



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 heritags 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.