *Swavlamban* Document released by the defence minister Shri Rajnath Singh in August 2020 has also exhorted the Indian industry to design, and develop naval hardware including remote control target USVs, and special purpose UUVs under 'Make' category of defence Procurement Procedure 2016.³⁰

However, it is posited that while it is all very well to lay out requirements, conceptualise indigenisation, develop specialised technology base, produce prototypes, and successfully test technology demonstrators in many cases; the maritime security of the nation continues to be at risk all the while from broad spectrum of threats in the neighbourhood, as mentioned above. Therefore, the crying need of the hour is to push certain technologies in mission mode, with all the research establishments, scientific community, academia, public and private sector industries, national security policy makers, as well as the ultimate users, contributing to the same cause.

The final aim of course, must be to get operationally usable products in the hands of the users. The development and manufacture of USVs and UUVs, should surely find itself on top of this critical 'must have' technology, for all the operational roles that these platforms can engage in – as explained in detail earlier in this article – for achieving asymmetric advantage over the adversary.

30 September 2023

About the Author

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Book Review

Gwadar: A Chinese Gibraltar

Author: Alok Bansal, New Delhi: Pentagon Press LLP, 2023, 224 Pages,
Rs. 995, ISBN 978-81-951894-8-9. (Hardcover)

Ms Titli Dinda

China, in its attempt to secure a foothold in the Indian Ocean region, has taken keen interest in its ‘all-weather friend’, Pakistan, and has significantly aided the development of the much talked about deep-water port in Gwadar on its Makran coast. The book, *Gwadar: A Chinese Gibraltar*, by former Indian Naval Captain Alok Bansal, seeks to shed light on this “strategically located” port, describing it (somewhat optimistically, in the opinion of this reviewer) as a “*gateway for the landlocked countries of Central Asia and Afghanistan*”. The book attempts to squarely address the significance of the Gwadar seaport for a variety of stakeholders, especially those located in its geographical proximity.

An established South Asian expert on Pakistan and a well-known defence analyst, Captain Bansal possesses impressive academic and experiential knowledge of multiple facets of South Asian geopolitics. In this, his latest book, he offers the reader a wide range of perspectives relevant to the port of Gwadar. The book begins with an elaborate description of the location of Gwadar port and its convoluted history, which is deeply intertwined with the history of Balochistan — a region that spans three countries, namely, Pakistan, Afghanistan, and Iran. In addition to tracing the region’s history, the author has delved into the geography and topography of the region, facilitating his readers’ understanding of its complexities.

Bansal next discusses the significance of the Gwadar deep-sea port project vis-à-vis its location in the proximity of the Persian Gulf. He scrutinises the vulnerability of the Karachi-Md Bin Qasim port complex and outlines the maritime security aspects of Gwadar in this regard. The author has also provided some details about the berthing facilities, hinterland development, and the concomitant limitations of the Gwadar seaport.

The book goes on to encapsulate the external- and internal security implications of Gwadar upon Pakistan, regarding the maritime dimension. The susceptibility of the ports of Karachi and Muhammad Bin Qasim to blockades provides a distinct military dimension to Gwadar. The author asserts that while Gwadar attempts to eliminate Pakistan's economic vulnerability, it has, along with Pakistan's other naval bases such as Ormara, Jiwani, and Pasni, transformed the security dynamics in the region. He posits that with the operationalisation of Gwadar, Pakistan needs to ameliorate its external security environment, while simultaneously stabilising and developing the turbulent and impoverished province of Balochistan.

Being a prominent stakeholder in the region, China receives significant attention in this book. The Belt and Road Initiative (BRI) of China encompasses more than sixty countries and includes over seventy per cent of the global population. The China-Pakistan Economic Corridor (CPEC) — which ought to be called, at least within India, the “China- *Pakistan-Occupied-Kashmir*’ Economic Corridor [CPOKEC] — is one of the more-prominent of the components of the BRI, with Gwadar being projected as the seaward terminal of the project. This, in the opinion of this reviewer, is a highly fanciful projection. This notwithstanding, Captain Bansal points out that for China, the significance of Gwadar also lies in its potential to correct the regional imbalances in Pakistan's domestic development dynamics, where the country's western provinces continue to remain far less developed than do their eastern counterparts.

The author explains that the core idea of the CPEC [CPOKEC?] is to establish a link between China's restive Xinjiang province with the Gwadar seaport through a network of infrastructural and energy projects and, in the process, to create an alternative supply channel for China's energy imports from West Asia and Africa.

Quite correctly, the author questions the economic rationale of this — on account of a host of geographic, geomorphological, and geoeconomic factors that add to the political instability of the Baloch region.

The latter part of the book discusses regional security impacts and has separately detailed the implications of Gwadar for India's own security. While deliberating upon regional security, the author has dwelt upon the Afghanistan-Pakistan relationship and its evolution over the years. Afghanistan's relations with Pakistan have always been tense. Being a land-locked country, Afghanistan has always sought access to the sea, while Pakistan has consistently denied Kabul this access. In this regard, the author has referenced the Afghanistan-Pakistan Transit Trade Agreement (APTTA) and acknowledges that Gwadar port was recognised as the port of entry for Afghan merchandise.

The author also writes that the Taliban's continuing hold in Afghanistan makes the possibility of Afghanistan's emergence as a transit point for legitimate trade bleak. Captain Bansal has also dealt with the implications of Gwadar for Iran, West Asia (as a region), and the USA. Iran's port of Chabahar, in the development of which India has invested huge amounts, could, he feels, become an economic liability should Gwadar emerge as the preferred gateway to Central Asia. The caveat, of course, is that such comparisons might well be odious given that both Chabahar and Gwadar lie in the Baloch dominated territories and have enormous security vulnerabilities. The author observes that the Baloch tribes are major players in the region and it the Baloch leadership that will eventually decide which of the two ports (if either) emerge as gateway to Central Asia. In terms of West Asia, the author opines that the port of Dubai could face an existential threat, since Gwadar, being closer to Eurasian heartland, has certain inherent geographical advantages over Dubai.

Captain Bansal reminds us that the Gwadar seaport project could well give China a permanent presence in the Indian Ocean, and this would, in all probability, erode the maritime edge that India currently enjoys over China in maritime terms. China is the largest importer of crude and second largest importer of Liquefied Natural Gas (LNG) and its energy imports traverse through the Malacca and other straits of West and Southeast Asia, making it vulnerable to interception by the Indian Navy. In

what is the arguably the weakest set of arguments in the book, the author asserts that Gwadar will eliminate this vulnerability and resolve China's 'Malacca Dilemma', and further, that its presence at Gwadar would equip Pakistan as well as China with the opportunity to interdict Indian shipping transiting to and from the Persian Gulf. He adds that apart from interdiction, enhanced Chinese military presence in Gwadar, given the extant tensions between China and the US, can cause massive turbulence in the region.

Bansal briefly touches upon the impact of all this upon extra-regional powers such as Russia. Russia, which historically has had good relations with India, and has been promoting the International North-South Transport Corridor (INSTC), jointly with India and Iran. Russia needs access to warm water ports on Iranian coasts for its trade with Asia and Africa. It has actively engaged with Pakistan and has sought permission to use Gwadar for its own trade, thereby demonstrating, as the author points out the 'shifting loyalties' that are endemic to the region.

While the book is an applaudable source of knowledge, discussing as it does the geopolitical effects of the operationalisation of the Gwadar port, it does not address issues concerning the viability of the port itself, or the deeper economics that are entwined therein. The silver lining is, of course, that this opens the door for in depth research on these aspects without the attendant need to repeat geopolitical fundamentals, since the book is heavy-laden with geographical information. One wishes that there had been descriptive and annotated maps, for as Robert Kaplan has famously said, maps matter, since *"the right map can stimulate foresight by providing a spatial view of critical trends in world politics"*.¹ Thus more numerous and more granular cartographic representations of the locations discussed in the book would have enabled better assimilation by its readers.

The book also becomes repetitive in certain parts, generating some degree of avoidable monotony. These few shortcomings notwithstanding, the book has immense value for any scholar or strategic analyst wishing to understand the regional geopolitical and security implications of Gwadar. In this context, the author provides extremely interesting nuggets in respect of a 'Hormuz Dilemma' for India that China could create along the Sea Lines of Communications (SLOCs) that might, in conflict, run from the Persian Gulf to the Gulf of Kachchh.

The bulk of India's crude imports originate from ports in the Persian Gulf, which is only 40 nautical miles from Gwadar — a distance that the author points out is so small that even a small gunboat from Gwadar could interdict a large oil tanker. By way of mitigating options for India, Captain Bansal recommends that India engage with Baloch nationalist groups to ensure that Chabahar (and not Gwadar) emerges as the preferred gateway to Central Asia.

The author provides an exhaustive list of literature in the form of notes and bibliography that will be invaluable to serious readers. All in all, *Gwadar: A Chinese Gibraltar* is an excellent adjunct to the tortuous story of Sino-Pak-India relations.

30 September 2023

About the Reviewer

Ms Titli Dinda was a Research Associate at the NMF. She has completed her M.Sc in Economics from University of Kalyani, West Bengal, and aspires to continue her research in Blue Economy and Climate Change, with a specific focus on marine ecological issues and its impact on marine environment and the economy. She may be contacted at titlidinda@gmail.com.

ENDNOTE

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Vice Admiral Pradeep Chauhan, AVSM & Bar, VSM, is an alumnus of the National Defence Academy, the Defence Services Staff College, the Naval War College, and the National Defence College, with BSc, MSc and MPhil degrees under his belt. He is currently the Director-General of the National Maritime Foundation, New Delhi. The NMF is India's foremost resource centre for the development and advocacy of strategies for the promotion and protection of India's maritime interests. The admiral retired on 30 November 2013 after an illustrious four-decade-long career in the Executive Branch of the Indian Navy. His sea-going service incorporated as many as four Command Tenures, culminating in his command of the aircraft carrier, the *Viraat*.



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