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**A Research Journal of
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CHIEF OF NAVAL STAFF

Message from the Chief Patron

I am extremely delighted to know that Bangladesh Institute of Maritime Research and Development (BIMRAD) is going to publish maiden publication 'BIMRAD Journal' on the occasion of its first founding anniversary. I sincerely acknowledge this arduous effort of BIMRAD in publishing such a unique maritime research journal on this magnificent occasion. I strongly believe that this newly introduced maritime research journal will provide a new platform of publishing maritime outcome based research on maritime affairs, security, exploration and conservation of sea resources, maritime science and technology, maritime tourism, maritime pollution, biodiversity, maritime ecology, coastal disaster, marine renewable energy and climate change impact and adaptation of food security.

On the eve of this noble initiative, I would like to humbly pay my deepest tribute to the Father of the Nation of Bangladesh, Bangabandhu Sheikh Mujibur Rahman, who envisaged and underscored the enormous potentials of sea resources and as a pioneer he enacted the Territorial Waters and Maritime Zones Act 1974. Due to the depletion of land resources, recently sea borne activities are increasing immensely. Hence, numerous research activities are also being regularly conducted worldwide to uncover the mysteries of the sea and its enormous potentials. For Bangladesh, the peaceful maritime boundary delimitation with the neighboring countries under the prudent vision and dynamic leadership of Honourable Prime Minister Sheikh Hasina has unfolded new opportunities for optimum exploration of its huge living and non-living resources.

Meanwhile, BIMRAD has passed an eventful year through various fruitful activities. I am confident that BIMRAD as the nation's first maritime think tank will be able to act as a hub of maritime scholars, intellectuals, researchers and institutions to express their views, publish their scholarly articles and policy recommendations on the basis of their research outcomes. I am looking forward to see BIMRAD Journal being published and circulated on regular basis.

I wish every success of BIMRAD in the days ahead.

AURANGZEB CHOWDHURY
Admiral
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Admiral Nizamuddin Ahmed
NBP, OSP, BCGM, ndc, psc (retd)

Message from the Chairman

It gives me immense pleasure to see the maiden publication of 'BIMRAD Journal' by Bangladesh Institute of Maritime Research and Development (BIMRAD) on Maritime issues. I would like to express my sincere thanks to the proficient national and international maritime scholars for their article in the maiden BIMRAD Journal. I hope that BIMRAD Journal will open a new maritime forum for open discussion and knowledge sharing with the like-minded researchers.

The ocean covers 71% of the Earth's surface, produces oxygen, regulates climate, transfers heat and offers trade, energy, food, medicine, leisure and many more. Our Father of the Nation Bangabandhu Sheikh Mujibur Rahman with his prudent vision realized the vast potentials of sea resources and set the stage for further works through the adaptation of Maritime Zones Act 1974. The peaceful maritime boundary delimitation with our neighbouring countries under the dynamic leadership of his well- deserved successor, Honourable Prime Minister Sheikh Hasina, offers vast untapped resources for further exploration. This creates an extensive demand for further research on sustainable exploration and exploitation of maritime resources and development of new technology. I am confident that the publication of 'BIMRAD Journal' will fill the void in the field of maritime research.

I am hopeful that BIMRAD Journal will make significant contributions for the development of maritime sectors of Bangladesh and beyond. The maritime researchers, scholars, analysts and policy makers will be benefitted through this annual peer reviewed Journal.

I am confident that BIMRAD will soon flourish as a well reputed and internationally recognised maritime research centre. I wish the magnificent success of BIMRAD Journal and its continuous publication with the research articles written by thoughtful maritime scholars.

Admiral Nizamuddin Ahmed
NBP, OSP, BCGM, ndc, psc (retd)

Editorial

The Indian Ocean, with its boundless untapped maritime resources, carries huge prospects and potentials, both geo-strategic and geo-economic, for the littoral states. This creates the need for better understanding of oceans and the use of modern and sophisticated technologies for maritime activities. This is applicable whether for exploration or for utilization to achieve better livelihood and sustainable development. It was a long felt need thereof, to establish a dedicated research institution for maritime affairs to animate the researchers and thinkers of Bangladesh.

Bangladesh Institute of Maritime Research and Development (BIMRAD) was inaugurated on 03 July 2018 as a maritime research platform patronized by Bangladesh Navy, with the hope of making it the fulcrum of maritime related activities concerning the development and understanding of the Blue Economy. Establishing a platform of maritime intellectuals, researchers, institutions and official organizations dedicated towards supporting the Blue Economy initiatives of the government aimed at optimum use of sea resources for sustainable development was an inevitable demand of the time.

Since its establishment, BIMRAD has taken steps in publishing the maiden BIMRAD Journal on the theme 'Maritime Good Governance towards Sustainable Development'. The Journal presents the outcome and policy recommendations of the International Seminar organised by BIMRAD on 19 November 2018 at Hotel Radisson Blu Dhaka Water Garden, Dhaka containing five original research papers developed around this main theme.

The papers, contributed by top scholars from home and abroad of different maritime disciplines, comprehensively dealt with the theory and practice of maritime good governance. The objective was to harness the benefits of Blue Economy for sustainable development, along with concomitant maritime security.

We express our deep gratitude to the authors for many ideas which will be celebrated as trailblazers in the maritime domain. We also believe that the articles published in this volume will be helpful for the research and development in the maritime field and benefit maritime communities both at home and abroad.

We would also like to convey our sincere thanks to the Chief Patron, Chairman and the Advisory Board for their kind and valuable support and guidance. We hope that readers with an inquisitive mind and academic interest will find the journal worthy of attention.

It was possible to publish the journal because of hard and dedicated teamwork of all concern for making the dream into a reality.

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MARITIME GOOD GOVERNANCE AND SUSTAINABLE DEVELOPMENT: THE CONCEPTUAL PERSPECTIVE

Admiral Prof. Jayanath Colombage, PhD, RSP, VSV, USP (retd)

Abstract

The ocean covers 71% of earth's surface and contains 97% of the planet's water. This ocean is the life support system for planet earth. Humankind has been using the oceans since time immemorial for venturing in explorations, navigation, wars, trade, leisure and for obtaining living and non-living resources. Oceans have been the main protein supplier for humankind. With the gradual increase of the population and depletion of land-based resources, many countries now focus even more attention on the oceans. The oceans have been the lifeline of many countries and the economic lifewire. "Oceans carry 90% of internationally traded goods" and generate half of the oxygen we breathe and absorb 40% of CO₂ we produce. The Blue Economy refers to a sustainable ocean based economic model that is largely dependent on the coastal and marine ecosystem and resources. It calls for environmentally sound and innovative infrastructure, technologies and practices including institutional and financial arrangements for meeting goals of the Blue Economy. The Indian Ocean Region, unfortunately is not yet a rich region although some economies such as India and Bangladesh doing well. The population of the Indian Ocean countries are growing and the resources on land are depleting faster. Urbanization is taking place rapidly and the countries have no choice but to look at the economic benefits from the ocean. This would bring more industries and players to the ocean and make this strategically contested ocean a hotbed for economic competition as well. The region needs to maintain a rule based maritime order with respect to international maritime law. It is essential that the freedom of navigation, overfly and exploitation of the ocean resources are maintained for the prosperity of the littorals and other users of this ocean. Developing countries need economic prosperity but not to be part of a strategic competition. This is a region of 'trust deficit' and hence Confidence Building Measures (CBMs) both in security and governance are needed. This paper is an endeavor to study the challenges in present day context and to make some policy recommendations to maintain the status quo of "Maritime Good Governance and Sustainable Development for Indian Ocean Region".

Keywords: Maritime Governance, Maritime Law, Blue Economy, Sustainable Development, Indian Ocean Region.

The Region

The Indian Ocean Region (IOR) has come to the forefront of geopolitics, geo-economics and geo-strategic importance in the 21st century. As the third largest ocean in the world, the IOR is presently the main energy artery and conduit for internationally traded goods. The IOR is one of the most complex regions in the world in human terms. It includes a wide variety of different races, cultures and religions. This region still carries the legacy of colonialism even after nearly 70 years. Although the region is one of the major trade routes for oil and goods, almost all countries in the region are considered developing countries. Due to changing balance of power scenario and fast developing economies of China and India, the IOR has assumed increased significance. Based on geo-economic and geo-strategic reasons, major and middle powers have growing interests upon the waters of the Indian Ocean. This is no longer a benign region but a contested one. This is also a region of extra-regional influence throughout the history and the present day is no exception. This competition has led to a situation where major powers are vying to establish relations and partnerships with littoral states with a strategic objective. The United States of America, Peoples Republic of China, Japan, Australia and India are engaged in this competition whilst Pakistan, Russia, Iran and ASEAN countries are concerned players.

There is also a ‘security dilemma’ taking place in the IOR. The insecurity of some states is leading to the insecurity of other states, which ultimately result in an unnecessary arms race. This strategic competition and some strategic alliances have forced smaller, less developed states into a strategic dilemma. Then there are non-state actors who can influence the freedom of navigation, over fly and maritime commerce in the IOR. These could be pirates, terrorists, narcotics, human, weapon smugglers or Illegal Unregulated Unreported (IUU) fishermen.

Furthermore, the population in this region is growing since urbanization is taking place with a growing middle class. Land based resources are depleting fast and the ocean is now seen as the new frontier for resource exploitation. This would mean more industries and players venturing into the ocean and thereby causing increased security concerns. The ocean environment is even now under severe pressure by human induced pollution and increased global warming.

In this back drop, it is essential that the region ensures a rule based maritime order, which respects international law and treaties applicable to the oceans. Majority of states aspire for this rule- based order as they are unable to compete with major powers. These states need to develop their economies, acquire new technologies and empower their citizens rather than engaging in a game of exercising influence.

The Strategic Scenario of the Indian Ocean

The Indian Ocean (IO) is undoubtedly becoming the most important ocean in the world in the 21st century. The role played by the Atlantic and the Pacific oceans in the 19th and 20th centuries in two world wars, the cold war and the Industrial Revolution, is now a history. This is the time of ascendance of the Indian Ocean together with the Western Pacific Ocean.

With nearly 70 percent the global supply of oil, 50 percent container traffic and 35 percent of bulk cargo being carried across it, the IO is the lifeline and the center of gravity of the world maritime commerce. With industrial economies such as Japan, China and South Korea becoming net-importers of oil, much of it is produced in the Persian Gulf and East coast of Africa, and transported across the Indian Ocean. Consequently, this ocean has become the energy superhighway of the world. There is an economic transition taking place upon the waters of the IO, with China becoming the number two and India number six in the world economic ranking, based on Gross Domestic Product (GDP). The strategic world view is shifting rapidly from land to the oceans. The United States has renamed its Pacific Command as Indo-Pacific Command, probably as a parting gift to Admiral Harris, the former Pacific Commander, who advocated special focus the Indian ocean deserves in the strategic world. Meanwhile, there is an unofficial maritime cold war brewing in the IO, which has led to increased militarization and security concerns. There are also large number of non-state actors influencing maritime security in this ocean.

Asia, home to the world's oldest civilizations and maritime trade, was a significant part of such civilizations. As per Saran "for millennia, conquest, trade and migration have organically bound Asia and Europe. However, in the recent history, these trends have been interrupted with the industrial revolution and colonization of Asia by the western powers". Those powers dominated the world affairs, including trade and military, until the 21st century. There is a power transition taking place especially in the Indo-Pacific oceans. Asia is now emerging as an economic and military power as well. This transition is currently taking place before our own eyes. There are many questions that are waiting for answers in this situation. Will this be a smooth power transition or will it lead to military confrontation? Will this lead to a new world order? Will China become a hegemonic power? Is China going to become the engine of global trade? Will China and India contest or cooperate in this power game? Will China and India be in the same league or will India take sides in the competition between China and the USA, in favor of the USA, for global leadership? Will India play a leadership in the Indo-Pacific theatre without

being aligned with any particular state or group of states? Will there be an inclusive, rule-based Indo-Pacific order?

Major Strategic Issues and Risks in the Indian Ocean Region

The Center for Strategic and International Studies in 2014 projected major strategic issues and risks in the region as; Instability of Gulf Petroleum Exporting States, India-Pakistan Conflict, Struggle for influence between China and USA, Conflict and tension between India and China, risk of piracy, risk of terrorism and offshore resource disputes. Whilst the world has moved four years after this report was published, the situation remains similar and it is worth examining those concerns:

a. Instability of the Gulf Petroleum Exporting States. This is a region of potential large-scale conflict erupting based on Sunni- Shia fault lines. There is an arms race between Gulf cooperation states and could even lead to nuclearization of the Persian Gulf. Two key choke points, which is most relevant to the flow of oil out of Persian Gulf, Strait of Hormuz and Bab-El-Mandeb, are in most volatile area of this region in close proximity to failed states, rebel groups armed with anti-ship missiles and remotely operated high-speed suicide boats. The proxy war between Saudi Arabia and Iran and Israel -Palestine conflict, recognition of Tel Aviv as the capital of Israel and cold-war between Saudi Arabia, United Arab Emirates with Qatar give rise to tension in this region. The spillover effect from Syrian conflict and ISIS can have drastic consequences on the stability of the region. Saudi Arabia and its close ally UAE are increasingly getting engaged in military response. The USA led sanctions against Iran for violating conditions on the Iranian Nuclear deal will also add to the vulnerability of this vital region. This region is more volatile than ever before.

b. India-Pakistan Conflict. Both India and Pakistan are nuclear powers. India has a no first strike policy in nuclear capability. Both countries have sizable land, sea and air forces. They are engaged in developing and modernizing military capacities and capabilities, especially in the underwater nuclear powered or armed submarines. India is a 'Blue Water' navy with planes to deploy four aircraft carriers. The seventy-year-old Kashmiri dispute is continuing with frequent skirmishes and is a flash point for escalation. Both countries accuse each other of sponsoring cross-border terrorism in others territory with a view to destabilize. Indian economy is developing at a healthy rate and will be the number three economy in the world by year 2030. The economy of Pakistan is in a turbulent period with low foreign reserves and mounting debts. Pakistan's 'all weather friendship' with China-Pakistan Economic Corridor (CPEC) which as alleged by India is passing

through the disputed territory of Gilgit-Baltistan, are for India and the USA. This regional conflict has the potential to escalate in to a nuclear conflict, which would not only impact the two countries but the whole region. The USA, which considered Pakistan as a military ally is now focusing of getting India as a center of its Indo-Pacific strategy.

c. Struggle for Influence Between China and USA. China has emerged as a major economic power in the Asia-Pacific region. China is also developing and modernizing its military. Chinese President in his address to the 19th congress in Beijing indicated China's aspiration to have a modernized military by 2035 and great power by 2050. The USA, though with a declining military power, is still world's number one military and economic power. The USA is not ready to allow a multi-polar world and to relinquish its role in the global standings. The USA sees India as central to their strategy for the region and looks for military partnership together with Japan and Australia. The quadrilateral Security Dialogue or 'Quad' between Australia, India, Japan, and the USA has been moving ahead but India seems to be having apprehension in formally joining what is seen as a military alliance. During a strategic discussion at the Institute for Defense Studies and Analysis between the author and Indian scholars in October 2018, the Indian scholars re-emphasized that India wishes the Quad to be inclusive rather than be an exclusive club. There is the discussion of Quad Plus, meaning France and United Kingdom which are considered as Indian Ocean residential powers. The big question is whether Quad or Quad plus will not officialize the un-official maritime cold war, which is taking place in the Indo-Pacific region. The USA is having a major naval facility in Diego Garcia and strongest naval deployment in the Indo-Pacific region. Meanwhile the Peoples Liberation Army Navy (PLAN) has become a major naval presence in the Indian Ocean, especially after 2009, with the escalation of piracy in the Horn of Africa. Both the USA and China are having military logistic bases in Djibouti, which is at the strategic choke point joining the Red Sea to the Arabian sea through the Gulf of Eden.

d. Conflict and Tension Between India and China. These two countries have unhealed wounds from the 1962 war. The land border dispute between China and India, China- Pakistan military and economic relationship, and CPEC contribute to the mistrust between these two countries. China with surplus of finances and capacities have invested heavily in India's neighbours and New Delhi perceive this as an attempt to strangulate and isolate India. India does not like the growing Chinese presence and influence in the Indian Ocean, which is considered as its backyard. China's Belt and Road Initiative is considered as part of a strategic move rather than purely and economic maritime infrastructure building project by India,

USA, Japan and Australia. India has launched its own initiative such as Neighbourhood first policy, Security and Growth for all in the Region (SAGAR) to counter growing Chinese influence. India, together with Japan, has proposed 'Asia Africa Growth Corridor (AAGC) to link East and South Asia to Africa.

e. **The Fall of Islamic State of Iraq and Levant (ISIS).** The future of Islam has come under increased pressure from extremists and the gap between moderates and extremists is widening. The ISIS has been eliminated from Iraq and Syria as a military force. The ISIS is still engaged in destabilizing and terrorist attacks in small pockets in Syria. Although the war has almost ended, large number of ex-ISIS combatants would return back to their country of origin and they could resort to violence. Regional cooperation and close monitoring by intelligence services will be required to prevent these ex-combatants from resorting to violence.

f. **Presence of Non- State Actors.** Somali piracy, which threatened the world merchant marine fleet is a classic example of power and influence of non-state actors. The International community through the United Nations, European Union and host of other navies had to be involved in combatting the menace of Somali piracy. The International Maritime Organization (IMO) had to develop Best Management Practices (BMP) and the merchant shipping fraternity was compelled to implement various measures including having on board security guard, hardening of Ships and creating citadels to prevent the ships from being hijacked. Due to these combined efforts, incidence of piracy in the Western Indian Ocean has come down to zero. However, the risk of piracy still prevail since there is no effective government in Somalia.

Maritime Terrorism is another major concern of Non-state actor. The Indian Ocean has witnessed the maritime domain being exploited by terrorists who carry out attacks against land targets. The two major situations are the Mumbai attack of 26th November 2008 and the use of ocean by the Liberation Tigers of Tamil Eelam (LTTE) for attacks against targets at sea and on land and transporting of large-scale warfighting materials by using ships engaged in international voyages, international ports and Sea Lanes of Communication (SLOC). The LTTE flouted the international logistic system including terrorist financing, money laundering, illegal arms purchase and transfer with such impunity. It was not limited to smuggling of small arms and ammunition but large-scale transfer of long-range artillery pieces, mortars and hundreds of thousand as of shells for the same. The unstable situation in Yemen at the entrance to the Red Sea and the Arabian Sea is a source of concern as they have used anti-ship missiles and remotely operated high speed suicide boats against maritime targets. The unstable security conditions in Afghanistan and

Iraq and possible spillover to maritime domain cannot be ruled out as a major security concern.

Transnational Human Trafficking crime syndicates have operated across the IOR from periodically. Till about 2012, Sri Lanka was considered as a major source country for Irregular Migration by sea, mainly to Australia. Many efforts had to be implemented to curb this menace at that time by Australian and Sri Lankan governments, which included high level meeting, setting up of a Joint Working Group (JWG), Education program for judiciary, law enforcement authorities, navy and even general public who were vulnerable for exploitation. In the recent past the focus of attention was to Rohingya refugee flow in to Bangladesh, India and ASEAN and Australia.

Then there are Illegal Unreported and Unregulated Fishing taking place in the Indian Ocean. The FAO estimated that Illegal, Unreported and Unregulated (IUU) fishing remains one of the greatest threats to aquatic ecosystems, undermining national and regional efforts to manage fisheries sustainably and conserve aquatic biodiversity. The FAO further estimated that nearly forty percent of fishing taking place in the Indian Ocean comes under the IUU category.

Maritime Related Infrastructure Projects with Strategic Considerations

There are quite a few maritime and land-based connectivity projects taking shape in the Indian Ocean Region. The strategic and economic importance of the IOR has led many states to launch these projects for their own benefit but it would also help the littorals to develop maritime related facilities to be more connected and to play a substantive role in the global supply chain. Topping the list of such projects is the Chinese led Belt and Road Initiative (BRI). The BRI is a one trillion USD project aimed at reviving the ancient silk route and enhance connectivity between China and Europe across the Western Pacific, Indian Ocean, Red Sea and the Mediterranean. Incidentally, China and India were the largest trading nations in the pre-colonialized period. The combined GDP of these two countries were nearly 50 % of the worlds at that time. Is the history repeating itself? The BRI has met with lot of skepticism by USA, Japan and even India and being accused of a project with Chinese strategic and military revisionist power objectives. India is the only country in South Asia, which has not embraced the BRI. Meanwhile, India and Japan together have come up with Asia Africa Growth Corridor (AAGC) to link Asia with Africa through maritime infrastructure. Although the BRI has made some substantial progress on the ground, the AAGC is yet to take off in a meaningful manner. Then there are Indian initiatives such as 'Sagar Mala'; a port and inland connectivity led development project for India, Security and Growth for All in the

Region (SAGAR); a concept for gradual and simultaneous development of the region and to maintain maritime security too. Meantime, the governments of Australia, Japan and the USA established a trilateral partnership for infrastructure investment in the Indo-Pacific in November 2018. This Trilateral Partnership seeks to be a force-multiplier in the Indo-Pacific, providing a new vehicle through which countries in the region can coordinate to advance their infrastructure priorities.

Visit of Foreign Warships to Sri Lanka

Port visits by Chinese naval vessels to Sri Lanka have been commented upon adversely by some. One such example was two visits by a Chinese submarine to the Port of Colombo in 2014. However, an analysis of port visits by foreign vessels to Sri Lanka as shown in figure 01 demonstrates a different picture. When analysing the number of warships that visited ports in Sri Lanka from 2009 to May 2018, it appears that 440 warships arrived on operational, training and formal visits. These warships belong to 28 navies in the world. India being the neighbor and having close ties with Sri Lanka, tops the list with 88 visits and Japanese ships undertaking 72 visits. China, is at the distant third place with 36 visits followed by Bangladesh with 30 visits. Russia and Pakistan come next with 27 and 25 visits, respectively. The USA, despite being a major power in the Indian Ocean, had undertaken only 22 visits. Although this is not a scientific derivative, these figures indicate two factors; that the Indian Ocean is heavily militarized and major maritime users of the world are present in this ocean. Numerous visits of this nature are an indication that Sri Lanka is considered a free and friendly port by all naval powers operating in the Indian Ocean. These figures also serve as an indication of the nature of balanced diplomatic relations Sri Lanka enjoy with the rest of the world.

Figure 01. Foreign Naval Ship Visits to Sri Lankan Ports from 2009 to May 2018

Country	Number of Warships
India	88
Japan	72
China	36
Bangladesh	30
Russia	27
Pakistan	25
USA	22

Source: Sri Lanka Navy Web

Blue Economy and Regional Prosperity

There is renewed understanding about the oceans as a key natural source for national, as well as regional economies. This understanding has led to increased concern about ecological health and sustainability of oceans. This has compelled a number of states to adopt measures to study the economic value of oceans and to act to protect them. It is not always possible to measure the economic value of oceans and ocean-based resources. Colgan explains this further as “however, unlike many other natural resource-based industries, the oceans’ are a complex mixture of extractive resources, its influence on the land in the coastal regions, and the diversity of geographic circumstances ranging from islands to continents make the measure of economic value a particularly challenging proposition”. Unless the world understands the economic value and is able to quantify, it will be difficult to convince governments and other agencies involved in ocean based economic activities of the need to safeguard and protect the oceans and use them in a sustainable manner.

Oceans have been the main protein supplier for the humankind. The oceans have been the lifeline of many countries and the economic live-wire as well. Oceans carry 90% of internationally traded goods. The oceans generate 50% of the oxygen we breath and absorb as much as 40% of CO₂ produced by humans, buffering the impact of Global Warming. However, the predicament is that as much as 40% of the world oceans are heavily affected by human activities, including pollution, depleted fisheries and loss of coastal habitats.

In order to derive sustainable results, the linkage between the Blue Economy, economic growth and ocean and coastal resource conservation needs to be properly understood. As Ebarvia points out “The blue economy encompasses all economic activities with a direct dependence on the ocean or coastal marine sources”. These activities can be categorized as ocean-based and ocean-related. Ocean-based activities are those undertaken in the ocean such as fisheries and aquaculture, offshore oil and gas, mining, ocean energy, desalination, shipping/marine transportation, marine tourism and construction. “The ocean-related activities are the ones, which uses products from the ocean, such as seafood processing, marine biotechnology, chemicals, salt and other products and services for ocean and ocean-based activities such as shipbuilding and repair, ports, tourist resorts, communication, marine insurance and law, and marine technical services”. Another key area of Blue Economy is marine research and education involving public as well as private agencies such as navies, coast guards, marine environment protection agencies and academic institutes. However, it must be understood

that some of the economic values generated by the oceans cannot be quantified, such as habitats for fish and other marine life, carbon sequestration, shoreline protection, waste recycling and storing and the influence on climate and biodiversity. There are some new activities evolving in recent years such as desalination, marine biotechnologies, ocean energy, and seabed mining. These new activities too have an impact on the Blue Economy.

Global Warming and Impact on Marine Environment

The scientists have now discovered that the earth is warming and arctic ice is melting. NASA believe that scientific data on climate change is conclusive. The polar ice caps are melting, their white reflective surface replaced by the ocean's blue which absorbs more heat, setting up a feedback loop that accelerates the warming process. Northern Sea Route is possible now and a Russian tanker has travelled through the Northern sea route (Arctic Sea Route) in record speed and without an icebreaker escort for the first time, highlighting how climate change is opening up the high Arctic. This may be good news for maritime trade as less fuel will be consumed by shipping. The possible impacts of these could be sea level rising, changes in hydrodynamics, changes in ocean temperatures and salinity, water quality deterioration and ocean weather anomalies. Ocean temperatures have risen by 13% more than anticipated. In the coming decades, the rising sea level could inundate and sink low lying coastal regions around the world. More droughts, heat waves, stronger hurricanes and other extreme climate events are expected. Effects from climate change are being felt across the planet and without urgent action, runaway climate change could result in extreme climate events becoming the norm. In spite of the looming crisis, there has been great reluctance to address the problem, and in extreme cases, even to acknowledge that it is a problem. Many governments refuse to believe that global warming and climate change is real and dangerous. With the rising ocean temperatures, the following may occur sea level rising, coastal erosion, reducing of land mass, complete submerging of islands, increase in ocean surface and deep temperatures, changes in salinity, impact of currents and wind patterns.

Oceans for Regional Prosperity

The oceans are now being used mainly for transportation and fisheries. The unexploited potential of the oceans is huge. The Indian Ocean region, unfortunately is not yet a high-income region. Even though these economies are growing, a certain segment of the population still lives below the poverty line. The population of the Indian Ocean countries are growing and the resources on land are depleting faster.

Urbanization is taking place rapidly and the countries have no choice but to look at the economic benefits from the ocean. The Indian Ocean is rich in resources but technology is not available to harness these resources in a marine life (fish and marine plants for consumption for humans and other species), materials, goods (hydrocarbons, minerals and sand), services (shipping, ports, shipbuilding, fishing, tourism) and renewable energy (wind, wave, tidal, thermal and biomass). The IOR countries need to plan strategies and develop capabilities to harness these resources for the economic benefit of its people. The IOR must capitalize on the current awareness of the Blue Economy within the United Nations, international Institutions and national policy planning.

Investment for Blue Economy

There have been several initiatives towards activities of the Blue Economy in this region. Seychelles and Mauritius have set an example with some positive action plans and implementing them. India has shown its commitment to promoting the Blue Economy. Bangladesh too has been playing a key role in this regard with initiatives such as the ‘Bay of Bengal Partnership for Blue Economy’ for an ‘inclusive and people-centric’ sustainable development of ocean resources. Although the oceans contain vast unexploited resources and large potential in terms of income, employment generation, exports, the benefits cannot flow automatically (FICCI, 2017). New investment opportunities must be made available for governments, as well as the private sector. Governments should make conscious efforts to have effective planning, development of research capabilities and acquiring technologies required for deep sea explorations. Governments, furthermore, should identify priority sectors based on the potential and feasibility and develop infrastructure to facilitate participation by private sectors.

Conclusion and the Way Ahead for the IOR

There is no doubt that the IOR, together with the Western Pacific Ocean, is an important economic region in this 21st century and hence assumed a great military focus as well. The region experiences competition rather than cooperation and confrontation rather than engagement. The IOR is a global common and not a club of exclusive limited numbers. A stable and peaceful IOR is essential for the growth and economic prosperity of the region. This region is increasingly becoming militarized with the presence of large number of war ships from about 30 different navies. There is an ‘unofficial maritime cold war’ taking place upon the waters of the IOR. The region needs to develop a shared understanding and create its own narrative rather than allowing the outside powers to thrust their narrative upon this

region. The region should not be a battle ground for major power competition. This is the ripe moment for taking advantage of the benign strategic atmosphere that exists to create a maritime order in the Indian Ocean that can withstand challenges that may emerge in the future. There is renewed understanding about the oceans and prospects of 'Blue Economy' for the prosperity of Indian Ocean littorals. The economic value of the oceans is not exactly known but the damages to it are now better understood. The world oceans are under severe threat from human induced pollution and other activities and global warming. Unless drastic and immediate actions are taken to minimize damages to the ocean, the health of these oceans would be greatly impacted.

Following recommendations are made for the sanctity and health of the Indian Ocean, which is the lifeline of most of our countries:

a. **Need for a Rule Based Maritime Order.** The best way to ensure peace and stability of the IOR is to maintain a rule based maritime order, taking United Nations Convention on the Law of the Sea (UNCLOS) as the basis. Although UNCLOS was created nearly four decades ago, this is the best available mechanism to address conflicting issues regarding maritime borders, rights of nations and harvesting sea bed resources. The convention has been ratified by 168 parties, which includes 167 states. The best for the region will be that it is not dominated by a single hegemonic power and not to be influenced by external powers.

b. **Need for a Regional Maritime Security Architecture.** Although the rule of international law is generally respected in the IOR and there is unhindered freedom of navigation, overfly and maritime commerce, there is a need for committing all states to respect the law and order in this vital ocean space. In 1971, Sri Lanka proposed that the Indian Ocean be declared as a Zone of Peace. Although it was ratified by the United Nations, the implementation of the proposal could not be carried out due to the 'Cold War'. This could be considered as a missed opportunity. Nearly 50 years later the region is aspiring for similar conditions; freedom of navigation and overfly, freedom of maritime commerce, non-militarization of the IOR etc.

c. **Develop a Regional Maritime Strategy.** The IOR does not have its own narrative and a common strategy. There are individual country strategies but comprehensive regional, sub-regional strategies are lacking. Hence high level of cooperation and collaborative efforts are lacking and this paves the way for interference of outside powers. There is always a conflict in interests of IO littorals and non-residential powers due to lack of commitment - lack of coherence – lack of bonding. The discussion is currently centered on Japan's 'Free and Open Indo-Pacific Strat-

egy' or re-balancing to Indo-Pacific by the USA. The Indian initiative of Security and Growth for all in the Region (SAGAR) could be the guiding narrative for the IOR.

d. Maritime Domain Awareness (MDA) and Overcoming Maritime Blindness.

There are many examples of how maritime blind the IOR has been. The November 2008 terrorist attack on Mumbai, development of Somali piracy, the LTTE exploiting the ocean for smuggling of large quantities of war-fighting materials, untraceable disappearance of Malaysian Airline MH 370 are some examples of maritime blindness. Hence, there is a need to develop a situational picture of the IOR combining various sensors and platforms to become 'Eyes at Sea' to know who is doing what and where in this maritime domain. This is the basic requirement of MDA for this region. The IOR MDA should be for the common objective of maintaining rule-based order and stability in this vital ocean space and it should be inclusive and not exclusive. Since the IOR wide MDA may not be feasible to achieve immediately, it is prudent to work sub-region wise and then expand to the wider region. When trying to implement a region wide MDA, sovereignty interest issues will come and ultimately it should be felt that MDA is for the common good and not a mechanism to spy.

e. Capacity and Capability Building. No single country can be the 'net security provider' in the IOR. Therefore, burden sharing and mutual assistance in developing capacities such as platforms, sensors, technology transfer and capabilities such as skills in networking, developing tactical picture and training are required. Optimized to provide timely and relevant information so that the decision makers can shape the environment and respond to developments.

f. Confidence Building Measures. The IOR region must move from cooperation to collaboration. There is a need for consolidating and strengthening the international legal system and establish mechanisms to manage disagreement and conflicts based on International law. In order to achieve this there is a need to maintain and promote bilateral and multilateral strategic dialogue mechanism to consolidate strategic trust and build shared awareness and political will in cooperation for peace, stability and development in the IOR. There are many dialogues taking place at track one and two levels in the wider Indo-Pacific. These can be Indian regional organizations such as Ocean Rim Association (IORA), Indian Ocean Naval Symposium (IONS), Indian Ocean Conference (IOC), Galle Dialogue (GD), Bay of Bengal Initiative for Multi sectoral Technical and Economic Cooperation (BIMSTEC), South Asia Association for Regional Cooperation (SAARC), ASEAN Regional Forum (ARF), Western Pacific Naval Symposium

(WPNS) and a host of track 2 and 1.5 think tank and research center initiatives. There is a necessity to work more closely with ASEAN as it is central to the Indo-Pacific or Asia-Pacific maritime security. The region needs a mechanism to combine the outcome of these initiatives and to analyze the discussion with a view to formulate policy for regional order and prosperity. SAGAR is suggested as the platform to undertake this mission. Setting up of an Indian Ocean development Fund was discussed during the recently concluded 'Indian Ocean: Defining Our Future' as well. Defence diplomacy can also play an important role in promoting mutual trust and confidence. Joint naval and coast guard exercises can also be used to promote confidence as well as interoperability.

g. For the Health of the Oceans. The United Nations Sustainable Development Goal 14; 'Life Below Water' can be taken as the guiding principle for sustainable exploitation of ocean resources and maintaining and improving the health of the oceans. Following measure are recommended to ensure that the future of human-kind, the oceans are used sustainably and preserving it for the future generations as well:

- i. Prevention and significantly reducing all kinds of marine pollution from all platforms at sea and specially from land-based activities, including marine debris and nutrient pollution.
- ii. Sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts. Take actions for restoration of the coastal areas and vegetation including mangroves in order to achieve healthy and productive oceans
- iii. Minimize and address the impact of ocean acidification, including through enhanced scientific cooperation at all levels. Minimize dumping of industrial waste and other form of discharges to the ocean.
- iv. Effectively regulate harvesting and overfishing, IUU fishing and destructive fishing practices and implement science-based management plans. Restore fish stocks to a level which can produce maximum sustainable yield.
- v. Ban selling of IUU fishing and compel markets not to sell IUU products.
- vi. Conservation of at least a certain percentage of coastal and marine areas, consistent with national and international law and based on available scientific information.
- vii. Increase economic benefits to small island developing states and least developed countries from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism.

- viii. Increase scientific knowledge, develop research capacity and transfer marine technology, in order to improve ocean and coastal health and to enhance contribution of marine biodiversity to the development of developing countries.
- ix. Enhance the conservation and sustainable use of oceans and their resources by implementing international law as reflected in UNCLOS, which provides legal framework for the conservation and sustainable use of oceans and their resources.

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GOOD GOVERNANCE IN EXPLORATION AND EXPLOITATION OF MARINE RESOURCES

Rear Admiral M Khurshed Alam, M.Phil., ndc, psc (retd)

Abstract

Marine resources have been the key to many coastal countries for progress, prosperity, livelihoods and the blue economy, which in turn generates sustainable food security, trade and tourism enterprise at local, national and international levels. 72% of the Earth's surface is not subject to sovereign administration and remains an anarchic space. The exploration and exploitation of marine resources, both living and non-living, have many challenges like environmental, technical, legal, scientific, etc. New technologies pose serious challenges to the notion of High Seas Freedom. As a result, there are increased trends of competition at national, regional and international waters, which may strongly need an equilibrium on the importance of good governance at sea. Over the years, UNCLOS 1982 and other international maritime laws have been considered as pivotal instruments for all to ensure such governance, although, there are criticisms of the lack of trust, transparency and political assurance. We need to foster more informed stewardship and innovative use of the blue economy/marine resources, within the overarching context of sustainable development. There must be greater integration of efforts and information to promote the sustainable development of the ocean resources and it must be based on open and greater communication networks among all stakeholders. The challenge is to coordinate all such endeavours within a broad framework based on the best available information, including on the needs of the region and its future prospects with respect to the sustainable development of its ocean resources/blue economy.

Keywords: Blue Economy, Sustainable Food Security, Sustainable Development, Good Governance.

Blue Economy Management Framework for Bangladesh

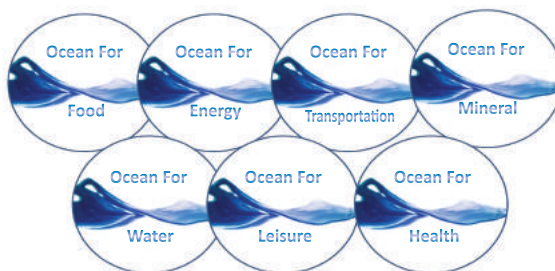
In 2012, the world formulated its Blue Economy strategy to harness the potential of oceans, seas and coasts for growth and jobs. With high unemployment levels in some coastal developing countries, and small island developing states formulated the strategy with the objective to promote smart, sustainable and inclusive growth and employment opportunities in maritime economy. The seas, coasts and maritime sectors and regions were considered to be drivers for the many maritime economy, with a potential of millions of jobs and a gross added value.



Strengthening the blue economy is a long-term approach to support sustainable economic development and ensuring the livelihood security of Bangladesh. Through proper strategies, it is possible to realize potential of the blue economy in practice to make the marine ecosystem as the main driver for the national economy of Bangladesh. However, to achieve a sustainable blue growth in Bangladesh a strategic planning and management framework is required. We strongly recommend to develop a blue economy management framework for Bangladesh focusing potential sectors, knowledge generation through research and ocean governance and required investment.

Focusing Potential Sectors

Special focus to develop the sectors with high economic potentials (i.e. fisheries, coastal tourism, marine biotechnology, ocean energy, mangrove forest and other resources) could trigger smooth and sustainable blue growth in the country. Farming finfish, shellfish and aquatic plants in the maritime areas/coastal waters is one of the world's fastest growing food sectors; it already provides the planet with about half of all the fish we eat. To boost the fisheries sector, it is important to identify the priority areas through consultation with relevant stakeholders. In addition, identification of bottlenecks will also facilitate cooperation, coordination and exchange of best practices for sustainable fisheries management.



The extraordinary beauty and great diversity of coastal areas in Bangladesh have made them the preferred destination for many holidaymakers from the country and also from abroad, and making coastal and maritime tourism an important tourism sector. Therefore, as part of blue growth strategy, the coastal and maritime tourism sector is an aid to foster a smart, sustainable and inclusive economic development for Bangladesh. It is one of the most significant maritime sectors in terms of gross value added and employment. Therefore, to unlock the potential of this promising sector, coastal tourism sector must be paid a special attention.

Blue biotechnology is concerned with the exploration and exploitation of the resulting diverse marine organisms in order to develop new products. Research of the sea biodiversity could enable us to develop new pharmaceuticals or industrial enzymes that can withstand extreme conditions, and which consequently have high economic value. However, in the long term, this sector will offer high-skilled employment.

Seas and oceans offer a vast renewable energy resource and technologies are currently being developed to exploit the potential of tides and waves as well as differences in temperature and salinity. Though the development of this emerging sector would not only help us to achieve our renewable energy, but also it could fuel economic growth through innovation and create new, high-quality jobs. The quantity of resources occupying the ocean is potentially massive. Resource extraction (i.e. mangrove, sea salt etc.) is concerned with the retrieval of these resources to ensure security of supply and fill a gap in the market.



Mangroves are the breeding, nursing and feeding grounds for many marine lives including many fishes, mollusc and crustacean population. Considering the role of mangrove, this plays vital support for recruiting of marine life which eventually enriches the sea resources. Our lack of knowledge of the marine resources demands a careful approach. Thus, engagement in a variety of studies and projects aimed at shedding light on the benefits, drawbacks and knowledge gaps associated with this type of resource extraction.

Knowledge Generation Through Research

Research activities to generate knowledge are essential components for certainty and security of sustainable blue growth. Ocean literacy to improve the understanding the information about the sea, spatial planning for an efficient and sustainable management of activities in sea and maritime monitoring to have a better picture of what is happening in the sea can be achieved through proper research activities. Ocean literacy among the stakeholders will make more effective and sustainable economic use of ocean. Moreover, it will also improve the understanding of how the seas behave. For example, competition for space in sea, space for aquaculture and other uses, demands the management of ocean properly. Therefore, maritime spatial planning (MSP) works across borders and sectors will ensure human activities at sea take place in an efficient, safe and sustainable way. Maritime spatial planning reduces conflicts between sectors and creates synergies between different activities, encourages investment by creating predictability, transparency and explicit rules and protects the environment through early identification of impact and opportunities for multiple uses of space. Monitoring of the maritime area for border control, safety and security, fisheries control, customs, environment or defense will ensure a sustainable blue growth.

Ocean Governance

Ocean governance is about managing and using the ocean and resources in a way that keeps the ocean healthy, productive, safe, secure and resilient. For a good ocean governance practice, it is crucial to adopt a holistic approach integrating all marine and maritime issues in Bangladesh. A robust set of mandatory environmental rules to ensure the use of marine resources sustainably, wherever they operate should put in place. Development of a local level strategy to boost sustainable blue economy is also required under ocean governance. Strategies to address common challenges and opportunities, collaborating closely with stakeholders from civil society and the private sector, marine research for improving cooperation and information-sharing, and making maritime data publicly accessible will be beneficial to achieve for sustainable blue growth. Finally, creating highly qualified and skilled professionals in the blue economy and engagement with international forums will foster the development of ocean economy.

Integrating Institutes for Implementation of Management Framework

Existing institutions in Bangladesh related to marine sector include academic institutions (i.e. universities and research institutes), NGOs and other institutions i.e. think tank organizations. To implement the proposed framework, we need to integrate all these institutions. The work should be integrated and multidisci-

plinary. Bangladesh has national oceanography research institute at the Cox's Bazar which is located on the south-eastern coast of Bangladesh. It is now important to establish coastal and marine research station in the central and south-western coastal zone of Bangladesh. Existing river research institute should also work on the estuarine area. Fisheries research institute and department of fisheries need to work for domestication of marine fishes which are not yet an aquaculture product. Academic institutions, i.e. universities need to collaborate with each other as well as other government organizations for marine and coastal research in Bangladesh. Proper regulations of economic activities need to monitor through government and NGOs for sustainable utilization of resources. Overall it is important a top-down approach for implement the proposed framework.

Investors and Investment

An investor can be described as any person and/or group who commits capital with the expectation of financial returns. Investors utilize investments in order to grow their money and/or provide an income during retirement. Start-ups generally acquire capital from friends, family and angel investors normally termed as private investors. Venture capital support small sized companies with potential and some track record whereas private equity investor generally invest in more developed companies with a larger track record. Both venture capital and private equity investors can play a significant role in the management and operations of companies. Public investors include various governmental investors, or public investors. Typically, these investors do not aim for increased personal wealth but invest public money in corporate activities to realise societal objectives, such as job creation, renewable energy generation or infrastructure development. Public and private investments are not mutually exclusive. In reality companies can attract finance from both public and private investments, where availability of govern-



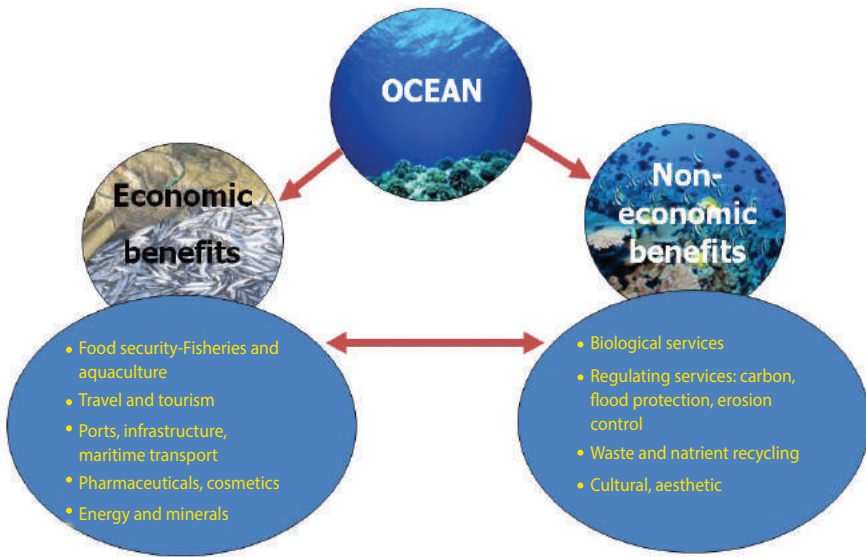
ment venture capital can help to access private venture capital. A significant amount of investments comes from companies themselves who spend time and resources on research and development. This type of investment accounts for a large part of investment in resources with the aim of doing business in sectors such as aquaculture, seabed mining, ocean energy and/or marine biotechnology. A relatively new type of investment is crowdfunding. Donations to such initiatives can be driven by commercial motives but also by personal reasons. There are different ways in which investors are compensated for their investment, either financial, in company shares or in-kind. In the blue economy, various crowdfunding initiatives have popped up and although the total amount invested remains relatively small, crowdfunding can support small-scale initiatives and start-ups that have no access to the established financial institutions. Examples of crowdfunding in the marine realm include funding for various ocean clean-up initiatives, start-ups in aquaculture or in tourism.

Drivers of Investment

The first school of thought focusses on rationalized behaviour of investors to identify their motivations and considerations. The behaviour of investors is explained by focusing on rational considerations such as expected return of investment, risk reduction and portfolio management. Risks are crucial for understanding investors' decisions and to manage their portfolio of investments to reduce risks. A second school of research has emphasized that the rational approach to investor behaviour neglects the irrationality that investor sentiment are of pivotal importance in decision-making. A third approach to investor behaviour focusses on the rise of social responsible investment.

Targeting Investors in the Blue Economy

Bangladesh after the first blue economy workshop in 2014 recognized that the need for capital-intensive infrastructure and the demand for risk financing are high in the blue economy. At the world level, about 95 trillion USD are expected to be invested in infrastructure (much of it on the coast), within the next 20 years. Global investment needs for offshore renewables have been estimated at 790 billion USD by 2040. Since then, there have been significant changes with regards to investments in the blue economy, particularly for offshore wind energy. Strong incentive schemes in the United Kingdom, Denmark, Germany, Belgium and the Netherlands have stimulated growth of capacity and rapid maturation of the sector. With this, the prices for offshore wind energy have declined rapidly up to a level where newly developed offshore wind farms will not require subsidies at all. Conforming to the various strategies, different governments have focussed on the development



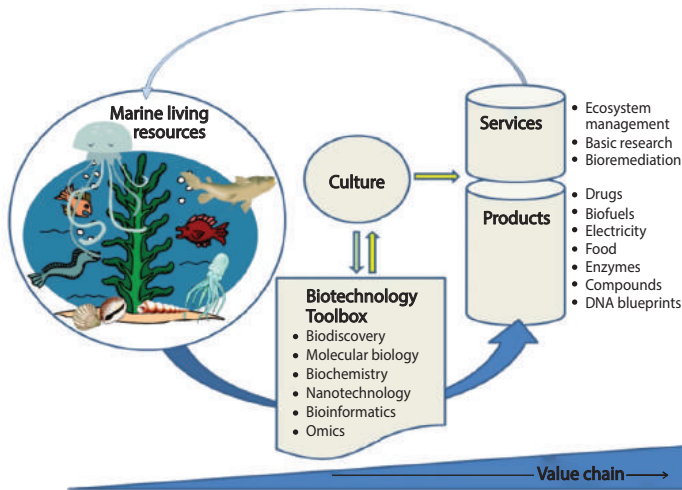
of new technologies to boost the five high-potential maritime sectors (blue energy, aquaculture, coastal and maritime tourism, blue biotechnology and sea-bed mining). It should be argued that Blue Economy can be stimulated by putting the right ‘enablers’ in place. Enablers are seen as prerequisites that have to be in place to create an environment open to innovation and growth. This includes research and education (which can be seen as supportive enablers) but also maritime surveillance, spatial planning and environmental. Additionally, Bangladesh need to remove barriers to create better conditions for innovation and allow the maritime economy to develop. Existing funding instruments/mechanism are not good enough to support the development of Blue Economy. Lastly, we need to encourage partnerships between, public authorities and economic players, in order to foster scale effects and mutually reinforcing learning and investment and to explore market opportunities worldwide for the international dimension of the blue economy.

If we dig somewhat deeper into the role of government funding to support the development of Blue Economy sectors, we must make “concerted efforts to maximise the amount of funding for Blue Economy projects. The focus is on promoting innovation – new technologies, new products and new services and fostering investment, especially where financial markets are reluctant to lend to or provide capital for unfamiliar or first-of-a-kind activities. This has led to the development of various governmental strategies to make funding available for Blue Economy projects. It is now widely recognized that regulation to increase access-to-finance

for Blue Economy sectors are needed to facilitate the desired developments. This particularly concerns the development of a risk-sharing financial instrument – thought to ease private investment. The World Bank has published a number of reports on the blue economy. Although a number of these focus particularly of the Caribbean islands, the World Bank recognizes the wider potential of blue economy to benefit underdeveloped coastal countries. A blue economy is seen as low-carbon, efficient, and clean (UN DESA). It is also an economy that is based on sharing, circularity, collaboration, solidarity, resilience, opportunity, and interdependence (UNEP 2015). Its growth is driven by investments that reduce carbon emissions and pollution, enhance energy efficiency, harness the power of natural capital—such as the oceans—and halt the loss of biodiversity and the benefits that ecosystems provide (UNEP 2013).

According to the World Bank, the blue economy comprises the range of economic sectors and related policies that together determine whether the use of oceanic resources is sustainable. It is explicitly stated that the blue economy includes established ocean industries, such as fisheries, tourism and marine transport, as well as new and emerging activities such as offshore renewable energy, aquaculture, seabed extractive activities and marine biotechnology and bioprospecting. The world Bank has also invested millions in the blue economy sectors of Bangladesh. The World Bank argues that the potential to develop a blue economy is limited by three main challenges. Current economic activities and trends that exploit the ocean unsustainably need to be replaced by altered or even new economic practices and behaviour. For this, resistance of established interest must be overcome and – the second challenge – is necessary to invest in human capital. Individuals need to be trained to be able to work in the blue economy, thereby harnessing the employment and development benefits of investing in innovative blue economy sectors. The third set of challenges relates to strengthening the concept and overcoming inadequate valuation of marine resources and ecosystem services provided by the oceans; isolated sectoral management of activities in the oceans, which makes it difficult to address cumulative impacts; inadequate human, institutional, and technical capacity; underdeveloped and often inadequate planning tools; and lack of full implementation of the 1982 United Nations Convention on the Law of the Sea (UNCLOS) and relevant conventions and instruments.

The World Bank's discourse on investment is founded on a belief that investments are beneficial to reach the objectives of a blue economy, arguing for example that "the private sector can play a key role in the blue economy, especially in small islands and developing states. Business is the engine for trade, economic growth, and jobs, which are critical to poverty reduction". However, it is also acknowledged that private capital investments need to be levered by public policies and



support. Many public and private economic activities that could serve to restore ocean health will carry higher upfront costs and returns that will not immediately accrue to investors. This suggests the need for new and innovative financing mechanisms, more capital than is currently being deployed, and a greater degree of collaboration between the public and private sectors. The World Bank and United Nations (2017), in their study on the potential of the blue economy have outlined what is needed to reap the benefits of the blue economy. As a general recommendation, it is argued that investment in science, data and technology, and making use of the best available science, data, and technology, is critical to underpinning governance reforms and shaping management decisions to enact long-term change. The effective implementation of the United Nations Convention on the Law of the Sea is a necessary aspect of promoting the blue economy concept worldwide. That convention sets out the legal framework within which all activities in the oceans and seas must be carried out, including the conservation and sustainable use of the oceans and their resources. The effective implementation of the Convention, its implementing agreements and other relevant instruments is essential to build robust legal and institutional frameworks, including for investment and business innovation. These frameworks will help achieve SDG commitments, especially economic diversification, job creation, food security, poverty reduction, and economic development (World Bank and United Nations Department of Economic and Social Affairs, 2017). Given the fact that these recommendations are applicable to a large number of countries, in different regions and with vastly different economies, it is stressed that each country should weigh the relative importance of each sector of the blue economy and decide, based on its own priorities and circumstances, which ones to prioritize.

Risks and Barriers to Investment

The most important barriers to investment, according to some experts, are the lack of confidence in technology and difficulties to access finance. The most important risks according to the investors consulted here are operational and financial risks. The Investors in Blue Economy are not dealing with mature technologies or low risk markets. These sectors face uncertainty and risk in the commercialization of the products, regulatory problems and technologies are still under development. Offshore technologies are still very expensive: new technology is not getting obviously cheaper. In some cases, prices are actually increasing. For the various Blue Economy sectors, the question is how to move towards a low-risk, mature technology sector and become more attractive for investors. Subsequently, we need to identify what motivates investor to invest – or not to invest – in sectors and project through interviews of the stakeholders. The survey results show that the rational motivation ‘return on investment’ is important to the investors, while ‘diversification of portfolio’ – a strategy to reduce risk – is rated as less important. The interest of investors lies in the potential impact of technologies; they are interested in finding the game-changer, i.e. technology that changes an industry. They do not get involved for a quick or big return but have a long-term view on the developments in sectors – and society as a whole – based on a combination of idealism and realism. The technology is already there, it is about investing in the right companies to continue marketing and thereby change the marine fishing and aquaculture industry in a positive way. Access to finance is a recognized critical issue in the development of the Blue Economy sectors. In the case of offshore renewable energy, public support is required as “the economic viability is still not there”. The most preferred governmental support schemes are tax breaks, loans, bonds and guarantees, although differences are small and all are relatively important. The four most favoured support schemes all relate to financing of companies and help to increase “access to finance” through stable, long-term support schemes. Direct financial support – whether through a subsidy of government participation – is to be assured in the initial stage. However, poor-designed government support schemes are a risk to the development of Blue Economy sectors.

Government Regulatory Frameworks

Regulations and frameworks are seen as a more supportive of investing in Blue Economy and provide subsidies or other means of support such as test cases. It is desired that regulatory framework and support-scheme should be predictable, has a long time-span and will not erratically change. Transcending the comparison of

specific policy instruments, many concluded that the policy support should take a two-sided approach with a focus on technology-push policies and stimulating the market by market-pull policies. It can be said that the financial sector ultimately have to assume a greater role in realizing social objectives, including the development of a blue economy. The follow-up question then is how to engage them, what can the linkages between this sector and others – including government – be strengthened? To target the right investor, it is crucial to acknowledge that there are multiple types of investors. Stereotypical images of investors or investors as very wealthy individuals but the corporate, public and private investments are all part of the picture. Even if one zooms in private investors, there is a broad variety of investors. Whilst some invest in start-ups and highly innovative – but uncertain – technologies, others focus on safe assets to minimise the risks. Government investment can be an important addition to these instruments; by lending money – on commercial rates – government show confidence in newly developing sectors and this lowers threshold for other investors to step into new sector. Financial projections are only part of the story; there is a personal component, including issues of trust, expected capabilities of the entrepreneur and a ‘feeling’ for particular sectors.

Conclusion

In comparison to other natural resources systems, the potential of coastal and marine ecosystem of Bangladesh, as a driver of economic growth, has long been overlooked by the policy makers. Only recent years, the Bangladesh government has provided priority on exploitation and management of marine resources. The



vast potentialities of Bay of Bengal for the national economic development are still not fully realized. However, considering the overexploited and weakly governed marine fisheries, there should be a check and balanced through an appropriate policy and legal framework. Illegal fishing, climate change, and marine pollution are already at the alarming stage for the Bay of Bengal marine ecosystem. To make the blue economy concept fully functional for Bangladesh, it is an urgent need to foster research activities to generate knowledge and skilled manpower and then formulate the national plan and policies. Looking at the scientific literature, it must be easily said that the marine science community has given little attention to the role of the financial community in exploiting and managing the world's oceans. Within the marine business community, investors have obviously been of great importance but systemic attention to their role in responsible ocean management is little. In recent years, the financial sector is increasingly seen as key actor that needs to be involved in working towards realising societal objectives. Policy makers at national and international levels look to the financial sector seeking to involve them in a range of topics, ranging from nature protection and social welfare to social entrepreneurship. This development is also witnessed in the maritime domain where international organizations have emphasized the importance of investment in realizing the potential of the Blue Economy.

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About Author: Mr. Mohammad Khurshed Alam, (Born 1953) Secretary, Maritime Affairs Unit of the Ministry of Foreign Affairs of Bangladesh has a dynamic and long career. Mr. Alam performed the duties of the Deputy Agent of the “Dispute concerning delimitation of the maritime boundary between Bangladesh and Myanmar in the Bay of Bengal” in the International Tribunal on the Law of the Sea (ITLOS) in Hamburg, Germany and the “Bay of Bengal Maritime Boundary Arbitration between Bangladesh and India” under Annex VII to the United Nations Convention on the Law of the Sea in the Permanent Court of Arbitration in the Hague respectively. He was also the head of the Bangladesh Continental shelf technical team entrusted with the preparation, documentation, carrying out seismic survey of the Bay of Bengal and submission and finally making presentation of Bangladesh’s claim on extended continental shelf to the 21 member UN Commission on the Limits of the Continental Shelf.

He has also been actively involved in drafting international rules and regulations on the exploitation of polymetallic nodules, ferro manganese crust and polymetallic sulphides in the International seabed Authority in Kingston, Jamaica. He was elected the President of the Assembly of the Authority at its 22nd Annual Session in 2016. As the head of the Maritime Affairs Unit of the Bangladesh Government, he has been performing his duties as the National Focal Point for the Indian Ocean Rim Association (IORA).

While studying engineering, he joined the Bangladesh Navy and was commissioned in 1973 and retired as Rear Admiral in 2008 prior joining the Ministry of Foreign Affairs. He received “Master’s degree” on Oceanography from the National Oceanographic Centre, UK and “M.Phil. degree” from the Madras University with a first class. On completion of his graduation and Law of the Sea Course from the Royal Naval Staff College, Greenwich, UK, he was awarded with a “Commendation letter” for meritorious works. He also received the Indian Presidents Gold Medal from the Indian Naval Academy in 1974. While serving in Bangladesh Navy, he was appointed as the Defense Adviser in the Bangladesh High Commission, Malaysia In 1991.

He successfully led Bangladesh to many national and international negotiations such as Bangladesh maritime boundary delimitation talks with India and Myanmar, UNCLOS 1982 signing ceremony in Montego Bay, the sessions for drafting the International legally binding instrument under UNCLOS on conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction (BBNJ) in the United Nations etc. He also attended and presented papers on several International seminars. He has also been attending in

the Annual Meetings of the State Parties to the UNCLOS since 2006. His publications include-Morale and Motivation in the Services, Management in Service Perspectives and Integration of Individuals in the Navy, ASEAN Regional Cooperation, United Nations Convention on the Law of the Sea, 1982, Regional Maritime cooperation under the SAARC, Law of the Sea and its Implications for Bangladesh, Human Security and Piracy, Problems in the Ports, Impacts of cyclone and warning system, Delimitation of maritime boundary with India and Myanmar and management of marine affairs etc. He has also written a book named-“Bangladesh’s Maritime Challenges in the 21st Century” published in 2004- dealing with Ports, Inland Water, Shipping, Labour laws, Pollution, Multimodal transport and Custom problems and the Law of the Sea including all the other maritime problems and prospects of Bangladesh. In 2017, he published another article extensively written on the challenges & opportunities of Blue Economy for Bangladesh and Blue Bio-technology.

He is married to Ms. Zabeen Alam and has two sons.



MARITIME SECURITY AND GOOD GOVERNANCE IN THE INDIAN OCEAN REGION

Captain Richard Francis Sears (retd)

Abstract

This speech focuses on the geopolitical importance and strategic environment in the Indian Ocean Region (IOR). It presents a brief backdrop of the strategic value of the IOR, proposes a methodology to define what we mean by maritime security while analyzing some threats and risks that exist in the Maritime Security Environment. The speech then poses some challenges in achieving maritime security governance in the IOR while offering some thoughts on a way ahead and the role of the United States intends to play in this endeavor via its Indo-Pacific Strategy. The speech concludes with the author's thoughts on critical elements of a stable, prosperous and peaceful region.

Keywords: IOR, Maritime Security, Good Governance, Geopolitics, Indo-Pacific Strategy.

Introduction

This paper entitled “Maritime Security and Good Governance in the Indian Ocean Region,” was presented at the Bangladesh Institute of Maritime Research and Development Inaugural Seminar held in Dhaka, Bangladesh on November 19, 2018.

This paper evaluates the accelerating significance of the strategic and economic value of the Indian Ocean Region (IOR) along with the multiple challenges confronting the security in the maritime domain. The paper also addresses the viability of a governance structure that will enhance maritime security and offers a set of critical objectives toward a stable end state.

Strategic Environment

The Indian Ocean Region holds key geostrategic value due to its proximity to both the energy rich nations of the Middle East and the growing economies of Asia. According to the CIA World Fact Book 2018 the Indian Ocean is the third largest of the world's five oceans and covers an area of 26.5 million square miles or about seven times the size of the United States. For purposes of reference it includes the Andaman Sea, Arabian Sea, Bay of Bengal, Flores Sea, Great Australian Bight, Gulf of Aden, Gulf of Oman, Java Sea, Mozambique Channel, Persian Gulf, Red Sea, Savu Sea, Strait of Malacca, and Timor Sea.



Figure 1

The IOR is also home to one-third of the world's population and the littorals contain more than two-thirds of worldwide oil reserves, 35% of the gas reserves along with large deposits of uranium, gold, diamonds and other minerals. Nearly half of the world's 90,000 commercial vessels and two thirds of the global oil shipment travel via its sea lanes while the region holds some of the world's busiest ports. Asia's growth depends on the security of the Indian Ocean.^{1,2}

Strategically the Indian Ocean possesses vital sea lines of communication, and some of the most critical choke points on the globe. The straits of Hormuz (Iran-Oman) linking the Persian Gulf and the Indian Ocean, Malacca (Indonesia-Malaysia) linking the Indian and Pacific oceans, and the Bab el Mandeb (Djibouti-Yemen) linking the Red Sea to the Arabian Sea are immensely important as the majority of the world's oil trade passes through them. The Cape of Good Hope, Suez Canal, Sunda Strait and the Lombok Strait complete the list of choke points in the IOR. Their security and access are of vital importance to the world economy.

¹ Pragya Pandey, Emerging Maritime Security Environment in the Indian Ocean Region: Challenges and Responses. IPSA AISP 23rd World Congress of Political Science, Challenges of Contemporary Governance, 2014, p5.

² Alice G. Wells, Building Regional Architectures, Remarks at the Third Indian Ocean Conference. Retrieved from WWW.STATE.GOV: <https://www.state.gov/p/sca/rls/rmks/2018/285557.htm>, Aug 28, 2018, p2.

Maritime Security

I would like to start our discussion of maritime security with a question. What is Maritime Security? If I polled representatives of the nations in the IOR to answer that question we would likely get similar responses, but an analysis would not yield 100% agreement. If I asked the same collective group to prioritize the threats to Maritime Security, we would likely see even less agreement. The reason is... it depends. Each nation will have a different perspective depending on a host of variables. Some term threats to maritime security traditional such as interstate conflict or threats to the nation state independence or sovereignty; some nontraditional transnational threats such as piracy or maritime terrorism; while still other threats might include risks to safety “on” and wellbeing “of” the oceans Search and Rescue (SAR) or damage to the marine environment. The Report of the U.N. Secretary General, Oceans and the Law of the Sea (March 2008) addressed this point when they stated the following:

“There is no universally accepted definition of the term “maritime security”. Much like the concept of “national security”, it may differ in meaning, depending on the context and the users. At its narrowest conception, maritime security involves protection from direct threats to the territorial integrity of a State, such as an armed attack from a military vessel. Most definitions also usually include security from crimes at sea, such as piracy, armed robbery against ships, and terrorist acts. However, intentional and unlawful damage to the marine environment, including from illegal dumping and the discharge of pollutants from vessels, and depletion of natural resources, such as from IUU fishing, can also threaten the interests of States, particularly coastal States. Various approaches have been taken to maritime security, depending on the State’s perspective of the interests that may be threatened, either directly or indirectly, by activities in the oceans and seas.³

In developing strategies for preserving maritime security we normally approach it by determining ends (our objective or desired end state), ways (actions we take such as operational lines of effort) and means (the resources required).

What is the end state we desire? CDR John Odom USN, a colleague of mine at the Daniel K. Inouye Asia-Pacific Center for Security Studies, offers a consolidated end state for Maritime Security in which the maritime domain is secure, and the maritime order is stable. In essence this is a balancing act (much like a fulcrum) (Figure 2) where maritime threats and risks are countered and managed respectively in balance with maritime freedom being preserved and international law being upheld. This balancing act is appealing to me as it is not dependent on a

³ Secretary General United Nations, Report of the Secretary General, "Oceans and the Law of the Sea". New York: , 2008, p15.

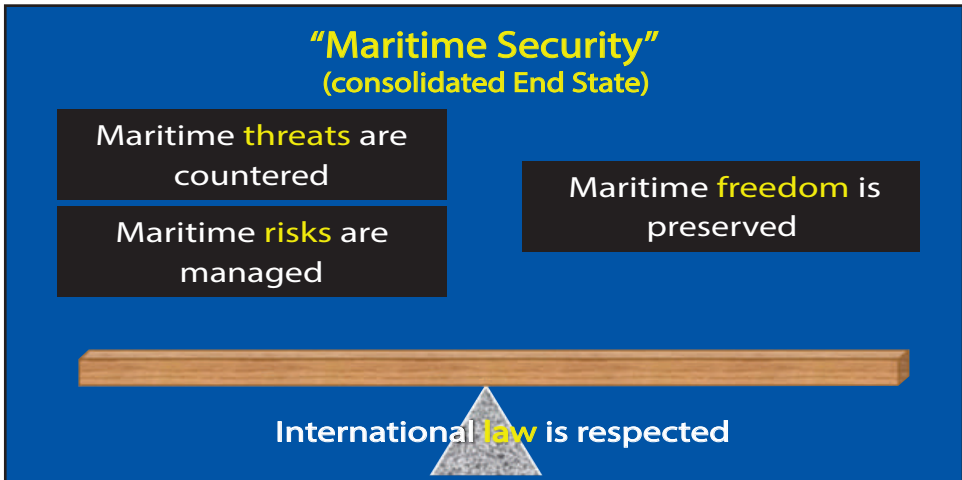


Figure 2

strict definition of maritime security but encompasses multiple facets in developing a sound strategy to achieve it.

The Maritime Security Environment

Great power competition in the Indian Ocean region has been spurred by its economic and strategic value. Normally the emergence of nations to great power status tend to prompt instability as smaller nations partner with more powerful nations to increase their own economic security. China and India are both rising as military and economic maritime powers. This fact will spur inevitable competition particularly in the IOR. China's emergence as the world's second largest economy coupled with their dramatic military modernization program and ambitious foreign policy is evidenced by their increased presence in the Indian Ocean and beyond. Their dependence on seaborne trade and imported energy presents a dilemma they are aggressively attempting to address. One needs only look at China's Belt and Road Initiative (BRI) (Figure 3) and their development of ports in Sri Lanka (Hambantota), Djibouti (Doraleh), Myanmar (Kyauk Pyu) and Pakistan (Gwadar) to confirm they plan to be present in the Indian Ocean Region for the foreseeable future. According to the U.S. Congressional Research Service "Much of the activity associated with China's Belt and Road Initiative (BRI) can be viewed as an attempt by China to minimize its strategic vulnerabilities by diversifying its trade and energy routes while also enhancing its political influence through expanded trade and infrastructure investments. China's BRI in South and Central Asia and the IOR, when set in context with China's assertive behavior in the East China Sea and the South China Sea and border tensions with India, is contributing

to a growing rivalry between India and China. This rivalry, which previously had been largely limited to the Himalayan region where the two nations fought a border war in 1962, is now increasingly maritime-focused.”⁴

India’s emergence as a major economic and military power is also evidenced by their reach across the region to secure their vital interests. According to the U.S. Congressional Research Service: “During the 2014 East Asia Summit, Prime Minister Modi revamped India’s “Look East” policy—which dated to the early 1990s—to be an “Act East” policy, clearly signaling India’s strategic interest in Southeast Asia and the broader Asia-Pacific region. Modi’s “Act East” policy is driven by both strategic and economic factors. These include a) a strategic interest in countering China’s rising influence in South Asia and the Indian Ocean, and b) an economic interest in promoting Indian exports and developing India’s underdeveloped northeast.”⁵ Prime Minister Modi in a Keynote address at the Shangri La dialogue in June 2018 stated: “Our interests in the region are vast, and our engagement is deep. In the Indian Ocean region our relationships are becoming

The BRI: China’s Eurasian ambitions



Figure 3 Source: <https://www.gisreportsonline.com/gis-dossier-chinas-belt-and-road-initiative,2608.html#>

⁴ *China-India Great Power Competition in the Indian Ocean Region: Issues for Congress*. Congressional Research Service. Washington DC., April 20, 2018, p1.

⁵ *China-India Great Power Competition in the Indian Ocean Region: Issues for Congress*. Congressional Research Service. Washington DC., April 20, 2018, p25.

stronger. We are also helping build economic capabilities and improve maritime security for our friends and partners.” He went on to say “We will promote a democratic and rules-based international order, in which all nations, small and large, thrive as equal and sovereign. We will work with others to keep our seas, space and airways free and open; our nations secure from terrorism; and our cyber space free from disruption and conflict. We will keep our economy open and our engagement transparent. We will share our resources, markets and prosperity with our friends and partners. We will seek a sustainable future for our planet, as through the new International Solar Alliance together with France and other partners.”⁶

For its part the United States has been a major power in the Indian Ocean for a long time and will continue to be present and engaged in the region. The U.S. possesses vital national and economic interests in the entire Indo-Pacific region to include among others, access to energy resources and strong defense relationships with regional allies and partners. The U.S. National Security Strategy addresses this perspective along with the emerging relationship with China and Russia in stating that “great power competition (has) returned” as China and Russia reassert their influence regionally and globally. The Strategy lists the Indo-Pacific as the first of six regions and states: “Our vision for the Indo-Pacific excludes no nation. We will redouble our commitment to establish alliances and partnerships, while expanding and deepening relationships with new partners that share respect for sovereignty, fair and reciprocal trade, and the rule of law.” It goes on to say “A geopolitical competition between free and repressive visions of world order is taking place in the Indo-Pacific region. The region, which stretches from the west coast of India to the western shores of the United States, represents the most populous and economically dynamic part of the world. The U.S. interest in a free and open Indo-Pacific extends back to the earliest days of our republic.”⁷ The strategy further speaks to the relationship with India as welcoming India’s emergence as a leading global power and stronger strategic and defense partner. The United States National Defense Strategy prioritizes expanding Indo-Pacific alliances and partnerships to achieve a “free and open Indo-Pacific region” and a “networked security architecture capable of deterring aggression, maintaining stability, and ensuring free access to common domains that bring together bilateral and multilateral

⁶ PM Narendra Modi, *Prime Minister’s Keynote Address at Shangri La Dialogue*. Retrieved from Ministry of External Affairs Government of India: [https://www.mea.gov.in/Speeches-Statements.htm?dtl/29943/Prime+Ministers+Keynote+Address+at+Shangri+La+Dialogue+June+01+2018\(2018, June 01\)](https://www.mea.gov.in/Speeches-Statements.htm?dtl/29943/Prime+Ministers+Keynote+Address+at+Shangri+La+Dialogue+June+01+2018(2018, June 01)).

⁷ *National Security Strategy of the United States of America, US Department of Defense, Washington DC. December 2017, p46-47.*

security relationships to preserve the free and open international system.”⁸

Nations, such as Japan, Australia, France, the United Kingdom and others have a vital interest in maintaining the free flow of goods through the Indian Ocean SLOCS and choke points so will ensure they maintain a presence as well. The quadrilateral cooperation of Japan, Australia, India and the United States is reinforced via continued dialogue along with economic and military engagements such as the annual Malabar naval exercises held in the Indo-Pacific.

Transnational Maritime Security Threats

Transnational Maritime Security Threats to be countered may include:

1. Piracy and armed robbery
2. Terrorist acts
3. Illicit trafficking in arms and WMD
4. Trafficking in narcotics
5. Trafficking/smuggling in humans (persons by the sea)
6. Intentional unlawful damage to the marine environment
7. Illegal, unreported and unregulated fishing (IUU)

Piracy

Piracy is often a resultant of ungoverned or inadequately controlled seas. These seas offer a target rich environment yet are tremendously difficult to police. In the Indian Ocean the environment off the coast of Africa and in the Malacca straits possess the highest risk. Piracy off Somalia surged after the Somali civil war and was fueled primarily by financial gain and a lack of protection for commercial shipping. Piracy in the Malacca straits has long been a burden due to the long sea lane of 550NM and many islets and rivers offering escape.

The good news is piracy worldwide has decreased each year since its most recent peak in 2010 with 445 incidents to 180 in 2017 (see figure 4). The number of occurrences in 2018 may be trending higher due to an increase in attacks off Nigeria in the Gulf of Guinea, but in the IOR attacks are on a down trend. The overall decrease in attacks over the past ten years is due, in part, to the security cooperation success among states acting in the maritime commons. Singapore, Indonesia and Malaysia execute coordinated patrols under the Malacca Strait Security Accord(MSSA) and they have achieved a marked decrease in piracy incidents. The Combined Maritime Force (CMF), an anti-piracy coalition, has achieved similar success around the Horn of Africa. While still a threat the steady

⁸ *Summary of the National Defense Strategy of the United States of America, Sharpening the American Military's Competitive Edge. Department of Defense, January 2018, p9.*

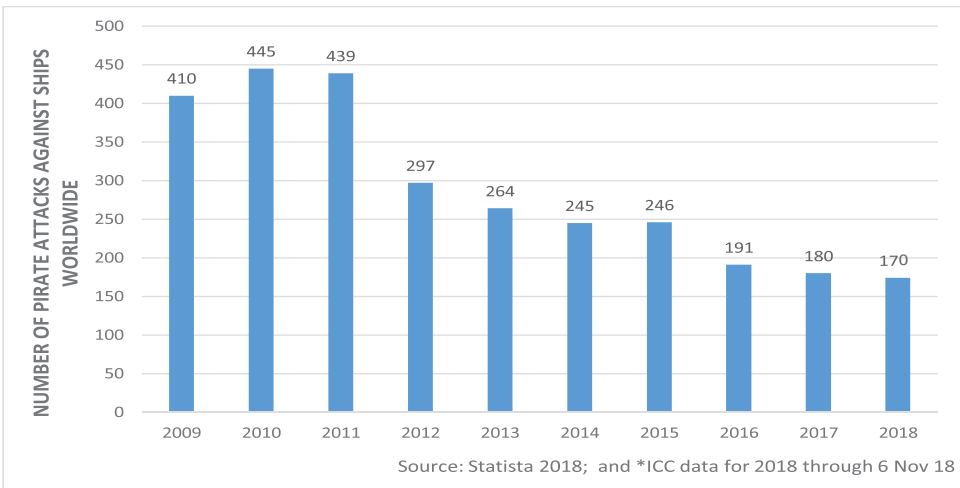


Figure 4 Source: Statista 2018; and *ICC data for 2018 through 6 Nov 18

decrease over the past decade of successful acts of piracy, armed robbery or kidnap for ransom is indicative of what can be achieved by nations working together toward a common goal through burden sharing and capacity building.

Maritime Terrorism

Terror incidents on the sea are not frequent, but the gravity of loss they pose is cause of concern. The 2002 attack on the tanker *Limburg* by suicide bombers posed risks not only to the crew but the environment as 90,000 barrels of oil leaked into the Gulf of Aden shutting down international shipping at significant cost. The 2000 attack on the *USS Cole* is a reminder, to not only the United States but all nations, how vulnerable vessels can be in port as well as on the sea. The hijacking of an Indian fishing trawler that enabled the 2008 Mumbai attacks is an example of terror both on and from the sea. There have been improvements in the Cruise Ship Industry to mitigate the risks posed by a terrorist attack. These include various methods to increase vessel security plans and port facility security plans along with increased screening of passengers/luggage and higher levels of scrutiny of crew and staff employees. Container ship security is primarily focused on cargo contained on the ship and port security. Full screening of cargo containers is not practical due to the vast quantity of worldwide containers being transported so we must rely on random screening and effective use of international vehicle and cargo inspection systems. As in the cruise industry, port facility security plans are critical even for remote ports due to the economic impact resulting from a major port being shut down. In addition, the ability to re-establish cargo port operations in the

event of an attack is critical especially in the IOR. Although I only mention a few historical maritime terrorist incidents they are indicative of the potential high risk involved and the inherent demand for our attention as terrorists become more sophisticated and seaborne traffic in the Indian Ocean expands.

Drug Trafficking

Drug trafficking in the Indian Ocean is proliferating. Between 2012 and 2017 the Combined Maritime Forces have seized nearly 11 tons of heroin along with large amounts of hashish. The drugs seized have been found to be extremely pure and most originated from the Golden Crescent (Iran, Afghanistan, and Pakistan). Afghanistan has overtaken Myanmar in the Golden Triangle as the largest producer of opium in the world. These drugs are being transported via the Makran coast, a route termed the “smack track” to the African continent and southeast to Sri Lanka and the Maldives enroute to the West. According to Sagala Ratnayaka Sri Lanka’s Project Management, Youth Affairs and Southern Development Minister and the Prime Minister’s Chief of Staff: “We are experiencing a massive explosion of drug trafficking by maritime routes. The use of the Indian Ocean as a major drug trafficking highway – particularly for heroin originating in Afghanistan – poses a maritime security and a maritime law enforcement challenge;” he goes on to say, “one of the major challenges is the lack of a ‘legal finish’ (such as prosecution) for the majority of drug seizures made within international waters in the Indian Ocean region.⁹ Jane’s Intelligence Review states that most of these drugs are transhipped via containers and trafficked to the rest of the world by taking advantage of high port volumes in the Indian Ocean. The largest impact is to human security. The United States currently struggles to get control of opioid addiction in both legal and illicit form and knows too well the destruction these drugs cause. Organized crime, terrorists and small arms traffickers use the highly profitable drug trade to finance their operations and move weapons around the theater. Cumulatively these actions, if not confronted, are a clear danger to world security and stability.

Trafficking in Persons

The financial gain from trafficking in persons is approaching the gains from drug trafficking. Trafficking in persons is defined by Palermo Convention as "the

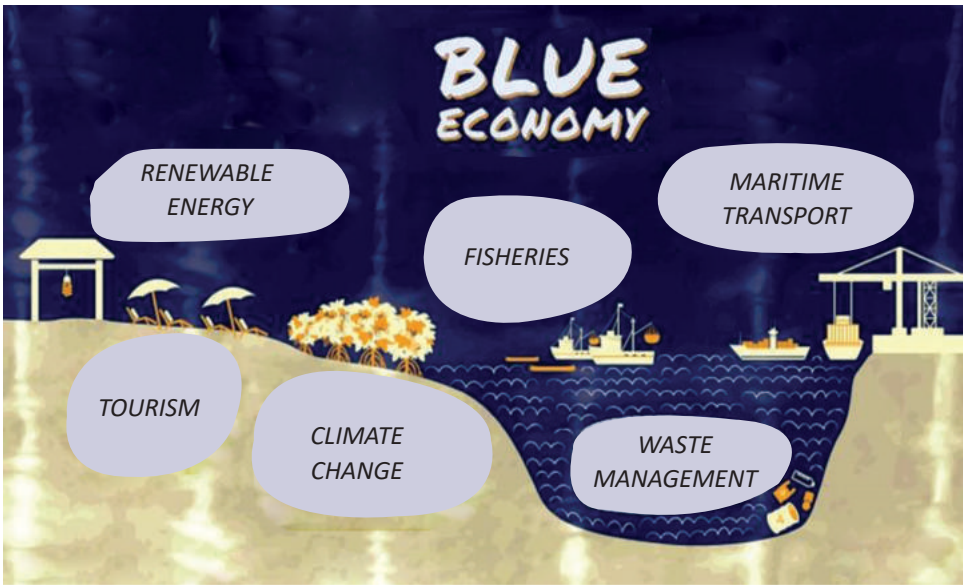
⁹ *Sagala Ratnayaka, Indian Ocean used as a major drug trafficking highway - Sagala*. Retrieved from adaderana.lk: <http://www.adaderana.lk/news/48119/indian-ocean-used-as-a-major-drug-trafficking-highway-sagala>, June 17, 2018, p1.

recruitment, transportation, transfer, harboring or receipt of persons, by means of the threat or use of force or other forms of coercion, of abduction, of fraud, of deception, of the abuse of power or of a position of vulnerability or of the giving or receiving of payments or benefits to achieve the consent of a person having control over another person, for the purpose of exploitation." Migrant smuggling, often a result of those seeking escape from violence or better opportunities for their families, is a "crime involving the procurement for financial or other material benefit of illegal entry of a person into a State of which that person is not a national or resident". The differences between the two include a) consent, where persons being trafficked have not consented while migrants may consent even if the conditions are dangerous or degrading; b) exploitation, where the persons being trafficked experience ongoing exploitation while the migrant may or may not be exploited at their destination and c) a transnational nature where smuggling crosses transnational boundaries yet trafficking may not.¹⁰ Despite these differences in the legal definitions, people who are smuggled are often subjected to the same types of abuse suffered by those being trafficked. They become vulnerable to physical and mental abuse, economic exploitation, forced labor or prostitution. The common traits of both in the region normally involve those with low economic opportunity or refugees threatened by interstate and intrastate violence who take to the sea seeking sanctuary yet find themselves at great risk from pirates and traffickers. These conditions also increase the risk terrorists will take advantage and infiltrate migrants to gain access to nations for recruitment; or alternatively migrant populations will seek illegal means to earn a livelihood if they see no alternative opportunities available.

Economic Risks

The economic vitality of the Indian Ocean offers great potential as the "Blue Economy" transforms ocean resources into growth in the standard of living in the region. According to the World Bank the blue economy is the "sustainable use of ocean resources for economic growth, improved livelihoods, and jobs while preserving the health of ocean ecosystem." (See figure 5). Technological advances that offer opportunity to communities and families, especially in densely populated nations, can be a force multiplier in attacking poverty, prompting stability and expanding prosperity. The transformation to a blue economy does not come

¹⁰ *Trafficking in Persons and Migrant Smuggling*. Retrieved from United Nations Office on Drugs and Crime (UNODC): <https://www.unodc.org/lpo-brazil/en/trafico-de-pessoas/index.html>, Nov 15, 2018, p 2-3.



without challenges and risk though. Resources dedicated toward a sustainable investment in the blue economy can be drained away by a host of factors that must be addressed. For example, disaster management capacity and capability are critical to countries in the region. The Indian Ocean Region, sometimes termed the “World’s Hazard Belt” has historically experienced a great deal of natural disasters. Since the beginning of 2018 alone there have been earthquakes, tsunamis, drought, floods, landslides and cyclones. The effect on the countries in the region is not just economic, but social as well where those nation states and communities least able to address the impacts of these disasters are often the hardest hit. The Indian Ocean Rim Association (IORA) Action Plan 2017-2021 identifies disaster risk management as one of its priorities for its members with the long-term goal of resiliency through early warning systems, regional exercises and training for coordinated disaster risk reduction. All these goals require cooperation and collaboration among nations, both large and small.

The maritime environment is clearly a critical variable as well when planning for a sustainable blue economy. Intentional unlawful damage to the marine environment, environmental dumping by ships or nations (Iraqi oil dump, Limburg), acidification of the ocean affecting aquatic life, and overfishing are a few of these threats. The effects of damaging the marine environment can be seen in the loss of marine habitats, reduced fish catch, decreased biodiversity, and disease which will directly impact the livelihood and the interests of the entire region. Illegal dumping of waste is now one of the most profitable crimes

impacting the region. These impacts to economic productivity risk conflict as well. International law, as reflected in UNCLOS requires States to take all measures necessary to prevent, reduce and control pollution of the marine environment but without a cooperative approach the probability of success is not very high.

Food security poses a significant risk to international stability. The Indian Ocean region holds about 10-15% of the world's fishing catch and IUU fishing is the largest threat to the sustainment of those resources. Coastal fishing community livelihoods and national food sources are at the highest risk. UNCLOS lays out the legal framework for nations to monitor their vessels via a number of existing international instruments such as the Port State Measures Agreement and a constellation of Regional Fisheries Management Organization (or RFMO) agreements. These vehicles provide a legal and policy framework to address IUU fishing, but the fact remains all nations do not do an effective job in monitoring those vessels flying under their flag.

Maritime Safety risks are also critical to manage. Since the beginning of 2017 there have been over 282 reported incidents of maritime vessels being sunk, foundered, grounded or lost. Risks include: a) the potential miscalculation and resultant conflict arising from military forces operating in close proximity to each other; b) the environmental and human risk of mariners operating in inclement weather or in congested areas such as the straits and choke points; c) the high risk of navigating during natural disasters in the Indian Ocean region; and d) the loss of coastlines due to rising seas which increase the economic and societal risk of forced migration from coastal areas. The International Maritime Organization (IMO), a United Nations specialized agency, is responsible for the safety and security of shipping and the prevention of marine and atmospheric pollution by ships. They have introduced measures to assist in achieving safer and more secure oceans through the introduction of measures such as the International Ship and Port Facility Security (ISPS) code; Automatic Identification Systems (AIS); the Ship Security Alert Systems (SSAS) and the global Long-Range Identification and Tracking (LRIT) of ships. The fact remains it is difficult even for nations such as India and the United States, that possess a high level of maritime capacity and capability, to achieve maritime domain awareness on a consistent basis. Effective burden sharing and cooperation is essential to achieve a common operating picture of the maritime domain particularly in the IOR.

Good Maritime Governance

So what do we do about these challenges? The simple answer is we actively work together under an agreed framework in a cooperative manner but coming to that

end state is not simple. As I mentioned, the balancing act in front of us is between maritime threats and risk on one side and maritime freedom underscored by international law on the other. Freedom to fly, sail, and operate anywhere international law allows are freedoms that each of our nations enjoys. These are not privileges given or withheld at the whim of any coastal nation. It is the reason the prosperity of the region has improved throughout history and it is the reason nations have fought in global struggles to preserve those freedoms. That is our objective, but our dilemma is to achieve it.

To confront the challenges and take advantage of the opportunities presented will require a coordinated team effort... one nation will not succeed alone. Cooperation is an area we must improve. To do so, to build effective security cooperation, we must trust each other which takes time and effort. According to Shivshankar Menon “the Indian Ocean region as a whole is one of the least economically integrated regions of the world--- The 38 states around the Indian Ocean account for over 35% of the world population but only over 10% of the world GDP. Rather strangely these states are more integrated with the rest of the world than they are with each other.”¹¹

So how do we address this trust deficit? The mission of my organization, the Daniel K. Inouye Asia Pacific Center for Security Studies (DKI APCSS) is to build trust and we do so through the emphasis in our programs of three core principles: transparency, mutual respect, and inclusion. The question I would offer is: How can we bring that philosophy to the Indo-Pacific, especially inclusion? At the recent Indian Ocean conference held in Vietnam, U.S. Principal Deputy Secretary of State Alice Wells emphasized the need for a stronger regional architecture to improve governance in the region. She noted the lack of an inclusive architecture and structure which makes it difficult in both the economic and security realm to address challenges to international rules and norms that have allowed for unprecedented global prosperity.¹² While the Indian Ocean Region has multiple sub regional organizations an inclusive regional structure is not yet in place. Without that inclusive body, it is difficult to address sustainable security and

¹¹ Shivshankar Menon, *Security in the Indian Ocean*. Institute of South Asian Studies (ISAS)., Apr 24). *Security in the Indian ocean*. Retrieved 2018, from ETH ZURICH: <http://www.css.ethz.ch/en/-services/digital-library/articles/article.html/bc0d13c3-8948-4477-b660-4cc74d0574a8/pdf>. April, 11, 2017, p1

¹² Alice G. Wells, *Building Regional Architectures, Remarks at the Third Indian Ocean Conference*. Retrieved from WWW.STATE.GOV: <https://www.state.gov/p/sca/rls/rmks/2018/285557.htm> Aug 28, 2018, p 4

economic challenges such as protecting the SLOCS, achieving effective maritime domain awareness, preserving the oceans, and putting in place standards and best business practices.

The goal should be a centralized structure to build a vision for the region, establish rules and norms of order and organize collective action to achieve it. The Indian Ocean Naval Symposium is the largest active organization with 35 members. Bangladesh chaired IONS first Search and Rescue Exercise (IMMSAREX) last year which was a great step forward putting plans into action. Military exercises serve multiple purposes to include training and capability enhancement, but of paramount importance can serve as confidence building measures across a spectrum of common challenges (e.g. Search and Rescue, Humanitarian Assistance/Disaster Response). Exercises such as MALABAR, MILAN, COBRA GOLD and many smaller multilateral/bilateral exercises offer inroads into stronger economic and political ties.

The Indian Ocean Rim Association (IORA), one of numerous sub regional organizations, includes twenty-one coastal states as members and has nine total priorities with short/medium/long term goals in their Action Plan 2017-2021. The Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC), with 7 member states surrounding the strategically significant Bay of Bengal, has engaged in a number of activities in the recent past. BIMSTEC held its first military exercise in September of this year just following their fourth summit in which member states signed a memorandum of agreement addressing energy cooperation. This activity shows promise for increased integration of the sub region, which historically has been poor. BIMSTEC currently has 14 priority areas, however, which intuitively makes it difficult to achieve significant progress in any one priority and should be adjusted to focus on those of highest promise to capitalize on recent momentum.

Each of the organizations mentioned above, along with others, have their place to affect positive change. The focus needs to be placed on a centralized governance structure that can set and enforce laws and standards, a cooperative model that ensures all nations have access to security capacity for the common good, and a robust exercise program that enhances capabilities and trust. Unless this structure is realized I do not believe the Indian Ocean region will achieve its full potential to integrate and support regional economic growth and a blue economy. I do not believe a new organization is needed but a strengthening and expansion of an existing organization.

A second important aspect of maritime governance is setting and enforcing global rules and norms that respect international law. A legal framework for crimes

committed in waters beyond the territorial sea of any coastal nation must be in place. UNCLOS provides some of that framework, but not all. One program I became familiar with that offers an example of progress made in this arena is the UN Office on Drugs and Crime Global Maritime Crime Program (UNODC GMCP IO). The GMCP assists states to strengthen their capacity to combat maritime crime. They developed a “Piracy Prosecution Model” in which willing nations ensure they have legislation to prosecute the crime domestically and then exercise formal agreements to transfer the criminals and evidence from the maritime forces that apprehended them such as the CMF. The nation concerned can then choose whether to prosecute the criminals.¹³

Respect for rules and norms is demonstrated by nations that pursue the peaceful resolution of difficult issues particularly in the maritime domain. This respect is amply evidenced by the 2012 peaceful resolution of a longstanding maritime dispute in the Bay of Bengal between Bangladesh and Myanmar through the international Tribunal for the Law of the Sea. This action enhanced the maritime resources available to Bangladesh and allowed them to provide valuable growth to increase their gross domestic product in a manner that respected international law. In addition, in 2014 the UNCLOS arbitration tribunal ruled in Bangladesh’s favor in a dispute with India for maritime boundaries. The actions of these nations set a standard for conflict resolution of complex maritime boundaries that all nations should adhere to.

Capacity Building

All nations may not have the capacity to monitor the maritime domain and police the seas, though all have the capacity to generate the political will to work together. Partnership and cooperation are essential for success.

The United States, as one nation, has many programs that increase the capacity of partner nations to respond to shared challenges. DKII APCSS is one of those programs. Our mission is to educate, connect and empower our alumni and in the process develop leaders. We exist as part of a larger security cooperation effort conducted by the United States to ensure all nations, especially those with more limited resources, are afforded the opportunity to share best practices and gain access to capabilities to enhance maritime domain awareness. As an example, we have established a program entitled the Fellowship for Indo-Pacific Security

¹³ *Maritime Crime Programme - Indian Ocean--Regional "Piracy Prosecution Model"*. Retrieved from United Nations Office on Drugs and Crime (UNODC): <https://www.unodc.org/unodc/en/piracy/indian-ocean-division.html>, Nov 11, 2018, p 1-2.

Studies (FIPSS) in partnership with the U.S. State Department that has grown over the past 4 years with great success. In addition, as part of the U.S. Indo-Pacific Maritime Security Initiative (MSI), which the U.S. Congress expanded recently to include Bangladesh and Sri Lanka, DKI APCSS is constructing a course in Maritime Security that commences next summer. This course will take a whole of government approach and will complement the work DKI APCSS has done in enhancing maritime domain awareness for the past 5 years. The entire United States MSI program is designed to increase partner nation maritime security capacity in order to respond to threats in coastal waters while enhancing maritime domain awareness across the region. The focus is not only on boosting capabilities, but also helping partners develop infrastructure, logistical support, strengthen institutions, and enhance the practical skills needed to develop sustainable and capable maritime forces which offer a credible maritime picture. In its first few years MSI has enhanced information sharing, interoperability, and multinational maritime cooperation.

The U.S. is not alone in capacity building efforts as many other nations share their capability to build capacity for regional security as well. India has taken a lead role in the IOR in responding to crisis and offering support where needed. India has increased its training of foreign security forces, taken a lead role in maritime exercises in the IOR, and partnered with the United States in security cooperation. The United States looks to India as a net security provider in the region. Both India and the United States have partnered with nations who contribute to IOR security such as Japan, Australia, and Singapore along with others. Historically, the most successful efforts that build capacity in the maritime domain are inclusive, produce effective agreements, share burdens, and ensure a balanced approach to regional security. The goal must be to limit the areas, whether physical or legal that perpetrators can hide in.

I was asked by some of our alumni, prior to the BIMRAD seminar to address what the position of the United States is in the Indo-Pacific and a few words about our Indo-Pacific Strategy.

U.S. Indo-Pacific Strategy

The United States considers itself an Indo-Pacific nation and has for generations. In the late 1700's Americans traveled to China and India to trade goods to assist in paying the debts incurred during the American Revolution. Over the next few centuries the United States became more entwined with the region and during the 20th century saw a significant migration of Asian citizens to our shores. In the

post-World War II era the United States has effectively promoted a free and open Indo-Pacific in which nations with diverse cultures and different aspirations can prosper side by side in freedom and in peace. With millions of our citizens deriving their ancestry from Indo-Pacific nations, the United States has a vested interest in remaining an Indo-Pacific democratic power. The recently released United States National Security and National Defense Strategies take the view that the Indo-Pacific region is critical for the United States continued stability, security and prosperity. These strategies rely on alliances and partnerships. President Trump has termed this a free and open Indo-Pacific Strategy operating on a rules-based system.

Some may ask what exactly those terms mean. A free Indo-Pacific means the United States wants all nations to be able to protect their independence and sovereignty from other countries. At the national level it means good governance, rule of law, and upholding the rights of citizens to enjoy fundamental rights and liberties. An open Indo-Pacific means all nations enjoy access to the global commons, the seas and airways, along with peaceful resolution of territorial and maritime disputes in accordance with international law-- as mentioned was the case of Bangladesh, India and Myanmar. Economically open means free, fair, and reciprocal trade and investment. It also means transparent agreements are matched with public-private partnerships, which have historically been beneficial for all and most importantly offer an approach that builds local jobs and therefore local prosperity. Governments cannot do this alone nor should they and no nation can or should dominate.

To quote Secretary of Defense James Mattis at the Shangri La Dialogue this year (2018):

“America is in the Indo-Pacific to stay. This is our priority theater, our interests, and the regions are inextricably intertwined. Our Indo-Pacific strategy makes significant security, economic, and development investments, ones that demonstrate our commitment to allies and partners in support of our vision of a safe, secure, prosperous, and free Indo-Pacific based on shared principles with those nations, large and small. Ones who believe their future lies in respect for sovereignty and independence of every nation, no matter its size, and freedom for all nations wishing to transit international waters and airspace, in peaceful dispute resolution without coercion, in free, fair, and reciprocal trade and investment, and in adherence to international rules and norms that have provided this region with relative peace and growing prosperity for the

last decades.”¹⁴

The United States commitment to partner with Indo-Pacific nations is demonstrated by the annual \$1.4T in two-way trade with the region. Secretary of State Pompeo recently announced \$113M in new economic initiatives to support foundational areas of the future: digital economy, energy and infrastructure. This is considered a down payment for United States commitment to the region and for the first time contained a contribution to the Indian Ocean Rim Association. He also announced an initial step of \$300M in security assistance to the Indo-Pacific at the recent ASEAN Regional forum to include Foreign Military financing (FMF) to strengthen maritime security, humanitarian assistance/disaster relief (HA/DR), and peacekeeping operations as well as International Narcotics and Law Enforcement (INCLE) funds to counter transnational crime. Over one third of that will go to Bangladesh, Sri Lanka, and Nepal. In addition, the United States Congress recently passed the Better Utilization of Investments Leading to Development (BUILD) act, which is intended to “facilitate the participation of private sector capital and skills in the economic development of countries with low or low middle income economies”.¹⁵ The legislation sets a priority on less-developed countries, minority and women-owned business, small business, and women’s economic empowerment. Another effort is the Bay of Bengal Initiative wherein the United States will work with India, Bangladesh and Sri Lanka and others to share commercial shipping information and improve detection and response to emerging threats in the Bay of Bengal. These investments are intended to be transparent, sustainable and meet the requirements of the nations involved.

In summation then, we have many challenges in the Indo-Pacific region, but I am an optimist. In my discussions with our DKI APCSS alumni I see exceptionally talented people who share my hope for the future of our global community. I also know from my experiences that we must work together, but do so with a purpose. Building trust and cooperation takes time, but we must move beyond merely discussing what should be done and take positive action with a firm intent of being successful.

To achieve the balanced end state envisioned, I offer the following critical elements of a stable, prosperous and peaceful region in the maritime domain:

¹⁴ James N. Mattis, *Remarks by Secretary Mattis at Plenary Session of the 17th IISS Shangri-La Dialogue*. Retrieved from [dod.defense.gov](https://dod.defense.gov/News/Transcripts/Transcript-View/Article/1538599/remarks-by-secretary-mattis-at-plenary-session-of-the-2018-shangri-la-dialogue/): <https://dod.defense.gov/News/Transcripts/Transcript-View/Article/1538599/remarks-by-secretary-mattis-at-plenary-session-of-the-2018-shangri-la-dialogue/>, June 2, 2018, p 3.

¹⁵ United States Congress, *BUILD Act of 2018*. Retrieved from [Congress.gov](https://www.congress.gov/bills/115/congress/senate/bills/2463) (S.2463 - BUILD Act of 2018 — 115th Congress (2017-2018)): <https://www.congress.gov/bills/115/congress/senate/bills/2463> Feb 27, 2018.

- a. The active development of trust between nations via confidence building measures.
- b. The adherence to international norms, standards and laws.
- c. The preservation of freedom to fly, sail and operate in the maritime commons.
- d. A collective and cooperative effort to achieve Maritime Domain Awareness
- e. Collaboration and cooperation among regional partners, no matter the nation size.
- f. National cooperation among agencies--Whole of government solutions within nations.

The views expressed in this article are those of the author and do not necessarily reflect the official policy or position of the Daniel K. Inouye Asia Pacific Center for Security Studies, the Department of Defense, or the U.S. Government.

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MARINE POLLUTION CONTROL: GOVERNANCE CHALLENGES

Cheryl Rita Kaur

Abstract

Marine pollution is a challenging issue as it involves present and emerging areas (e.g. fisheries, shipping, ecosystems, and biodiversity) and are often transboundary in nature, making governance solutions complex. The continuing threat of pollution on coastal and marine environment and resources has been addressed using national, regional, and international governance mechanisms. Recent deliberations emphasise on the need for coordinated, adaptive and directed responses to the challenges and opportunities in accordance to the frameworks of the United Nations Convention on the Law of the Sea (UNCLOS), Sustainable Development Goals (SDGs), and other relevant environmental treaties. This paper focuses on the coastal and marine pollution management frameworks in Malaysia and the region. Existing management frameworks have been developed through regional projects and programmes supported by various international (e.g., UNEP) and regional institutions (e.g., ASEAN, COBSEA, PEMSEA, IORA, LMEs). Although these frameworks take a holistic and functional management approach, there is a general limitation in terms of legally binding regional policies on addressing marine pollution due to the varying geographical, political, social as well as economic settings of countries. Countries have been active in various projects and programmes in the region, though compliance to obligations of the international and regional conventions on coastal and marine pollution management had been limited in some areas. For instance, an analysis of the drivers and pressures on coastal and marine ecosystems as well as its current state show that pollutants persist despite efforts to manage their release from anthropogenic sources. This paper provides a case study focusing on marine plastic pollution as an emerging issue, with an emphasis on actions by Malaysia. On a broader level, the option for a region-wide and legal framework for effective management of coastal and marine pollution issues are further explored.

Keywords: Marine Pollution, Transboundary, Environmental Treaties, Region, Malaysia.

Introduction

The Maritime Institute of Malaysia (MIMA) is a policy research institute set up by the Malaysian Government to look into matters relating to Malaysia's interest at sea, and to serve as a national focal point for research in the maritime sector. One key task of the Institute is to complement the efforts of the various government

agencies involved in the maritime sector by mobilising expertise to assist and support them in national maritime policy planning and implementation.

From the age of sail till modern era, humankind has consistently ventured and explored sea to ensure their better livelihood. In the contemporary context, as land resources are depleting in an unprecedented rate, ocean borne activities have flourished immensely. The United Nations has taken this into cognisance and highlighted these issues in Sustainable Development Goals (SDGs)¹ in Goal 14 i.e. Conserve and sustainably use the oceans, seas and marine resources for sustainable development². The growing importance of oceans draws attention of all states and many non-state actors, which has created a multidimensional political landscape for addressing ocean-related issues.

Sea, being a global common, does not belong to any particular state. As such, actions and policies on sea affairs by different states as maritime authorities have made the sea governance complex. This creates a demand for improved understanding of the ocean and the use of modern and sophisticated technologies for maritime activities including exploration and utilisation of maritime resources. The best way of adopting rules of conduct at sea is therefore through international agreements and, in particular, through regional approaches. This would ensure the best use of sea resources in a sustainable manner, where parties involved in the decision-making are aware of each other's priorities and needs. Against this background, this paper was presented at the Bangladesh Institute of Maritime Research and Development (BIMRAD) at its maiden International Seminar in November 2018 themed Maritime Good Governance towards Sustainable Development. Some of the interconnected issues deliberated included the following areas i.e. broader concept of good governance leading towards sustainable development; role of good governance in the exploration and the utilisation of marine resources; maritime security and good governance in the Indian Ocean Region; governance challenges for pollution control, as well as the role of law enforcing agencies to ensure good governance at sea.

¹ Malaysia began her journey towards sustainable development since the 1970s when the New Economic Policy (NEP) was introduced in 1970s. All the subsequent five-year Malaysia development plans have underscored the elements of sustainable development encompassing sustainable economic growth, as well as mainstreamed environmental conservation.

² Acknowledging the SDGs 2030 as the blueprint to achieve a better and more sustainable future, specific attention is placed here on SDG Goal 14 focusing for instance on Target 14.1 (marine pollution), 14.2 (sustainable management and protection of the coastal and marine ecosystems), 14.5 (marine protected areas), and others that are related to sustainable ocean governance measures.

Challenges faced in the governance of the sea revolve around a number of factors. For instance, the seas are increasingly being used both to provide the essentials of life and for commercial purposes. As a result, cases of overexploited fisheries, pollution by pesticides, fertilisers, chemicals and waste washed from land and the effects are increasingly witnessed. Additionally, in the modern era of unbounded use of plastic materials in different forms are also a major cause for marine pollution. In addition, the increasing effects of climate change are evident on ocean temperature, currents, food chains and in extreme events like severe natural disasters including flooding and storms. Biodiversity and marine life related to sea are also being affected due to oil spillage from different sources. Moreover, with the introduction of modern technology, over exploration and over exploitation of fishes and marine resources (minerals and petroleum resources) are also degrading the marine environment, which has an adversary effect on maritime governance.

As the UN member countries aim to achieve SDG goals at all levels, it is necessary to identify challenges and threats to achieving these goals. A large number of challenges are common to all countries, and they require joint global response. Likewise, the threats to climate and the health of the oceans can only be addressed through innovation and global cooperation. Measures against marine pollution or other threats to the marine environment are highly essential to ensure better livelihood of humankind, in connection to ensure sustainable development. Also, collaborative efforts among different nations and regional actors to control marine pollution should be a priority mechanism towards ensuring good maritime governance. With this as the backdrop, the presentation delivered at BIMRAD 2018 also highlighted the issues and challenges faced and existing international practices in the areas of policymaking and actions to deal with such challenges. It also highlights on states' obligations to protect from maritime pollution, governance challenges to control marine pollution and options for effective pollution control to ensure good governance for sustainable development.

Malaysia and the Indian Ocean Region

The Indian Ocean Region consists of an important Large Marine Ecosystem (LME) area i.e. the Bay of Bengal Large Marine Ecosystem (BOBLME). The area involves cooperation fostered amongst eight countries which include Indonesia, Malaysia, Thailand, Myanmar, Bangladesh, India, Sri Lanka and the Maldives. The BOBLME area at large includes the Bay of Bengal itself, the Andaman Sea, the Straits of Malacca (SOM) and the Indian Ocean. More specifically, besides the high seas area, the area also comprises coastal ecosystems, islands, continental shelves, as well as coastal and marine waters of the northern part of the Island of

Sumatra in Indonesia (Provinces of Aceh, Riau, North Sumatra and West Sumatra), the West Coast of Peninsular Malaysia, the West Coast of Thailand, Myanmar and Bangladesh, the East Coast of India; the Andaman and Nicobar Islands of India, Sri Lanka, and the Maldives. The BOBLME covers an area of about 6.25 million square kilometres. Its boundaries are based on the delineation of the world's LMEs by the National Oceanic and Atmospheric Administration (NOAA), but have included also Maldives and northern Sumatra in Indonesia for the sole purpose of fostering cooperation in the BOBLME programme signed in 2009 (Figure 1).

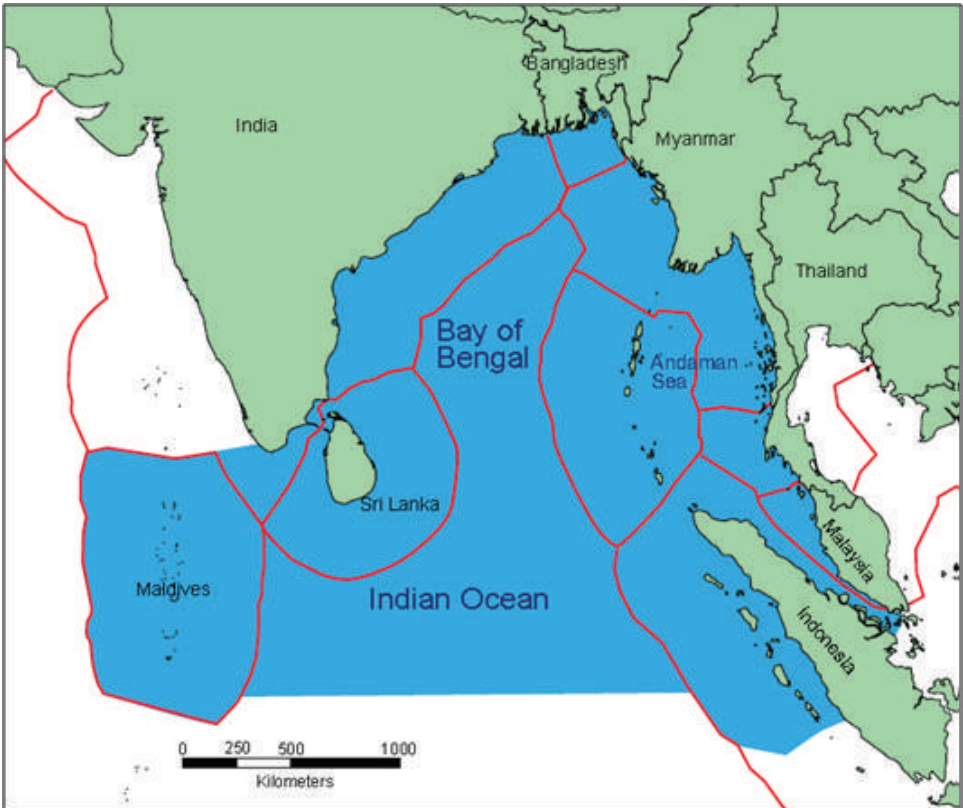


Figure 1. The BOBLME programme area in the Indian Ocean

Source: www.boblme.org

The BOBLME countries have a combined total population of about 1.8 billion people, which is equivalent to about 25 percent of the world's population (DESA, 2011). The area is generally rich in natural resources, which includes extensive minerals and energy resources, marine living resources especially fisheries, as well as forest and land resources. Fish production alone reaches about six million tonnes per year, which is in essence more than seven percent of the world's marine catch. This LME also supports a wide range of habitats, including extensive tracks of mangroves, coral reefs, and seagrass beds (Changsanget al., 1999; Chavanet al., 1992; Conservation International, 2008; Ellison, 1998; Ertemeijer & Lewis, 1999; Fonseca et al., 2000). It is an area of high biodiversity, with a large number of endangered and vulnerable species recorded to be found in the LME. Accordingly, the BOBLME and its natural resources is of considerable social and economic importance to the countries bordering the area. The specific aim of the programme hence revolves around improving lives of the coastal populations through improved management of the environment and its fisheries.

Activities such as fishing, marine farming, tourism and shipping contribute to not only ensuring food security for the people, but also provide employment opportunities and contribute to the national economies. For instance, there are some 400,000 fishing boats operating in the area with some 4.5 million people employed in the fisheries sector and associated activities. Rapid population growth, high dependence on aquatic resources for food, trade and livelihoods, and changing land use patterns are however imposing adverse impacts on the marine ecosystems on a whole.

Among the major issues that have been identified in the area include: (i) overexploitation of marine living resources, (ii) degradation of coastal habitats, and (iii) pollution and water quality degradation. Each of these issues is further accompanied by factors such e.g. elaborating further on the above mentioned factors: (i) a decline in the overall availability of fish resources, changes in the species composition of catches, a high proportion of juvenile fish in the catch, and changes in marine biodiversity, especially through the loss of vulnerable and endangered species; (ii) loss and degradation of mangrove habitats, degradation of coral reefs, as well as loss and damage to seagrasses; and under issue (iii) sewage-borne pathogens and organic load, solid waste and marine litter, increasing nutrient inputs, oil pollution, persistent organic pollutants and persistent toxic substances, sedimentation, and heavy metals. Under the BOBLME programme, the member countries have been cooperating in various means and ways towards developing regional and national responses on the issues that have been identified and their causes. As a member country, Malaysia has benefited on the areas addressed under the

BOBLME programme, including on general coastal and marine governance assessment and improvements. Malaysia envisages to continue to play an active role as well as in fulfilling commitments towards meeting the nation's international obligations related to environmental and resources sustainable use and management.

Additionally, an active participation is displayed by Malaysia through the Indian Ocean Rim Association (IORA). The platform is a dynamic intergovernmental organisation aimed at strengthening regional cooperation and sustainable development within the Indian Ocean Region through its 22 Member States and nine Dialogue Partner. The IORA Council of Ministers in 2007 identified six priority areas for the Association targeted from the medium to long term goals i.e. Maritime safety and security; Trade and investment facilitation; Fisheries management; Disaster risk management; Tourism and cultural exchange; Academic, Science and technology; blue economy; as well as Women's economic empowerment.

Trade in the Indian Ocean Region

The IORA region is synonymous with commerce for centuries and is progressing further. Total half of the world's container ships and two thirds of the world's oil shipments pass through the Indian Ocean, including key transit points including the Bab el-Mandeb, Straits of Hormuz and the SOM. Emerging economies surrounding the seas in the area will ensure that the importance of the region to the global trade environment will only increase in importance and significance in the years to come, including the need to promoting sustained growth and balanced development in the countries bordering the region in line with the SDGs and other global commitments.

In addition, the Indian Ocean Rim Business Forum (IORBF), established in 1997, brings together the private sector and industry groups from across the region to formulate policy and project recommendations to the IORA governments. Furthermore, the IORA Working Group on Trade and Investment (WGTI) brings together government trade experts who work towards harmonising ways of doing business in the IORA region. Amongst others, recent focus areas under these two groups have been into research on how trade contributes to not only job creation and poverty alleviation, but also sustainable and balanced economic growth in the region; as well as harmonising efforts with related IORA priority areas and cross-cutting issues, particularly Blue Economy.

Closer at home, the Maritime Institute of Malaysia (MIMA) in cooperation with the IORA Regional Secretariat and Ministry of Foreign Affairs Malaysia will be spearheading a capacity building programme focusing on Sustainable Development

for Ports and Shipping in the Indian Ocean Region for Maritime Connectivity in April 2019 in Malaysia. The objectives include to enhance competencies in regulating and overseeing ports and shipping in countries in the IORA region, better manage and operate port terminals and shipping, provide insights into best practices in port and shipping's regulation, management and operation, as well as increase integration between the national and regional institutions in the development and management of programmes focusing on ports and shipping.

Malaysian Efforts towards Sustainable Management of the Straits of Malacca

The Straits is an important sea area for the littoral states, encompassing major marine and coastal ecosystems and supports a major fisheries industry (Tables 1 and 2). At the same time, more than 80,000 commercial vessels traversed the Straits in 2018. In addition, there are as many as 15,000 fishing vessels in the SOM, as well as numerous other vessels that are involved in cross-straits voyages between the three Littoral States. Navigation in the Straits is therefore an activity which requires the provision of adequate safety of navigation as well as environmental protection measures on the part of the Littoral States.

Table 1. Important marine and coastal ecosystems in the Straits

Characteristics	Figures
Length	About 500 nautical miles or 900 from Rondo Island to Koh Phuket (northern limit) to the Karuman Island and TanjungPiai. It is the longest Straits used for international navigation.
Width	Widest point - 220 nautical miles at northern limits Narrowest point – 8 nautical miles around Riau archipelago
Marine and Coastal Ecosystems recorded	<p>Mangroves – estimated at about 498,109 hectares</p> <ul style="list-style-type: none"> • Malaysia (93,503) • Indonesia (404,606) <p>Coral Reefs</p> <ul style="list-style-type: none"> • Malaysia – fringing reefs in Port Dickson, Payar and Perak Islands. • Indonesia – some fringing reefs in the northern Sumatera areas. <p>Seagrass</p> <ul style="list-style-type: none"> • Malaysia – Langkawi, Port Dickson, SeberangPrai, TelukNipah (9 species recorded). • Indonesia – East coast of Sumatera (12 species recorded).
Fisheries landings	More than 700,000 metric tonnes from the West Coast of Peninsular Malaysia (largest component of landings comes from the Straits).
Population	23million in Peninsular Malaysia
Length of the Traffic Separation Scheme (TSS)	240 km

Adopted from various sources

Table 2. Economic value of the Straits (000,000 USD)

Elements	Malaysian coastline	Straits-wide
Coastline(km)	956.00	2,727.00
Fisheries	341.11	801.53
Aquaculture	57.62	155.96
Mangroves	1,747.65	5,557.87
Mudflats	31.58	31.34
Coral reefs	34.57	484.84
Seagrass	8.10	8.19
Seaweed	1.02	11.46
Beach	169.23	814.45
Total	2,173.61	7,534.21

Source: *GEF/UNDP/IMO Regional Program for the Prevention and Management of Marine Pollution in the East Asian Seas.*

The Cooperative Mechanism on Safety of Navigation and Environment Protection in the Straits of Malacca and Singapore provides for a framework cooperation between the littoral states (Indonesia, Malaysia and Singapore) and users of the Straits. It offers a platform to engage user states, the shipping industry and other stakeholders to participate and share the responsibility of maintaining and enhancing the safety of navigation and protection of the marine environment in the Straits so that it is kept safe and protected, and continues to be open for safe navigation. In its operation, the Mechanism duly respects the sovereignty, sovereign rights, jurisdiction and territorial integrity of the littoral states and is consistent with international law, especially in line with Article 43 of the United Nations Convention on the Law of the Sea (UNCLOS).

The specific components under the Cooperative Mechanism include the Cooperative Forum (CF), the Tripartite Technical Experts Group (TTEG) and the Project Coordination Committee (PCC). The CF is the main avenue for the conduct of general dialogue and exchange of views on issues of common interest in the Straits in a coordinated manner. The TTEG, on the other hand, the littoral states set guidelines which subsequently became the terms of reference for the TTEG and focuses on the following areas i.e. working to enhance safety of navigation, promote close cooperation and coordination as well as anti-pollution policy and measures in the Straits, and initiate consultation with the IMO and users of the Straits. The TTEG

has come a long way and proven to be an effective framework of cooperation which systematically coordinates measures between the three littoral states. Some of the more significant achievements include the following:

- The IMO-adopted a Routeing System in the Straits in 1981 for navigation;
- The IMO-adopted mandatory ship reporting system or STRAITREP which was implemented in 1998;
- Survey of critical areas and investigation of dangerous or unconfirmed shoals and wrecks in the Straits from September 1996 to June 1998; as well as
- Establishing close cooperation with the user states through financial and technical contributions through projects and other initiatives over the years.

The PCC is tasked to oversee the coordination of the implementation of projects in the Straits in cooperation between the littoral states and sponsors of these projects.³ As examples, projects in the Straits include the following:

- (i) Removal of wrecks in the TSS area;
- (ii) Cooperation and capacity building on HNS preparedness and response;
- (iii) Demonstration project of Class B AIS transponder on small ships;
- (iv) Setting up of a tide, current and wind measurement system;
- (v) Replacement and maintenance of aids to navigation;
- (vi) Feasibility study on the emergency towing vessel (ETV) services;
- (vii) Concept study on real time monitoring of under-keel clearance;
- (viii) Ship traffic management system;
- (ix) Study on a blueprint for the future development of safety of navigation and environmental protection;
- (x) Guidelines on the place of refuge for ships in need for assistance; and
- (xi) Oil spill monitoring and risk assessment.

Challenges in the Straits

The traditional issues from shipping activities in the SOM revolve mostly around accidental spills from ships carrying oil and hazardous substances, as well as illegal oily discharge during routine ship operations (which causes tarball pollution on the shores), and illegal dumping of solid waste, sewage and garbage.

Records show that more than 800 accidents have been recorded over the last decade or so. These incidents have resulted in environmental damages to the Straits, mostly from oil pollution as shown in Table 3. Besides oil pollution from

³ Increasingly, it can be seen that the focus of the littoral states and user of the Straits are slowly moving from more specific safety of navigation projects towards more direct 'environmental' focused projects.

spills, operational and illegal discharges also contribute oil pollution to the Straits' environment (Table 4). The Malacca Straits Environmental Profile prepared under the GEF/UNDP/IMO Regional Programme for the Prevention and Management of Marine Pollution in the East Asian Sea for instance estimated the extent of oil pollution from shipping operations in the Straits as follows:

- Deballasting – significant
- Tank cleaning – uncertain
- Bilge water and sludge – 2 tonnes/day amounting to 730 metric tonnes/year
- Discharge from small vessels – 2 tonnes/day from Malaysian vessels and five times as much from Indonesian vessels amounting to about 4,400 metric tonnes/year

Table 3. Some of the major oil, and hazardous and noxious substance spills in the Straits

Date	Vessel Name	Type of Oil and HNS	Quantity of Spillage (barrels)	Location and Cause
6 Jan 1975	<i>Showa Maru</i>	Crude	54,000	Straits of Singapore Grounding
20 Sept 1992	<i>Nagasaki Spirit and Ocean Blessing</i>	Crude	100,000	Straits of Malacca Collision
15 Oct 1997	<i>Evoikos and Orapin Global</i>	Crude	175,000	Straits of Singapore Collision
21 May 1999	<i>Sun Vista</i>	Fuel Oil	14,000	Straits of Malacca Sinking
3 Oct 2000	<i>Natuna Sea</i>	Crude	49,000	Straits of Singapore Grounding
13 June 2001	<i>Indah Lestari</i>	Phenol	89	Johor Straits Sinking

Source: *Marine Department Malaysia*

Table 4. Some of the illegal discharges from vessels recorded in 2018

Date	Location	Type of substance spilled	Approximate quantity seen
21 Jan	SOM	Oil slick	1 – 1.5 m ²
12 Mar	Tg Leman and Temalah Beach in Johor	Massive oil clod	2 km beach area
19 Sept	Pemanggil Island in Johor	Oil slick	50 m ²
19 Sept	Tulai Island in Pahang	Oil slick	30 m ²

Source: *Marine Department Malaysia*

Towards addressing the issue, a memorandum of understanding was established i.e. ASEAN Cooperation for Joint Oil Spill Preparedness and Response in November 2014. For the preparation of a Regional Plan, the first workshop was held in Singapore in 2016, the second workshop in Malaysia in July 2018, which led to the ASEAN Regional Oil Spill Contingency Plan (ROSCP) in November 2018. The roadmap looks into annual training and exercises including table top training. Malaysia is also presently the Chair of the Straits Revolving Fund, up to 2022. The cooperation enables the littoral states to take immediate remedial actions in the event of any oil pollution in the Straits. Further, according to the sources received from the Department of Environment Malaysia, the tightening of regulations concerning tank cleaning and disposal of bilge water and sludge have also further contributed to the significant decline of oil pollution incidents over time.

On a broader level, the shipping carrying capacity study for the Straits by MIMA estimated 122,640 vessels by 2024. Other studies including the World Bank's prediction was recorded at 122,500 vessels in 2025, and the Japan International Transport Institute (JITI)'s projection at 140,000 vessels in 2020. Although the three separate studies on the carrying capacity of the SOMS differ in their methodologies and with slightly different conclusions on the exact amount of shipping the Straits can carry and when that might occur, there is general consensus that shipping density will increase and that congestion will occur; with direct risks on the environment and resources in the Straits.

The more recent records of the number of ships reporting to the STRAITREP in 2017 were 82,644 in comparison to a total of 71,359 vessels in 2009 (Figure 2). The risk associated with shipping depends on the volume of shipping in a particular area, with the number of merchant vessels above 300 GRT in the Straits showing a growth over the years. More specifically, the figures entailed a steady increase from 2009 onwards especially in VLCC/ Deep draft vessels, tankers, and bulk carriers (Table 5). For instance, more than a two-fold increase was recorded in the number of tankers (at 20,629 vessels in 2015 compared to only 9,688 in 1995).

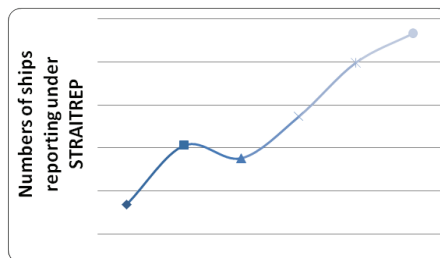


Figure 2. Numbers of ships reporting under STRAITREP (2009 – 2017)

Source: Marine Department Malaysia

Table 5. Number of ships reporting under STRAITREP, 2009 – 2017

Types of Vessel	2009	2011	2013	2015	2017
VLCC / Deep Draft	4221	4539	4825	5324	6711
Tanker Vessel	16398	16223	18296	18470	20629
LNG Carrier	3330	3830	4248	3936	4137
Cargo Vessel	8560	7996	7613	7144	7090
Container Vessel	22310	25552	24658	25389	24446
Bulk Carrier	11186	10851	12658	15168	15411
Ro-Ro	2394	2545	2998	3117	2629
Passenger Vessel	1250	877	1063	925	1776
Livestock Carrier	43	47	55	76	50
Tug / Tow	598	414	563	467	533
Government Vessel	67	57	58	87	54
Fishing Vessel	61	20	27	53	28
Others	941	577	911	803	962
TOTAL	71359	73528	77973	80959	82644

Source: *Marine Department Malaysia*

In terms of the smaller vessels, in 2004 a total of 1,131 ferry movements were recorded in the Straits in addition to 14,144 movements of barter trade vessels. The figure for 2015 stood at 73,691 domestic and 88,989 international voyages (Table 6). This makes for a very complex picture of navigation in the Straits and while vessels do take precautionary vessels vis-à-vis the small craft, the presence of so many such crafts do present a hazard to larger vessels.

Table 6. Ferry and passenger handled at terminals under the Marine Department Malaysia

Year	Domestic Voyage		International Voyage	
	Arrival	Passengers	Arrival	Passengers
2016*	65,481	4,476,650	79,404	1,539,716
2015	73,691	5,293,100	88,989	1,964,703
2014	52,605	3,321,580	58,306	1,060,358
2013	144,810	16,802,386	31,126	2,750,487
2012	134,618	15,274,897	29,206	2,423,170
2011	135,481	14,718,457	34,496	3,050,203
2010	151,850	14,620,058	35,229	4,348,094

Note (*): Until November 2016

Source: *Marine Department Malaysia*

Given the increasing shipping density in the Straits, there are emerging threats and concerns which include the introduction of invasive alien species (IAS) carried by ships' ballast water and sediment, the identification of environmentally sensitive sea areas in the vicinity of dense shipping lanes, as well as harmful air emissions from shipping activities and related climate concerns. Acknowledging this, Malaysia has participated in a number of regional collaborative initiatives and projects. For instance, existing modalities include the marine environmental projects under the International Maritime Organisation (IMO) and the Norwegian Agency for Development Cooperation (Norad), as elaborated further below.

(i) Project 1: Assistance to East Asian countries in ratifying and implementing IMO instruments for the protection of the marine environment Initiating, facilitating and coordinating a legal, policy and institutional process which will lead the relevant ministries and administrations of the beneficiary countries (Cambodia, Indonesia, Malaysia, Philippines, Thailand and Vietnam) to undertake actions aiming at:

- putting in place a legal system that includes a process to prepare for and to ratify or accede to the relevant IMO Conventions which are of high priority to the countries, and promulgating laws and regulations giving full and complete effect to the IMO instruments;

- setting up organisational structures for discharging their responsibilities as Flag State, Port State and Coastal State; and
- setting up a system that will ensure that their ports provide the services of adequate reception facilities according to the maritime activities of the port.

The long term goal of the project is the ratification/accession and effective implementation of IMO instruments for the protection of the marine environment. The short term goal is to strengthen the national capabilities for countries to become part to and effectively implement IMO's environmental instruments.

(ii) Project 2: Prevention of pollution from ships through the adoption of Particularly Sensitive Sea Areas (PSSAs) within the South-East Asia region (Indonesia, Malaysia, Philippines and Vietnam)

The seas in the region possess globally and regionally significant ecological resources that are under pressure from many sources and activities, including international shipping. Preventing pollution from international shipping through appropriate protective measures would provide for long-term benefits to the marine environment in the region. The long-term objective is the protection of the marine environment from international shipping through the adoption by IMO of the PSSAs. This project hence assisted countries to prepare proposals to be submitted to IMO for the designation of PSSAs, areas recognised for their significance in terms of ecological, socio-economic or scientific criteria which are vulnerable to damage by international shipping, together with the adoption of protective measures applicable to international shipping. The aim being to lead countries through the whole process with the expectation that it will be easiest to replicate it in the future when needed. More specifically, Malaysia submitted a proposal for establishing a PSSA in the Kukup Island and Tanjung Piai in the southern part of the SOM to the IMO 71st Session of the Marine Environment Protection Committee (MEPC) Meeting in July 2017.

(iii) GloMEEP

GloMEEP is a GEF-UNDP-IMO project aimed at supporting the uptake and implementation of energy efficiency measures for shipping, thereby reducing greenhouse gas emissions from shipping. The Project supports ten Lead Pilot Countries of the project to implement measures on the legal, policy and institutional reforms; awareness raising and capacity-building activities; as well as establishment of public-private partnerships to support low carbon shipping. The Lead Pilot Countries of the GloMEEP project include Argentina, China, Georgia, India, Jamaica, Malaysia, Morocco, Panama, Philippines and South Africa.

Some of the more recent developments include the following:

- The GloMEEP Project developed a package in 2018 to train maritime administrations on the provisions of this regulation i.e., the IMO data collection system for fuel oil consumption.
- From 1st Jan 2019, ships of 5,000 gross tonnages and above will have to collect consumption data for each type of fuel oil they use. These ships account for approximately 85% of CO2 emissions from international shipping.
- Data collected will be kept in a database hosted by IMO and provide a firm basis on which future decisions on additional energy-efficiency measures can be made.
- The GloMEEP training course, the first of its kind, was delivered in Hangzhou, China in Nov 2018. Some 25 participants learned how to develop a ship fuel oil consumption data collection plan, verify the data collected and how to report data to IMO.

Making a Situation Analysis and Moving Forward

It can be observed that a number of initiatives have been taken to improve cooperation, coordination and integration to achieve greater coherence of policies and strategies dealing with governance at the regional and national level. Overall management strategy for improvement include regional initiatives and legislations, technology invention, data and monitoring system, effective enforcement, as well as awareness and education. In most cases however, successful implementation only works if effectively implemented at the national level.

The present environmental management in the Straits for example comprises of national and international laws which are supported by traffic management measures such as the Traffic Separation Scheme, the Mandatory Ship Reporting System and the Vessel Tracking Management System as well as national and sub-regional plans for oil spill response. The systems in place form the backbone of vessel-based pollution prevention and management in the SOM and could be considered as the 'life-support-system' of the Straits.

Examples that complement efforts by Malaysia, for instance, is the ratification of all MARPOL annexes (I – VI), the Ballast Water Convention, as well as other environment-related IMO conventions to ensure high standards are put in place for the improvement of safety of navigation and in ensuring environmental protection at the same time. This would also provide for the Straits a more comprehensive protection from vessel-based pollution and accord for more authority in taking environmental protection measures. Similar efforts should be implemented at the region-wide level (Figures 3 and 4).

As of 11 th Feb 2019													
	MARPOL 73/78 (Annex I/II)	MARPOL 73/78 (Annex III)	MARPOL 73/78 (Annex IV)	MARPOL 73/78 (Annex V)	VI)	London Convention 72	96	OPRC Convention 90	HNS Convention 96	HNS PROT 2010	OPRC/HNS 2000	ANTI FOULING 2001	BALLASTWATER 2004
Brunei Darussalam	x												
Cambodia	x	x	x	x									
Indonesia	x	x	x	x	x							x	x
Malaysia	x	x	x	x	x			x			x	x	x
Myanmar	x	x	x	x				x					
Philippines	x	x	x	x	x	x	x	x				x	x
Singapore	x	x	x	x	x			x			x	x	x
Thailand	x							x					
Viet Nam	x	x	x	x	x							x	

Figure 3. Ratification status of the IMO Conventions in Southeast Asia, with a focus on SOMS

Source: <http://www.imo.org/en/About/Conventions/StatusOfConventions/Pages/Default.aspx>

Other forward looking initiatives undertaken for the Straits include the adoption of satellite technology image for early detection in the Malaysian waters and in the SOM through the Earth and Sea Observation System (EASOS), a cooperative programme by Malaysia and the UK Space Agency.

As of 11 th Feb 2019	MARPOL 73/78 (Annex I/II)	MARPOL 73/78 (Annex III)	MARPOL 73/78 (Annex IV)	MARPOL 73/78 (Annex V)	VI)	London Convention 72	96	OPRC Convention 90	HNS Convention 96	HNS PROT 2010	OPRC/HNS 2000	ANTI FOULING 2001	BALLASTWATER 2004
Australia	x	x	x	x	x	x	x	x			x		x
Bangladesh	x	x	x	x	x			x					x
Comoros	x	x	x	x				x					
India	x	x	x	x	x			x					x
Iran	x	x	x	x	x	x	x	x			x		x
Kenya	x	x	x	x	x	x	x	x					x
Madagascar	x	x	x	x			x	x			x		
Maldives	x			x									
Mozambique	x	x	x	x				x					
Oman	x	x	x	x		x		x					
Pakistan	x	x	x	x		x		x					
Somalia													
South Africa	x	x	x	x	x	x	x	x					x
Sri Lanka	x	x	x	x									
United Arab Emirates	x	x	x	x		x							
United Rep. of Tanzania	x	x	x	x		x		x					
Uruguay	x	x	x	x	x		x	x			x		x
Yemen							x	x			x		

Figure 4. Ratification status of the IMO Conventions in Southeast Asia, with a focus in the wider Indian Ocean Region

Source: <http://www.imo.org/en/About/Conventions/StatusOfConventions/Pages/Default.aspx>

On a broader level in the Indian Ocean however, marine pollution governance will have to be assessed against the overall legal, administrative and political context, and the constraints experienced by countries. The regional context is particularly important because countries share the same marine environment and consequently, national activities may be expected to have a transboundary impact. For instance, there is considerable variance in the legal, administrative and political situation across the countries in the Indian Ocean region, including the administrative structures and legislation pertaining to marine conservation and utilisation. Many of these countries have made progress towards improving national policies and legal and institutional frameworks with a view to achieving the goal of the sustainable management. However, the effectiveness of these efforts has been hampered by a number of constraints i.e., (a) legal and policy, (b) institutional, (c) fiscal, as well as (d) community participation and public awareness.

In addition, discussions at the IORA platform show the lack of institutional capacity to implement policies and enforce regulations is linked to financial constraints. The effort required to deal with the immense transboundary issues that impact on the region is beyond the means of any one country, all of which experience weighty domestic social and economic concerns. Therefore, there is a need to strengthen institutional capacity and improve integration and coordination between national and local government units, and tap into community-based participation to achieve the conservation and management objectives.

A major shortfall is the lack of widespread ratification of international agreements pertaining to the prevention of marine pollution (as illustrated in Figures 3 and 4 above). The participation of countries in relevant international instruments demonstrates commitment to address cross-cutting issues of transboundary concern. However, many of these international commitments are yet to be fully incorporated into domestic policies and legislation. Furthermore, there is also still the need to assess how countries in the region meet their national environmental objectives and how these objectives fulfil countries' international obligations and commitments. At the grassroots level, the lack of local stakeholders' consultation and involvement in planning, decision-making, implementation and enforcement undermine effective implementation by responsible agencies. There is thus a need for continuous coordination and collaboration not just between governments but also among agencies, and between the central government and the various sub-national units.

Conclusion

Our dependence on seaborne trade and the transportation of oil means that the sea will continue to be at risk from maritime transportation. Addressing sea-borne

marine pollution requires a comprehension of multiple issues, and is multi-tiered involving different levels of policy-making, management and enforcement in the region. Much has been done to address the problem through a framework of international conventions, non-legal instruments, as well as regional and national actions. The prognosis may be good in some areas, but countries would have to be vigilant. At the same time, new issues would also need to be addressed to ensure that marine good governance is achieved.

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ROLE OF LAW ENFORCING AGENCIES IN MAINTAINING GOOD GOVERNANCE AT SEA

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Abstract

The Indian Ocean Region has emerged as the world's centre of economic and strategic gravity in the maritime domain. However, the seas are no longer a benign medium and globalisation has led to vulnerability of the oceans. The United Nations Convention on Law of the Seas (UNCLOS 1982), deemed as the 'Constitution of the Oceans' provides a comprehensive legal regime for use of the oceans and their resources but continues to be ambiguous vis-à-vis the rights of utilisation of resources in Areas Beyond National Jurisdiction. There is not a single internationally legally binding treaty for governance of Areas Beyond National Jurisdiction and consequently, the high seas, which cover over 50 % of the earth's surface, continue to be one of the least protected areas on the planet. The responsibility of ensuring safety, security and stability on the high seas fall squarely on the shoulders of men in white uniform. India believes the need to evolve a common rule based orders for the region, which should apply equally to individual nations as well as the global commons, a fact emphasised by Prime Minister Narendra Modi during his key note address at the Shangri La Dialogue in June this year. The foremost imperative in the regard is an effective information sharing arrangement to enhance the Maritime Domain Awareness across the Indian Ocean and to undertake networking between navies and law enforcement agencies. The existing maritime structures in the Indian Ocean have a three layer architecture; SAGAR (which means the 'Ocean' and the acronym stands for 'Security and Growth for All in the Region') at the conceptual level, Indian Ocean Rim Association at the political level, and Indian Ocean Naval Symposium, a unique initiative taken by the Indian Navy in 2008, at the execution level of the navies. As a roadmap and as actionable points, the following merit attention - The oceans are common heritages of mankind and there is a need to respect international law and ensure freedom of navigation in the Global Commons. Therefore, the current international efforts towards strengthening oceans governance and regulating Areas Beyond National Jurisdiction need to be actively supported. The countries of the region also need to work together to evolve a rules based international order for the Region. In order to fully implement the Honb'le Prime Minister's vision of SAGAR, we need to draw up a detailed roadmap for maritime security cooperation among countries of the region. This should clearly outline the role of navies and law enforcement agencies for maintaining good

governance and shaping a positive and favourable maritime environment across the IOR. As an important imperative to promote good governance and assist the navies and law enforcement agencies, there is a need to have an effective information sharing arrangement to enhance the maritime domain awareness across the Indian Ocean Region. In addition, India needs to establish an open and inclusive Regional Fusion Centre for the Indian Ocean. The Indian Ocean has emerged as a contiguous maritime space and there is a need to unleash the full potential of IONS as an effective maritime construct for promoting maritime cooperation among the navies and the law enforcement agencies of the region. In addition, there needs to be greater synergy between IORA at the political level and IONS at the level of the navies as functional enablers to address the entire spectrum of issues for collaborative management and governance of the Indian Ocean. The seas around us are gaining new found importance and there is no doubt that the 21st century is the century of the seas.

Keywords: Globalisation., vulnerability, Indian Ocean, SAGAR, Oceans Governance, IONS.

“Harnessing the Blue Economy and the Role of Law Enforcing Agencies in Maintaining Good Governance at Sea”

1. The theme of the inaugural International Seminar conducted by BIMRAD on 19 Nov 2018 at Dhaka was on ‘Maritime Good Governance Towards Sustainable Development’. This paper presented at the seminal event deliberates on harnessing the blue economy and the role of enforcement agencies in maintaining good governance at sea.
2. The seas now are no longer a benign medium and globalisation has led to vulnerability of the oceans. The threats and challenges on the waters of the Indian Ocean range from persistent asymmetric and non-traditional threats like piracy and maritime terrorism to arms trafficking, drug smuggling, human trafficking and Illegal, Unreported and Unregulated (IUU) fishing.
3. The instabilities and turbulence on land in some parts of the Indian Ocean Region have the potential to spill over into the maritime domain and situation can best be described as FRAGILE. Consequently, over 120 warships from over 20 navies are always present in the Indian Ocean to safeguard their maritime interests. In order to meet the threats and challenges at sea and to put an end to uncertainty, there is a need for vibrant and comprehensive maritime security cooperation between the Navies and Coast Guards of the region.
4. In order to promote maritime cooperation across the Indian Ocean region, there is a need to examine the connectivity options and existing maritime structures.

In addition to the Belt and Road initiative, the connectivity options recommended in the Indo-Pacific Region, range from the International North-South Transit Corridor (NSTC), the Asia Africa Growth Corridor (AAGC), Project MAUSAM, which is an initiative by the Indian Ministry of Culture for Connectivity between people and cultures of the region, The Free and Open Indo-Pacific Concept and SAGAR, which stands for ‘Security and Growth for all in the Region’.

5. The foremost imperative in this regard is an effective information sharing arrangement to enhance the Maritime Domain Awareness across the Indian Ocean Region. As a case in point, it would be apt to highlight that India, Sri Lanka and Maldives, realising the potential for shared maritime security in the region, signed a tripartite maritime security agreement in 2013 for joint cooperation in EEZ surveillance, maritime SAR, anti-piracy efforts and sharing of white shipping information for developing the Maritime Domain Awareness. In addition, India has signed technical agreements with other countries in the region for exchange of white shipping information and enhancing the Maritime Domain Awareness in the waters around us. India has set up an extensive NC3I network by linking up the AIS chain (87), the Coastal Radar Stations (52), and 51 Stations of the Navy and the Coast Guard to provide effective Maritime Domain Awareness in our waters. The anti-piracy operations in the Gulf of Aden by the navies of the world under the SHADE umbrella have been effective in curbing piracy. In addition, as a response to piracy in South East Asian waters, the ReCAAP or Regional Cooperative Agreement Against Piracy in Asia and its Information Sharing Centre (ISC) at Singapore have been highly effective. The model could be replicated in the western Indian Ocean by establishing an open and inclusive Regional Fusion Centre for the Indian Ocean. India has commissioned the Information Fusion Centre for the Indian Ocean Region (IOR-IFC) at the state-of-the-art Information Management and Analysis Centre (IMAC) in Gurgaon.

6. In order to maintain maritime security and safety and promote maritime cooperation, we need to look at the existing maritime structures. In the Indian Ocean Region at the conceptual level we have the concept of SAGAR, which means ‘The Ocean’. SAGAR is the vision of the Hon’ble Prime Minister of India for the Indian Ocean Region, where all boats representing countries of the region rise together with the rising tide.

7. At the Political level, we have the Indian Ocean Rim Association which was established as IOR-ARC in 1997, as a region-wide multilateral structure with an emphasis on economic and social agenda. However, around 2012, Maritime Safety and Security entered the IORA’s agenda. The rationale for including Maritime Security and Safety as a focus area of IORA could have been driven by three key imperatives.

8. The first is Non-Traditional Threats. The prevailing Non-Traditional threats posed by non-state actors including piracy and maritime terrorism needed to be responded in a comprehensive and effective manner. This may have led to the recognition of the need for information sharing to achieve Maritime Domain Awareness as a precursor to an effective response to such threats.
9. The second is Human Safety. This relates to considerations of safety of the increasing number of people working and transiting through the IOR's maritime environment ranging from fishermen, seafarers to tourists. In addition, there was the need for the maritime agencies to respond swiftly to natural disasters for HADR.
10. The third imperative is Maritime Disputes. Possibly, thought was accorded to achieving suitable resolutions of several maritime disputes in the IOR. Several maritime disputes remain dormant in the region but could flare up at any time. Therefore, IORA could play a significant role as a maritime construct to strengthen maritime cooperation among countries of the region.
11. At the execution level of the Navies, we have the Indian Ocean Naval Symposium, which is a unique initiative taken by the Indian Navy in 2008. Today, the IONS provide an effective template to address common challenges of Maritime Security and Safety and to enhance cooperation among navies of the region.
12. Bangladesh as the chair of IONS played a major role in enhancing cooperation among navies and conduct of the SAR exercise. Working Groups had been constituted under the IONS on anti-piracy, search & rescue, anti-pollution and information exchange. These need to be operationalized to make the IONS a more vibrant and effective organisation for promoting maritime cooperation and maintaining maritime security and safety in the region.
13. In addition, there needs to be greater interaction between the IORA and IONS, considering that 20 members of IORA, have their navies as part of IONS, and could be an effective functional enabler.
14. The existing maritime structures in the Indian Ocean Region need to be strengthened and the agreements or initiatives need to be operationalised to its full potential for effective surveillance and enhancing the maritime domain awareness to ensure maritime security and safety, good order at sea and confidence building in the region.
15. The correlation of maritime security to international maritime laws need no emphasis. India and Bangladesh have advocated adherence to international law, maintenance and promotion of peace and stability, maritime safety and security, freedom of navigation and over flight in the region.

16. The United Nations Convention on Law of the Seas (UNCLOS) is often referred to as the 'Constitution' of the oceans. UNCLOS 1982 provides a comprehensive legal regime for use of the oceans and resources. While UNCLOS is specific with regard to rights of maritime states for utilisation of resources within the EEZ, it is ambiguous in Areas Beyond National Jurisdiction.

17. An aspect of international law, which is a cause for concern in that high seas, which cover over 50 % of the Earth's surface, is one of the least protected areas on the planet. There is not a single internationally legally binding treaty for governance of Areas Beyond National Jurisdiction.

18. This lack of governance and legislation was discussed in the United Nation's General Assembly in 2004, and an Adhoc Informal Working Group constituted to address the issue. The Working Group has held several meetings over the years and has drafted an Internationally Legally Binding Instrument (ILBI). This was submitted to the UN General Assembly in July 2017. At this point, therefore, it can best be considered as '*Work in Progress*'.

19. For good governance, there is a need for a rules based international order. During his key note address at the Shangri La Dialogue, in June this year, Prime Minister Narendra Modi made three important statements and I will try and capture the gist of these statements which relate to a rule based international order.

20. First, India believes that there is a need to evolve a common rule-based order for the region, which should apply equally to individual nations as well as the global commons. Such an order must believe in sovereignty, territorial integrity as well as equality of all nations. These rules and norms should be based on consent of all and not the power of a few. He also conveyed that when nations make international commitments, they must uphold them.

21. Second, we should all have equal rules and rights, under international law and freedom of navigation, to the use of common spaces at sea and in the air. We should resort to peaceful settlements of disputes in accordance with international law. When we all agree to live by that code, our sea-lanes will be pathways to prosperity and corridors of peace.

22. Third, India will promote a democratic rule based international order in which all nations, big and small, thrive as equals. To achieve this, India will engage the world in peace with respect, through dialogue and absolute commitment to international law.

23. The countries of the region need to work together to evolve a common rules based international order, which is considered a prerequisite to good governance at sea.

24. The Oceans are common heritage of mankind and responsibility of ensuring safety, security and stability on the high seas fall squarely on the shoulders of men in white uniform because it is the responsibility of law enforcement agencies such as the Navy and the Coast Guard to ensure the security of the Global commons.

25. The concept of Good Governance comprises three aspects, namely, law making, law enforcement and dispute resolution. Law enforcement agencies have a wide range of powers within the maritime zones of a country.

26. However, to meet the challenges in each other's EEZ or in international waters, there is a need for vibrant and comprehensive maritime security cooperation between Navies and Coast Guards of the region.

27. India and Bangladesh are maritime neighbours which have contiguous coastlines and share the waters of nearly 55 rivers. We have a vibrant maritime cooperation and the two navies have signed a technical agreement to exchange white shipping information to enhance the MDA. The countries have also signed an MoU for harnessing the Blue Economy and sustainable development. In the coming years, the cooperation between the two navies is likely to further strengthen into a robust maritime partnership.

28. The bilateral exercise, SLINEX, between the Indian Navy and the Sri Lankan Navy has been expanded both in scope and context, and its latest edition was conducted on September 18. The Coast Guards of India, Sri Lanka and Maldives regularly conduct Trilateral exercise DOSTI to foster cooperation among law enforcement agencies. The Indian Navy also carries out regular EEZ patrols, capacity building and capability enhancement initiatives in the waters of Mauritius, Seychelles and Maldives in coordination with the maritime agencies of these countries. It also carries out coordinated patrols in the Bay of Bengal and EEZ waters with navies of Myanmar, Thailand and Indonesia.

29. The Indian Ocean Region has emerged as the world's centre of economic and strategic gravity in the maritime domain. The waters of the Indian Ocean have emerged as global economic highways and the maritime interests of the countries of the region are linked to unfettered flow of oil and trade.

30. Another unique feature of the Indian Ocean is that 80% of the oil and trade that emanates in the region is extra regional in nature. This implies that if there is any

impediment to the free flow of oil and trade it would have a detrimental impact not just on the economies of the region but the global economy as well. Safety, security and stability on the waters of the Indian Ocean is, therefore, of paramount importance. Networking between the navies and law enforcement agencies and maritime partnership between the countries of the region therefore need to be strengthened in the coming years.

31. Moving on to issues other than security, another challenge on the waters of the Indian Ocean is that indiscriminate pollution of the seas has had a detrimental impact of climate change on the oceans. Consequently, a large percentage of extreme climate conditions turn into natural disasters and this places the Indian Ocean Region virtually in the eye of the storm. Our Navies and Coast Guards have to be ready to provide rapid response for humanitarian assistance and disaster relief.

32. In the past few decades, we have witnessed pollution of the oceans and contamination of the natural marine habitat. Studies have indicated that almost 80% of pollution in the seas emanates from land and if the current rate of pollution continues, in a few decades from now, we will have more plastic in the ocean than fish. The concept of Blue Economy has emerged as a new paradigm and I would like to define harnessing of the Blue Economy as economic development of all maritime interests, by optimal utilisation of resources, with minimum impact on environment, thereby ensuring sustainable development of the oceans.

33. Our blue planet, the Earth has a dominance of the maritime domain with over 70% of the Earth's surface covered by water, nearly 80% of the world population living within 200 nautical miles from the coast and about 90% of the world's trade transiting by sea. Oceans are central to life on earth. They are rich in oil and mineral resources, they are suppliers of oxygen, absorbers of carbon-di-oxide, a virtual heat sink, rich in bio-diversity and have emerged as the global economic highways for transit of trade. With depletion of resources on land, humankind has turned towards the seas for resources and there is a misperception that oceans have an unending resource base and are an infinite sink, but nothing could be further away from reality.

34. India has a unique maritime disposition with a natural outflow towards the seas with our island territories of Andaman and Nicobar Islands in the Bay of Bengal and Lakshadweep Islands in the Arabian Sea, as the virtual extended arms of India. India has a coastline of 7516 kms and an Exclusive Economic Zone of over 2 million square kilometers. Approximately, 95% of India's trade by volume and

77% by value transits by seas and foreign trade accounts for over 30% of India's GDP.

35. India has vast maritime interests, which have a vital relationship with the nation's economic growth. In recent years, under the leadership of Honourable Prime Minister Shri Narendra Modi, there have been series of much needed initiatives and intense activity in the maritime domain, coupled with the transition from 'Look East' to the 'Act East' policy. These initiatives will act as catalysts to strengthen the growth of India as a credible maritime power. India's vast maritime interests are also enablers of our Blue Economy. The entire span of maritime sectors are likely to witness significant growth in the coming years, and will also serve as avenues for harnessing the Blue Economy and maritime cooperation with other neighbouring countries.

36. India has 12 major ports and 200 non major ports. The port handling capacity of these ports which currently stands at approximately 1500 million metric tons per annum is likely to increase to 2500 million metric tons per annum over the next ten years. The Government of India has launched the ambitious Sagarmala project, which is a port-led development initiative based on pillars of port modernisation, connectivity, port-led industrialisation and coastal community development. Sagarmala actually comprises over 150 integrated projects, including Greenfield infrastructure projects, with a planned investment of about 60-70 billion US Dollars. Development of greenfield Port Infrastructure could be an area of maritime cooperation which will also generate substantial employment in the maritime sector.

37. India currently has about 14,500 kms of navigable inland waterways and in the first phase, the government is developing 4,500 kms as five major national waterways. Currently, 94 percent of freight in India moves by road or rail and development of inland waterways will enhance transportation over water, which is cheaper (economical), faster and cleaner. The planned development of additional Inland Waterways presents a huge opportunity for investment and growth in India.

38. The mercantile marine and shipping industry is also envisaged to grow in the near future. India currently has a merchant ship fleet of approx. 1391 ships flying the Indian flag. While over 90% of India's trade by volume transits by sea, the share of Indian shipping in India's foreign external trade has declined from about 30% in the 1980s to approximately 7% today. To enable India's growing foreign trade to be carried on Indian hulls, the Indian Government is providing incentives

for Indian registered shipping and has initiated measures to increase the tonnage of 'Indian Controlled Shipping'.

39. India has a vibrant shipbuilding and warship building industry with 27 shipyards. Recently, the Government of India has given a major boost to the shipbuilding industry by according it special infrastructure status and permitting 100 per cent Foreign Direct Investment (FDI) in shipbuilding. Joint venture partnerships between shipyards could be avenues for future maritime cooperation, and enhancing employment opportunities in the shipbuilding sector. It should be our endeavor to progressively build ships in accordance with the Energy Efficiency Design Index (EEDI) and propelled by environmentally friendly fuel.

40. The warship building industry in India is firmly anchored on self-reliance and indigenization. The Indian Navy set up its naval design directorate in 1964. India built its first indigenous naval warship, a patrol vessel INS Ajay in 1961 at Garden Reach Shipyard in Kolkata. Over the past 50 years our naval designers have designed and our indigenous shipyards have built ships for the Indian Navy resulting in our transformation from buyers Navy to builders Navy. Today, it is a matter of great pride that nearly 40 ships and submarines under construction are being built in Indian shipyards both public and private. These range from aircraft carrier to frigates, destroyers and submarines. It is our endeavor to progressively increase the indigenous content so that future warships and submarines are 100% made in India.

41. The fishing industry is another sector which provides significant opportunities for growth. India has approximately 2, 50,000 fishing boats, with 4 million active fishermen and 14 million people as part of the fishing community. The annual marine fish landings in India are about 11.41 million tons which accounts for approximately 5.3% of the world's production. The sector contributes around 7 billion USD to India's foreign exchange earnings and has a potential to grow much more.

42. However, this is only scratching the surface of the vast potential of the fishing industry in India which is largely coastal in nature, with logistic and maintenance support being provided by local, small-scale enterprises and fishing boats operating in coastal waters. There exists a huge potential for growth in the fishing sector by undertaking deep sea fishing, increasing the size and numbers of current fishing fleet and enhancing the support infrastructure for stowage, processing and transporting the catch. Sustainable deep sea fishing is another avenue where India could cooperate to harness the Blue Economy. The Government has promulgated the

National Policy on Marine Fisheries 2017, this would also result in coastal community development and enhanced employment opportunities in the fishing sector.

43. India has over 1300 Islands and Islets as part of the Andaman and Nicobar Islands and the Lakshadweep group and Islands off the West and East Coast of India. The Government has prepared a comprehensive plan for the development of the islands, which takes into account aspects of security, economic sustenance, environmental preservation, social and cultural sustenance. This development of the islands will ensure green field infrastructure projects with minimum carbon footprint and opportunities for controlled eco-tourism. Opening of the maritime tourism sector could open up a host of opportunities in the future, for development of marinas and cruise tourism.

44. India's EEZ also provides offshore energy resources and we have oil and gas exploration areas off the West and East coast of India. India has also been allocated deep sea bed mining areas in the Central Indian Ocean and these sectors are likely to register significant growth in the coming years.

45. Renewable ocean energy is another un-harnessed niche sector with immense scope in the future. This includes tidal and wave energy and ocean thermal energy conversion. It can therefore be seen that while there are an ocean of opportunities for development of maritime interests for economic growth, the challenges lie in ensuring that these are green field projects, with a minimum impact on the environment, to ensure sustainable development of the oceans.

46. This sustainable development has to be in accordance with the United Nations document, 'Transforming Our World 2030 Agenda, and Sustainable Development Goals, particulars SDG 14, which provides a template for development of oceans, seas and resources. Towards this, India has submitted its voluntary national review report to the UN, on the implementation of Sustainable Development Goals (SDG) in July 2017. A clear agenda has been formulated for promoting the 'Blue Revolution', while charting the way ahead for preventing pollution, integrated plan for fishing, optimal utilisation of resources with minimum impact on the environment and ensuring sustainable development of the oceans.

47. Therefore, while India is focused on economic development of its maritime interests it is also committed to traveling down the path of sustainable development. The United Nations General Assembly, published a document in 2015 titled 'Transforming our world', the Agenda 2030 for sustainable development with 15 specific goals and 169 targets.

48. In conclusion, the major takeaways are as follows:

(a) The oceans are common heritage of mankind and there is a need to respect international law and ensure freedom of navigation in the Global Commons. Therefore, the current international efforts towards strengthening oceans governance and regulating Areas Beyond National Jurisdiction need to be actively supported. The countries of the region also need to work together to evolve a rules based international order for the Region.

(b) In order to fully implement the Honb'le Prime Minister's vision of SAGAR, we need to draw up a detailed roadmap for maritime security cooperation among countries of the region. This should clearly outline the role of navies and law enforcement agencies for maintaining good governance and shaping a positive and favourable maritime environment across the IOR.

(c) As an important imperative to promote good governance and assist the navies and law enforcement agencies, we need to have an effective information sharing arrangement to enhance the maritime domain awareness across the Indian Ocean Region. In addition, India needs to establish an open and inclusive Regional Fusion Centre for the Indian Ocean.

(d) The Indian Ocean has emerged as a contiguous maritime space and we need to unleash the full potential of IONS as an effective maritime construct for promoting maritime cooperation among the navies and the law enforcement agencies of the region. In addition, there needs to be greater synergy between IORA at the political level and IONS at the level of the navies as functional enablers to address the entire spectrum of issues for collaborative management and governance of the Indian Ocean.

(e) The United Nation's document 'Transforming Our World –2030 Agenda' and the 'Sustainable Development Goal, SDG 14', provide a template for conservation of the oceans, seas and resources. We now need to outline a perspective plan for sustainable development and growth in different avenues of the maritime sector.

49. The seas around us are gaining new found importance as each day goes by and I have no doubt that the 21st century is the century of the seas. I am sure that the vibrant discussions at this seminar will provide some paradigm shifting thoughts of maritime cooperation and good governance for sustainable development of the Indian Ocean Region.

About Author: Admiral RK Dhowan is an alumnus of the National Defence Academy, the Defence Services Staff College and the Naval War College, Newport, Rhode Island, USA.

His illustrious career began with being adjudged the 'Best Cadet' and winning of the coveted 'Telescope' during his sea training onboard INS Delhi. He was commissioned in the Navy on 01 Jan 75 and went on to bag the 'Sword of Honour' for his course. He was baptised in the art of navigation when, as a young Lieutenant armed with a sextant and the keen eyes of an enthusiastic navigator, he sailed from the port of Riga in the Baltic Sea to the shores of Mumbai. With the induction of the Sea Harrier jump-jets into the Navy, he was selected to undergo the Sea Harrier Direction Course at Yeovilton, UK. His tenures at Indian Naval Air Squadron 300 and the aircraft carrier Vikrant shaped the future of direction specialisation in the Navy.

Important staff assignments held by the Admiral at Naval Headquarters during his distinguished career include Deputy Director Naval Operations, Joint Director Naval Plans, Assistant Chief of the Naval Staff (Policy and Plans) and Deputy Chief of Naval Staff.

The Admiral has commanded three frontline warships of the Western Fleet -the missile corvette Khukri, the guided missile destroyer Ranjit and the indigenous guided missile destroyer Delhi. He also had the proud privilege of commanding the Eastern Fleet as Flag Officer Commanding Eastern Fleet.

Besides serving as Indian Naval Advisor at the High Commission of India, London, he has also served as Chief Staff Officer (Operations) of the Western Naval Command (based at Mumbai) and the Chief of Staff at Headquarters Eastern Naval Command (based at Visakhapatnam) and subsequently had the distinction of commanding his alma mater, the National Defence Academy, as the Commandant. The Admiral assumed charge as the Vice Chief of the Naval Staff in Aug 11 and was subsequently promoted as the 22nd Chief of the Naval Staff of the Indian Navy on 17 Apr 14. He retired from the Navy on 31 May 16 after a distinguished career of 42 years in uniform.

On 25 Nov 16, Admiral RK Dhowan (Retd) took over as the fifth Chairman of the National Maritime Foundation (NMF), New Delhi, which is India's premier maritime think tank. The Foundation has benefited immensely from his vast experience in the Indian Navy in general and in specific, formulation of a wide range of maritime strategic publications. Such as IN Maritime Cooperation Roadmap (2014),

IN Space Vision (2014), Indian Navy in the 21st Century: Maritime Security for National Prosperity (2014), IN Maritime Capability Perspective Plan (2015), IN Maritime Infrastructure Perspective Plan (2015), IN Indigenisation Plan (2015), Science and Technology Roadmap (2015), Ensuring Secure Seas: Indian Maritime Security Strategy (2015), Indian Maritime Doctrine (updated 2015), Maritime Heritage of India (2016) and United Through Oceans: International Fleet Review 2016. In his new role as both the practitioner and promoter of broader maritime thinking and fresh strategic perspectives, the Admiral has been lecturing extensively at all leading military colleges, think-tanks and academia in India, as well as at various apex-level institutions in abroad, articulating his specialized views. Under his visionary articulation, the National Maritime Foundation is presently embarked on the mission for the development of strategies for the promotion and protection of India's maritime interests, ranging from development of ports, shipping and shipbuilding to island development and renewable sources of ocean energy.



POLICY RECOMMENDATIONS: MARITIME GOOD GOVERNANCE TOWARDS SUSTAINABLE DEVELOPMENT

Rear Admiral A S M A Awal, NBP, OSP, ndc, psc, MDS, MBA (retd)

Summary of the Seminar Sessions

The oceans cover 71% of the earth's surface and 97% of the planet's water supporting the humankind with its living and non-living resources and facilitating trade and communication globally. They capture 90% of extra heat, absorb 30% of excess CO₂ and had already consumed 60% more heat in last 25 years for global warming. The deep sea floor contains 60% of the earth's surface where 84% patents have been filed by 30 institutions.

Besides, globalization has added more vulnerability to the oceans. More than 90% of the global trade is conducted through Sea Lines of Communication which are lifelines to the world and national economies. Competition is on the rise for exploration and exploitation of marine resources particularly in the disputed sea areas. Such a situation inevitably calls for Maritime Good Governance for sustainable development. Maritime good governance is the management of stakeholder relationships for achieving common good in the maritime spaces in a sustainable manner. There are number of legal and institutional frameworks for supporting the maritime governance such as UNCLOS III, IMO conventions/ protocols, Agenda 21 of UNCED, SDG 14 etc. However, there is no internationally legally binding treaty for the governance of Areas Beyond National Jurisdiction (ABNJ) yet. An Ad hoc Informal Working Group has drafted an Internationally Legally Binding Instrument (ILBI) and submitted to the UN General Assembly in July 2017. All these legal frameworks need to be reflected in the national and regional level for effective maritime good governance.

Geo-strategically the Indian Ocean Region (IOR) with its complex web of diversity has gained enormous importance in the 21st century. The IOR is no longer a benign region and growing interests of the diverse stakeholders have made it a hotly contested region. The maiden international Seminar of BIMRAD was conducted on 19 November 2018 in Dhaka with the theme '*Maritime Good Governance Towards Sustainable Development*' focused on the IOR. Four Papers were presented in four sessions of the Seminar by eminent speakers highlighting salient features of the chosen theme. The Seminar delivered on the phase of transition in the IOR due to changing balance of power scenario and fast developing economies of China and India. However, the best way forward could be engagement rather than confrontation. The speakers elaborated the major issues

and risks in the IOR as projected by the Centre for Strategic and International Studies in 2014 which are *instability of the Gulf petroleum exploring states, India – Pakistan conflict, Struggle for influence between China and USA, Competition over exerting regional influence by India and China, risks of piracy, terrorism, etc and offshore resource disputes*. The presence of non-state actors have further complicated the security dynamics such as the Somali pirates. The International Maritime Organization had to develop the Best Management Practices to fight this menace. Besides, maritime terrorism such as the Mumbai attack in 2008, the LTTE (Sea Tigers) attacks in Sri Lanka, transnational human/ arms/ drug trafficking are also prevailing across the IOR. Intentional unlawful damage to the marine environment, marine pollution, Illegal, Unreported and Unregulated fishing (IUU) are also key challenges in the IOR.

The ocean economy is valued at more than USD 24 trillion, however, its actual value is likely to be higher as many ecosystem services are difficult to quantify. The aquaculture accounts for roughly 18% of the global seafood production where Small Scale Fisheries (SSFs) enormously contribute to food security and employment for millions of coastal poor. However, states are yet to pay necessary attention to fishers as actors (e.g., the ways they organize and self-govern their harvesting and marketing interactions). Science and technology help us better know the oceans, “making visible what had previously been hidden or inaccessible”. Decade long study of marine biodiversity illustrates scientific efforts to better know oceans: more than 2,500 scientists employed 30 technologies in more than 540 expeditions to discover and describe more than 1,200 new species and confirm the existence of 250,000 others. In industrial fisheries, increased technological capacity to extract fish in the absence of governance regimes has contributed to overfishing. Technological advancements also support development opportunities in many emerging ocean issues, e.g. seabed mining and aquaculture. Significant mineral reserves (in cobalt, copper, gold, iron, manganese, nickel, rare-earth elements, silver, and zinc) exist on, and in the subsurface of the seabed. Private sector and State actors have recognized the economic potential of seabed minerals. However, technological challenges and regulatory uncertainty, particularly in ABNJ, have made industrial mining not yet feasible in general. The Seminar highlighted that governance of oil and gas exploration and exploitation at sea should cater for preserving marine biodiversity to avoid adverse affects. Appropriate environmental law tools should be applied raising issues of liability and reparation for environmental damage. Currently, there is no convention or fund related to civil liability arising from pollution by offshore oil and gas exploration and exploitation. There is also no global international convention devoted to the governance of marine installations.

The IOR has the potential to deliver growth and jobs. In order to achieve growth in Blue Economy, highly qualified and skilled professionals are needed. Yet many Blue Economy sectors are experiencing difficulties in finding the right human resource and most sectors expect these difficulties to continue in the near future. Skill-set gap between education imparted and job market requirements are needs to be minimized, especially with regards to technological developments and innovation. Besides, lack of communication and cooperation between education and industry, shortage of attractiveness and awareness of career opportunities in the blue economy and inadequacy of ocean literacy culture hinder the sustainable development in the maritime sector.

It is now imperative to improve and strengthen the governance framework for the management of Blue Economy/fish stocks associated with deep sea ecosystems. Moreover, monitoring and control of fishing activities for the conservation of biodiversity and different types of habitats in IOR and creation of networks of Marine Protected Areas (MPAs) along with an enforcement strategy is essential. Raising awareness of the policy makers, the fishing, plastic/micro plastic and mining industries and the general public on the importance of preserving marine deep sea life are also necessary. Sharing experiences, technology among regional and international scientific and international institutions, and among maritime powers will also pave the way forward.

The Seminar noted that indiscriminate pollution of the internal and sea areas has had a detrimental impact of climate change in the IOR waters. Consequently, a large percentage of extreme climate conditions turn into natural disasters. In the past few decades, we have witnessed pollution of the oceans and contamination of the natural marine habitat. Studies have indicated that almost 80% of pollution in the seas emanates from land and if the current rate of pollution continues, the plastic could outweigh fish by 2050. There are three main causes of marine pollution which are large coastal population, waste generation/ mismanagement and leakage from the land/ rivers. There are many regional declarations that emphasize on the importance of the protection of the marine environment and sustainable use of marine resources. However, there are no binding regional maritime agreement for the conservation and sustainable use of marine activities. It has been identified through the discourse that there are gaps in international regulations: land-source pollution, pollution from offshore activities, areas beyond national jurisdiction etc. There are also gaps in regional ratification/accession to international treaties (OPRC, London Convention etc) and in regional implementation of treaties e.g., lack of reception facilities for the implementation of MARPOL and regional sensitivity mapping for the implementation of OPRC. It is also important to have a

coordination mechanism at national level and development of a clear integrated ocean policy and marine ocean planning.

The Seminar highlighted three aspects related to the rule based international order which as emphasized by the Indian Prime Minister Narendra Modi during his key note address at the Shangri La Dialogue in June 2018. Firstly, there is a need to evolve a common rule based orders for the region, that should apply equally to individual nations as well as the global commons. Such an order must believe in sovereignty, territorial integrity as well as equality of all nations. These rules and norms should be based on consent of all and not the powerful few. Secondly, nations should all have equal rules and rights, under international law and freedom of navigation, to the use of common spaces at sea and in the air. They should resort to peaceful settlements of disputes in accordance with international law. When all agree to live by that code, IOR will be pathways to prosperity and corridors of peace. Thirdly, promoting a democratic rule based international order in which all nations, big and small, thrive as equals. To achieve this, nations need to engage the world in peace with respect, through dialogue and absolute commitment to international law. Thus the countries of the region need to work together to evolve a common rules based international order, which is considered a prerequisite to good governance at sea.

The Seminar highlighted three aspects of the concept of Good Governance namely law making, law enforcement and dispute resolution. Law enforcement agencies have a wide range of powers within the maritime zones of a country. However, to meet the challenges in each other's EEZ or in international waters, there is a need for vibrant and comprehensive maritime security cooperation between Navies and Coast Guards of the region. The anti-piracy operations in the Gulf of Aden by Navies and law enforcement agencies of the world, under the SHADE umbrella, have been effective in curbing piracy. In addition, in response to piracy in South East Asian waters, the RECAAP or Regional Cooperative Agreement Against Piracy in Asia and its Information Sharing Centre (ISC) at Singapore have been highly effective. It was learnt through the Seminar that, India intends to establish an open and inclusive Regional Fusion Centre for the Indian Ocean. The Indian concept of SAGAR (the acronym stands for 'Security and Growth for All in the Region') was also brought to the forefront during the discourse. At the conceptual level, it envisages the Indian vision in IOR, where all boats representing countries of the region rise together with the rising tide. At political level, the Indian Ocean Rim Association (IORA), which was established as IOR-ARC in 1997, functions as a region-wide multilateral structure with an emphasis on economic and social agenda. However, around 2012, Maritime Safety

and Security entered the IORA's agenda. Therefore, IORA could play a significant role as a maritime construct to strengthen maritime cooperation among the countries of the region. On the other hand, the Indian Ocean Naval Symposium (IONS), formed in 2008, functions at the execution level of the Navies. Today, the IONS provides an effective template to address common challenges of maritime security and safety to enhance cooperation among Navies and law enforcement agencies of the region.

The oceans are key to the national and regional economies and thus the ecological health and sustainability is paramount. The linkage between the blue economy, economic growth and the ocean resource conservation needs to be properly understood for deriving sustainable results. A key area of Blue Economy is marine research and education involving public as well private agencies such as Navies, Coast Guards, marine environment protection agencies, academic institutes, etc. Although the oceans contain vast prospects, new investment opportunities must be made available for governments, as well as the private sectors. Governments should make conscious efforts to have effective planning, development of research capabilities and acquiring technologies required for deep sea explorations. The Indian Ocean is rich in resources but technology is not available to harness these resources. Thus the IOR countries need to plan strategies and develop capabilities to harness these resources for the economic benefit of its people. The IOR must capitalize on the current awareness of the Blue economy within the United Nations, international Institutions and national policy planning.

In order to promote good governance for sustainable development, the Seminar pointed out the necessity of rule based maritime order taking UNCLOS as the basis. The best for the region will be that it is not dominated by a single hegemonic power and not to be influenced by external powers. The necessity to develop a regional maritime strategy along with a regional maritime security architecture was also highlighted in the Seminar.

Maritime Domain Awareness (MDA) and overcoming Maritime blindness are also essential for a prosperous IOR. It is imperative to develop a situational picture of the IOR combining various sensors and platforms to become 'Eyes at Sea'. The IOR MDA should be for the common objective of maintaining rule-based order and stability in this vital ocean space and it should be inclusive and not exclusive. However, no single country can be the 'net security provider' in the IOR. Therefore, burden sharing and mutual assistance in developing capacities such as platforms, sensors, technology transfer and capabilities such as skills in networking, developing tactical picture and training are required.

There is also a trust deficit in the IOR which needs to be addressed through various Confidence Building Measures (CBM). The IOR region must move from cooperation to collaboration. There is a need for consolidating and strengthening the international legal system and establish mechanisms to manage disagreement and conflicts based on International law. In order to achieve, it is necessary to maintain and promote bilateral and multilateral strategic dialogue mechanism to consolidate strategic trust and build shared awareness and political will for peace, stability and development in the IOR. There are many dialogues taking place at track one and two levels in the wider Indo-Pacific region. Defence diplomacy can also play an important role in promoting mutual trust and confidence. Joint naval and coast guard exercises can also be used to promote confidence as well as interoperability.

Policy Recommendation

In view of the above deliberations of the International Seminar on “Maritime Good Governance Towards Sustainable Development”, the policy recommendations are as follows:

- a. Developing a shared Regional Strategy for Rule Based Order in the IOR for littorals and other users.
- b. Adopting Confidence Building Measures through bilateral and multi-lateral engagements for stability and Good Maritime Governance in the IOR.
- c. Improving Legal/ Institutional Framework for National/ Regional Maritime Good Governance.
- d. Developing National/ Regional Maritime Good Governance Model(s) to meet emerging challenges.
- e. Developing Maritime Domain Awareness for monitoring good order and stability in vital maritime spaces of the IOR.
- f. Enhancing Capacity Building through shared and balanced approach to regional security of the IOR.
- g. Promoting effective cooperation amongst all Stakeholders/ Agencies for sustainable exploitation of resources under Integrated Resource Governance Framework.
- h. Developing Blue Economy with befitting infrastructure, technologies and investments involving private sectors in the context of SDGs (14 in particular).
- i. Taking effective measures for urgent protection of marine environment and ecosystems from marine pollution under Coastal and Marine Pollution Management Framework.

j. Deploying Navy, Coast Guard and other law enforcing agencies in national waters and beyond under bilateral/regional arrangement for good order and stability.

k. Launching concerted efforts to remove ‘Sea Blindness’ amongst the Policy Makers and Bureaucracy and promote general awareness of the people for better commitment to the maritime affairs.

l. Extending national/regional support for adoption of ILBI (Internationally Legally Binding Instrument) for protection of High Seas.

About Author: Rear Admiral A S M A Awal, NBP, OSP, ndc, psc, MDS, MBA (retd) was born in a noble Muslim family at Narundi in the District of Jamalpur. He joined the Bangladesh Navy (BN) in 1976 and underwent initial training in the Bangladesh Naval Academy and Britannia Royal Naval College, Dartmouth, UK. He attended various training courses both at home and abroad including Gunnery Specialization Course in Surface Weapons and Operations School in India, course on Conducting Military and Peacekeeping Operations in accordance with the Rule of Law under Naval Justice School, USA. He also participated in Anti-Terrorism program organized by Asia Pacific Centre for Military Law. He did his Staff Course in Defence Services Command and Staff College (DSCSC), Mirpur and also attended Staff Course in the Turkish War College. He obtained MDS (Master of Defence Studies) from National University, Bangladesh, and completed his NDC from Bangladesh National Defence College. He was also a Directing Staff in DSCSC, Mirpur.

He commanded different types of ships of Bangladesh Navy which included Fast Attack Craft, Torpedo Boat Squadron, Large Patrol Craft, Training Ship and two Frigates. He was also the Commandant of Bangladesh Naval Academy. He held prestigious operational command of the Bangladesh Navy Flotilla. He served in Naval Headquarters as directors and after promoting to the rank of Rear Admiral, he served as the Assistant Chief of Naval Staff (Operations) and the Assistant Chief of Naval Staff (Personnel) in the NHQ.

He held diplomatic assignment in the Bangladesh High Commission in Sri Lanka as Defence Adviser in the rank of Commodore, and then he was assigned as the High Commissioner of the People’s Republic of Bangladesh to the Republic of Maldives in the rank of Rear Admiral. After successful completion, Rear Admiral Awal retired from Bangladesh Navy on 31 December 2015. For his exemplary and extra ordinary service, he has been awarded with the Bangladesh Navy’s highest peace time award Navy Medal (NBP) and also Extra Ordinary Service Medal (OSP).

He keenly follows analytical studies on various geo-strategic, political and security issues. He moderated a Session titled “Future Outlook of IONS (Indian Ocean Naval Symposium)” in IONS 2016 held in Dhaka, Bangladesh. In August 2017, he moderated the main session of an international seminar organized by the Department of Shipping, Bangladesh which was attended by the Secretary General of IMO and prominent figures of the shipping sector from home and abroad. In October 2017, he moderated a Session on “Maritime Issues in the Bay of Bengal: Options for Cooperation” in the 8th Bangladesh-India Security Dialogue. He participates in TV Talk-Show and Seminar/Roundtable on security, strategic and various subjects of national interest. He takes interest to work in the fields of migration and migrants’ rights, TIP (Trafficking in Persons), conflict resolution, UN Peacekeeping and Peace building, governance issues, counter-terrorism and transitional crimes, National and Maritime Security, Maritime Domain Management, Blue Economy, Maritime Search and Rescue, etc.

Rear Admiral Awal is also keen on taking part in various activities aimed at serving socio-economic and humanitarian causes. He is a founding member of BIMRAD (Bangladesh Institute of Maritime Research and Development). He is a Rotarian and presently a Director of the Rotary Club of Dhaka Central.

He is married to Mrs Keya Awal and blessed with one daughter named Rayna Awal and a grandson.

Notes for Contributors

BIMRAD Journal welcomes submissions in all areas related to maritime affairs & security, maritime economy, skillset & sea resources, maritime pollution, biodiversity, marine ecology, climate change adaptation, maritime science & technology, any topics covering maritime domain that would be considered as research paper consisting of around 5000 words or more. BIMRAD Journal also welcomes book reviews, comments on projects, cases and judgements. Authors are requested to submit typed papers in prescribed format both soft (e-mail or portable memory device) and hard/printed copy to BIMRAD. The Journal is a peer reviewed Journal. The papers/articles must be an original piece of work. The author should declare that the article has not been published and/or submitted for publication elsewhere earlier and is not in consideration for publication anywhere else.

The papers/articles shall be written in English (Standard British) and typed on a standard A4 size paper. Letter shall be of Times New Roman Font size 11 with one paragraph abstract (Times New Roman, Font size 10) followed by keywords and the paper must acknowledge the sources as references [1]. The papers/articles shall be submitted along with a signed copy of copyright form and certificate regarding plagiarism in the specific format as shown below:

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BIMRAD at A Glance



Bangladesh Institute of Maritime Research and Development (BIMRAD) is an independent think tank research institute to study issues relating to the maritime interest of Bangladesh and support the Blue Economy Initiatives of the government. The aim of BIMRAD is to conduct quality research works pertaining to maritime issues, develop maritime awareness and create a common platform for discourse amongst maritime scholars, think tanks and researchers of the country. BIMRAD is a non-profitable charitable organization registered under The Societies Registration Act XXI of 1860 and patronized by Bangladesh Navy.

It is the nation's first academic research institute to act as a common platform, integrate and organise all maritime intellectuals, researchers, stakeholders, discourse for optimum utilisation of marine resources and uphold the blue economy policy of the government towards the sustainable development of Bangladesh.

The institute is creating awareness among the stakeholders, academia and policy makers, conduct world-class research works, project activities on maritime issues, promote maritime education and training, exchange of views through different publications & events, evaluate factors affecting maritime security and associate/collaborate with national & international public/private agencies.

Overall guidance, management and policy formulation of the institute are vested upon on the General Body, represented from different discipline. The Chief of Naval Staff is the Chief Patron and immediate past Chief of Naval Staff is the Chairman of the Institute. The Chairman is the Chief Executive and constitutional Head of the Institute.



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