National Maritime Foundation

MARITIME PERSPECTIVES 2022

COASTAL DIMENSIONS OF MARITIME SECURITY

Captain Himadri Das

Edited by:
Vice Admiral Pradeep Chauhan
Commodore Debesh Lahiri

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Foreword

Overall, the discourse on maritime security in India has been to the neglect of its less captivating homeland dimension, viz., coastal security. This notwithstanding, non-traditional threats continue to threaten good order at sea. Emerging maritime security threats, in particular 'hybrid' threats, encompassing the underwater, surface, and aerial dimensions, as well as conventional military weapon-capabilities, could potentially jeopardise international trade and restrict the freedoms of the sea. Climate change, cyber threats, and threats to the marine environment and ecology, offer a sampling of other threats that are of concern. Domestically, while the spectre of a terror incident along the coast continues to loom large, increasing seizures of drugs at sea and in ports offer evidence of a new challenge. The nexus between maritime criminals (such as drug traffickers) and terror-funding further complicates the threat matrix.

Insecurity at sea not only has national security implications but, in a globalised world, also invariably has a negative impact on economic and human security. Insecurity finally manifests itself in forms that could directly affect the wellbeing of the citizens, leading to a vicious cycle of even greater insecurity and security challenges. Conversely, the security of the seas (and the adjoining coasts) becomes a vital enabler for India to pursue and achieve its core national interest — the economic, material and social wellbeing of the people of India. The attention to 'security' in the draft policy framework for India's Blue Economy (2020) only reaffirms the need for security as a facilitator for economic development.

As India embarks upon its *Amrit Kaal,* two landmark developments need to be recognised. The first was the maiden UN Security Council High-Level Open Debate on "Enhancing Maritime Security: A Case for International Cooperation," under the Indian presidency of the Security Council, in August 2021, which was

chaired by Prime Minister Narendra Modi. The second was the appointment of India's first National Security Maritime Security Coordinator (NMSC) earlier this year, in February of 2022. The latter, which fulfils a long-standing recommendation for apex-level coordination for maritime and coastal security, comes after a longish hiatus since the rolling-out of major reforms in 2009 after the '26/11' incident.

In India, the concept of coastal security, which has its origins in maritime border management in the early 2000s, was consolidated after the '26/11' incident. Progressively, the concept has evolved, and the present State practice is increasingly reflective of a widening of the conceptual remit to include the multiple dimensions of maritime security. Fourteen years after '26/11' the coastal security construct in India is increasingly characterised by a '*whole-of*' paradigm, wherein governments, society, and the nation as a 'whole,' are increasingly coordinating with each other in pursuit of common maritime security objectives. However, it still remains deeply fragmented. Lack of unified structures, duplication in responsibilities, and capacity and capability constraints, are some of the more pressing challenges that need to be addressed.

This volume of *Maritime Perspectives 2022* is a collation of research articles written by Captain Himadri Das while he was attached on study leave to the National Maritime Foundation (NMF), between September 2020 and August 2022. Specifically, this volume reflects upon the coastal security construct in India, and dilates upon a range of specific issues covering both the theory and practice of coastal security. In effect, this publication is a follow-on to his earlier book, *Coastal Security: Policy Imperatives for India*, also published by the NMF, in 2019. Collectively, this volume, together with his earlier book, provide an overview of the shaping of the coastal security architecture in India in the first two decades of the 21st century, especially since the '26/11' incident. Together, the volume and the book, not only address the neglect of the study of coastal security in general, but also advance several of the NMF's objectives, including the promotion of research in maritime issues, providing inputs for policy-formulation, the promotion of public awareness, etc.

I congratulate Captain Himadri Das for his single-handed effort in bringing to the forefront a subject that, unfortunately, is infrequently discussed within the limited

context of India-centric maritime security. Maritime security in the wider oceanic spaces, in fact, begins (and ends) with a coast — secure maritime neighbourhoods are the foundation on which the rules-based international order rests. Neglecting this will bring great peril in its wake.

I am confident that this volume will advance the academic discourse on coastal security, stimulate thinking amongst policy makers, and generate wider awareness among the public.

Jai Hind! Sam no Varunah!

Vice Admiral Pradeep Chauhan
AVSM and Bar, VSM, IN (Retd.)
Director-General
National Maritime Foundation

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Reflections, Prospects, and Challenges

Coastal Security in India: Twelve Years After '26/11'

It has been twelve years since the heinous attack on Mumbai on 26 November 2008. While 'coastal border management' was institutionalised in 2004 with the establishment of the Department of Border Management (DoBM) in the Ministry of Home Affairs (MHA), the management of coastal (and maritime) security in India underwent a paradigm shift after the '26/11' attacks. Broadly, the coastal security construct after '26/11' was based on a Whole-of-Government approach. This included allocation of coastal security responsibilities to maritime security agencies and setting up institutional mechanisms for policy and operational coordination amongst all stakeholders across multiple levels of governance. Major initiatives were focused on capacity augmentation and capability development of maritime security agencies, and developing Maritime Domain Awareness (MDA). Community engagement also emerged as an area of renewed thrust.

The Prime Minister, during his Independence Day speech from the ramparts of the Red Fort on 15 August 2020, made several references to coastal areas from both a development and a security perspective.[1] From a development perspective, the Prime Minister highlighted the importance of the Indian coast in world trade and stated that the Government will now focus on the development of a four-lane road across the entire coast as a follow-on to the port-led development project [SAGARMALA]. He also highlighted the focus of the Government on the development of certain identified islands; the inauguration of the submarine optical cable to the Andaman and Nicobar Islands and the plan to connect the Lakshadweep Islands were cited as examples of the Government's focus on island development. From a security perspective, he emphasised the importance of border and coastal infrastructure in national security and also highlighted the Government's plan to expand the National Cadet Corps (NCC) in border and coastal areas.[2]

The Prime Minister's multiple references to the coast in his Independence Day speech bring out two clear points: first, the importance of the coast and islands from a trade and development perspective, and second, the importance of security as a facilitator for trade and development. The inextricability of security and growth, albeit from a larger regional perspective, has already been articulated in the vision of SAGAR [Security And Growth for All in the Region].

Since '26/11' there has been no incident of maritime terrorism; however, the threat exists as is evident from reports about the training of certain terror groups in underwater attacks to carry out *Samundari Jihad* (seaborne jihad) against India.[3] The Chief of the Naval Staff (CNS) while reviewing the operational readiness of the Indian Navy on 22 October 2020 exhorted the Indian Navy to maintain high levels of readiness, and also reiterated the need for force protection against terrorists and other aspects related to asymmetric warfare.[4]

As regards other maritime crimes, an analysis of the *Monthly Maritime Security Update* published by the Information Fusion Centre – Indian Ocean Region (IFC-IOR) this year highlights the prevalence of other maritime crimes in several states:[5]

- Armed robbery in some ports in Gujarat and Andhra Pradesh;
- Illegal fishing off Odisha, Tamil Nadu, Andaman and Nicobar Islands, Karnataka, Andhra Pradesh, Maharashtra and Gujarat;
- Poaching of Sea Cucumbers from Lakshadweep and Minicoy Islands and Tamil Nadu;
- Drug trafficking off Gujarat, Tamil Nadu and Maharashtra;
- Smuggling of gold (Tamil Nadu); red sandalwood (Gujarat and Maharashtra); cigarettes (Maharashtra); fuel (Andhra Pradesh and Maharashtra); *Tendu* leaves (Tamil Nadu); textiles (West Bengal); turmeric (Tamil Nadu); and,
- Illegal migration to Sri Lanka.

Overall, maritime crime figures in India are near insignificant, and this augurs well for maritime and coastal security. However, considering the inevitable nexus between criminal elements and terrorists, and past experience, there is no room for complacency. Maritime crimes in all its forms need to be effectively countered in their nascence rather than wait for such crimes to manifest itself themselves in

more insidious ways. This article will now examine some of the major developments pertaining to coastal security in the past year. Considering the federal governance structure, which involves both the Central Government and State Governments, the developments have been categorised accordingly, however, there are some overlaps.

Developments at the Centre

Public Accounts Committee Recommendations

The Public Accounts Committee (PAC) in a January 2020 report on the implementation of reports of various ministries *inter alia* made the following recommendations with respect to the Coast Guard and Customs:

- Placing an order for a second phase of the Coastal Surveillance Network (CSN) of radar sensors comprising 38 radars.[6]

- Enactment of suitable laws to empower and strengthen the Coast Guard.[7]

- The National Committee on Strengthening Maritime and Coastal Security (NCSCMS) takes up issues, such as tracking of ships; demarcation of responsibilities between ministries/ departments and agencies concerned with coastal security to ensure effective coordination; and, enactment of the Central Marine Regulation Fisheries Act.[8]

- Providing the PAC with the status of the cadre review to augment operational requirements of the Customs at air/ seaports and steps taken in this regard.[9]

The recommendations pertaining to the second phase of CSN, strengthening the legal framework, and tracking devices for fishing vessels have been completed, and a central legislation for fisheries management is being progressed. These will be covered in greater detail in subsequent sections.

Reorganisation of the Ministry of Defence

In December 2019, the Department of Military Affairs (DMA), or the *Sainya Karya Vibhag,* was created in the Ministry of Defence (MoD). *Inter alia* the subjects

allocated to the DMA include *"promoting of jointness in procurement, training and staffing,"* *"optimal utilisation of resources by bringing about jointness in operations, including through establishment of joint/ theatre commands,"* and *"promoting use of indigenous equipment."*[10] General Bipin Rawat assumed responsibility as Chief of Defence Staff (CDS) and Secretary, DMA on 01 January 2020.[11] While previously the Department of Defence (DoD), or the *Raksha Vibhag,* oversaw the functioning of both the Indian Navy and the Coast Guard, following the creation of the DMA, only the Coast Guard continues to function under the DoD.[12] Considering the designated responsibilities of the Indian Navy and the Coast Guard, in effect, both DMA and DoD are stakeholders in the coastal security construct necessitating further coordination between the two departments.

In February 2020, the CDS, in an interaction with the media, stated that an Indian Ocean-centered Peninsular Command could be formed by end 2021.[13] He also highlighted that the *"security of peninsular India should be the responsibility of one Commander."* Subsequently, the Chief of the Army Staff speaking at the College of Defence Management on 21 October 2020 highlighted that the *"formation of Integrated Theatre Commands to synergise the capabilities and combat potential of the three services during war and peace"* was the way forward.[14] Notably, the distinction between war and peace, and between state and non-state actors is increasingly blurring, and in the maritime context, increased synergy between all maritime security agencies at all times is a *sine qua non* for effective maritime security. On 22 October 2020, the CNS highlighted that *"tri-service synergy and coordination has peaked with establishment of the DMA as was visibly demonstrated in the joint response of the three Services to recent events."*[15]

The management of maritime security in India has been an evolutionary process driven by events and other developments. The raising of the Peninsular Command too is likely to have an effect on the management of maritime and coastal security in India. Considering the fact that two key elements of the coastal security construct viz. the Coast Guard and the State Marine Police (SMP) function under the DoD and States respectively, due consideration needs to be given to ways and means to achieve the overall ends of 'theatarisation,' and concomitantly those for maritime security.

Primary amongst those are the requirements for optimal utilisation of all available resources, 'jointness,' and the enduring need for unitary command and control in military operations. In this regard, Air Vice Marshal Manmohan Bahadur (Retd.), Additional Director General, Centre for Airpower Studies, has opined that "*the Coast Guard too should have been placed under the CDS to ensure seamless security of our long coastline and huge EEZ.*"[16]

Considering the coastal security responsibilities of the Coast Guard, in the past there have also been recommendations to shift the Coast Guard to the MHA akin to the model for other land-based border guarding forces. As per media reports, in May 2018, a committee of DGPs, considering the need for greater coordination between the Coast Guard and other Central agencies under the MHA, had suggested that the Coast Guard should be brought under the MHA.[17] This was however rejected by the MoD on account of the need for greater coordination between the Indian Navy and the Coast Guard.[18] Notably, even at the time of raising of the Coast Guard, there were diverse views on which ministry the Coast Guard would need to be placed under.

The creation of the DMA, while retaining the Coast Guard under the DoD, has added a new dimension to the management of maritime and coastal security. Considering the diversity of views on the most apt organisational structure for effectively leveraging the force to meet national interests, this may well need further reflection.

Fisheries Management

On 10 September 2020, the Prime Minister digitally launched the PRADHAN MANTRI MATSYA SAMPADA YOJANA (PMMSY). The PMMSY, with a projected investment of Rs 20,050 Crore (Rupees 200.5 Billion) over a five-year period — the highest ever in the fisheries sector — is part of the *Atmanirbhar* package.[19] While the PMMSY is essentially a scheme to "*bring about Blue Revolution through sustainable and responsible development of the fisheries sector in India*," its aims and objectives also include physical security and robust fisheries management/ regulatory framework.[20]

The project also aims to establish linkages and convergence with other schemes, including safety- and security-related projects in the fisheries sector, such as with

MHA for fisheries Monitoring, Control and Surveillance (MCS) related activities, and the Department of Space for satellite-based communication/ tracking devices such as transponders for the fisheries sector.[21] Further, the scheme includes upgrading of fishing harbours and landing centres, development of 'integrated modern coastal fishing villages' and setting-up of fisheries extension services in the form of 3,447 *Sagar Mitra*.[22] Earlier, in January 2020, the Prime Minster had handed over the keys of deep sea fishing vessels and transponders to select farmers of Tamil Nadu.[23]

To strengthen the legal framework, the National Marine Fisheries (Regulation and Management) Bill, 2020 was listed for introduction in the Budget Session of Parliament in 2020.[24] The objectives of the bill *inter alia* include regulation of fishing in the Exclusive Economic Zone (EEZ) and promotion of safety and security of fishers at sea. Enactment of the bill, in accordance with its objectives, is likely to strengthen safety and security in a sector, which so far has largely been regulated through state legislations. Concomitantly, marine fisheries regulation legislations in respective states too need to be strengthened and are accordingly being progressed by some states.

The fisheries sector has been one of the areas of focus since the '26/11' incident. The dovetailing of safety- and security-requirements in the PMMSY and in the draft National Fisheries Policy, 2020, the development of a regulatory framework for fishing in the EEZ, and the operationalisation of the transponder system are some important milestones in the quest for strengthening safety and security in the fisheries sector.[25] The effective utilisation of the PMMSY will be key to strengthening fisheries MCS and in a federal governance framework, will need the attention of both Central and State agencies. In addition to the Central initiatives, States too have taken measures to strengthen fisheries MCS. Some of the state-level initiatives in the fisheries sector, such as those related to strengthening MCS, are covered subsequently.

Maritime Domain Awareness

MDA has been a focus area after the '26/11' attack. Some of the major initiatives have been the establishment of the CSN, the National Automatic Identification System (NAIS) chain and the National Command Control Communication and

Intelligence (NC3I) Network. Considering the large number of fishing vessels, the absence of a tracking system complicates the identification problem for security agencies. Accordingly, one of the areas of focus has been the development of a suitable system for tracking of smaller vessels which are not mandated to be fitted with the AIS system.

After successful Proof-of-Concept trials by the Indian Navy and the Indian Space Research Organisation (ISRO) of a satellite-based tracking system using GSAT-6 satellite, and subsequent successful field trials, 4,997 mechanised boats in Tamil Nadu would now be fitted with the indigenously developed satellite-based transponder system.[26] This development marks the culmination of a long process of development of an indigenous solution to address gaps in domain awareness. Considering the fact that India has close to three lakh (0.3 million) fishing boats of various types, the operationalisation of the tracking system by Tamil Nadu is the proverbial drop in the ocean. Consequently, for the system to be exploited effectively, there is a need for implementation of the system on a pan-India basis.

Subsequent to the '26/11' incident, the CSN, comprising 46 radar stations, was established by the Coast Guard for electronic surveillance; this included 10 radars in the island territories (six in Lakshadweep and Minicoy Islands and four in Andaman and Nicobar Islands).[27] On 21 February 2017, the Defence Acquisition Council sanctioned Phase II of the CSN project at a cost of Rs 800 crore (Rs 8,000 million).[28] CSN Phase II comprises 38 additional static radar stations, eight Mobile Surveillance Systems (MSS), and integration of Vessel Traffic Management Systems (VTMS) of Gulf of Kutch and Gulf of Khambhat.[29] In February 2020, M/s Bharat Electronics Limited (BEL) signed a contract with the MoD, to establish Phase-II of the CSN.[30] When implemented, the CSN will double the radar coverage along the Indian coast. The expansion of the CSN along with the implementation of the tracking system for fishing vessels has the potential to significantly improve MDA.

Presently, based on the authorisation/ license issued by the Department of Defence Production, BEL has set up similar Coastal Surveillance Radar Systems (CSRS) in several friendly foreign countries.[31] Thus, the indigenous capabilities developed for coastal security have not only contributed towards strengthening coastal security in India, but also expanded the Defence Industrial Base and facilitated implementation of the SAGAR vision.

Coastal mapping has been undertaken by states towards improving awareness about coastal areas. ISRO, in collaboration with the West Bengal State Police, has also developed Coastal Information System with the dual aims of creating a digital database and creating a framework for the visualisation and analysis of coastal geospatial data.[32] Such customised systems could be emulated by other states as well to improve domain awareness.

A strong enforcement mechanism to prevent misuse of systems that contribute to MDA is essential for strengthening MCS and for precluding wasteful operational effort for investigation of anomalous transmissions. In a related development, based on concerns raised by security agencies regarding the use of non-standard AIS systems onboard some fishing vessels in Kerala, the Customs Department issued show-cause notices to boat owners for possible offences under Section 112 (s) (2) of the Customs Act, 1962.[33] This also highlights the need for a legal basis for carriage of systems, which contribute towards developing MDA.

Coast Guard: Capability Development

On 05 December 2019 the MoD, through a gazette notification, empowered members of the Coast Guard to address maritime crimes within the maritime zones of India.[34] Earlier, in 2016, a PAC report on the Coast Guard had highlighted certain issues with regard to the legal framework for maritime law enforcement by the Coast Guard.[35] While the Coast Guard was hitherto empowered under particular sections of certain domestic legislations, this notification caters for enforcement of *any* Central act. This notification significantly augments the enforcement jurisdiction of the Coast Guard across all of India's maritime zones, which are the legislated areas of responsibility of the Coast Guard.

After the '26/11' incident the Coast Guard has witnessed an exponential growth in its capacity - both afloat and ashore. In a short span after the '26/11' incident, the Coast Guard has almost doubled its capacity.[36] In other words, the Coast Guard now has double the number of assets to ensure the security of maritime zones of India than it had twelve years ago when the present construct of coastal security was set up as a response to an unprecedented event. Notably, an overwhelming majority of the

ships and craft in the Coast Guard inventory have been built in Indian shipyards. The Coast Guard—now one of the largest in the world—is also actively progressing its 'Vision 2025' of having a fleet of about 200 ships/ craft and 100 aircraft. Towards further capacity development, the Coast Guard is also in talks with the Department of Telecommunication for allocation of dedicated satellite bandwidth to meet its operational requirements.[37]

Considering the augmented capacity and India's maritime security interests, which extend from the Indian coast to the wide expanse of the Indo-Pacific, the Coast Guard has a key role, particularly in the Indian maritime zones. This is especially relevant considering the limited capacity of the State Marine Police (SMP) on the one hand, and the increasing role of the Indian Navy in the wider Indo-Pacific in accordance with the SAGAR vision on the other.

Advancing Maritime and Coastal Security Studies

During the Monsoon Session of Parliament earlier this year, the Rashtriya Raksha University (RRU) Act, 2020 was enacted.[38] The RRU, located at Gandhinagar, is an institution of national importance with a focus on policing including coastal policing, security, law enforcement, etc.[39] Likewise, NALSAR [National Academy of Legal Studies and Research] University, Hyderabad and Centre for Human Security Studies (CHSS), a Hyderabad based think-tank on internal and external affairs signed a Memorandum of Understanding in June 2020 *inter alia* to work together in advancing academics and research including in coastal and maritime security and related laws.[40] The focus on coastal policing and security laws by premier academic institutions in India will not only strengthen the theoretical underpinnings on issues related to security, but also provide an ecosystem to advance security studies and research. In turn, policy-making in India would be better informed by such efforts. Overall, there is a dire need for more institutions to add coastal and maritime security studies, and related aspects of law, into their curriculum.

Developments at Zonal/ State-Level

Zonal Coordination

At the 54th Director Generals of Police/ Inspector Generals of Police Conference in Pune in December 2019, a core group held a brainstorming session on coastal security.[41] Subsequently, in July 2020, the Directors General of Police of the four southern States namely Andhra Pradesh, Karnataka, Kerala, and Tamil Nadu held a videoconference to discuss, amongst others, issues of inter-state coordination towards "*keeping a close eye on terrorist activities, enhancing coastal security and ensuring coordination in tackling COVID-19.*"[42] They also discussed the need for additional funds from the Centre for coastal security.

While much of the coastal security initiatives are focused either on the Centre or State, zonal operational coordination, such as that undertaken by the southern States, could play an important role in the future of coastal security management. Similar zonal coordination mechanisms could also be considered by other coastal States.

State Marine Police

Several states have taken initiatives to strengthen the SMP and fisheries enforcement. In February 2020, the Chief Minister of Tamil Nadu 'kicked-off' the functioning of a specialised wing of the Tamil Nadu Police — the Marine Enforcement Wing (MEW) — for enforcement of the Tamil Nadu Fishing Regulation Act, 1983 (TMFRA).[43] In addition, in Nagapattinam district, a committee comprising representatives of fisheries, police, revenue, and transport departments has also been formed for effective enforcement of the TMFRA.[44] Likewise, Karnataka is also considering raising an independent fisheries enforcement wing. Notably, in Kerala a MEW was sanctioned in 1984.[45]

In Odisha, towards effective utilisation of trained manpower, the State Police Headquarters has issued a new policy on posting and transfer of personnel in the

SMP. As per the policy the minimum duration to serve in the SMP is between three years (for Sub-Inspectors and Assistant Sub-Inspectors) to seven years (for Constables and Havildars).[46] Some States, such as Karnataka and West Bengal, have also reserved some posts for Ex-servicemen (ESM) in the SMP.[47]

The raising of dedicated MEW, the increase of attachment period with respective SMPs, and the continued efforts of engaging ESM in the SMP are important steps in boosting SMP capabilities for maritime enforcement, particularly from the human resources perspective. However, in the long term, a permanent cadre of the SMP would be more effective and needs to be considered. In addition, considering the limited service life of vessels, which were procured as part of MHA Coastal Security Scheme Phase I for coastal states, there is a need to strengthen the capacity of the SMP by acquisition of additional vessels.

Leveraging the Coastal Security Construct

The seaward element of the COVID-19 lockdown was enforced by coastal States, in coordination with other agencies, such as in Kerala, Karnataka, Odisha and Goa.[48] Notwithstanding, there have been reports of violation of the lockdown with some migrant workers taking the sea route to return home.[49] Community Interaction Programmes (CIPs), which are normally undertaken for increasing awareness of safety and security, were also leveraged by the SMP for conducting awareness campaigns on COVID-19 precautions.[50]

While the present lockdown was implemented for public health, elsewhere, such as in Malaysia, maritime curfews have been implemented for security requirements. Should there be a requirement of a security-related coastal lockdown in specific areas along the Indian coast, the experience of implementing the seaward element of the COVID lockdown could provide some valuable lessons.

The SMP has progressively been integrated into the response mechanisms to deal with natural calamities, Search and Rescue (SAR) operations, and for biodiversity conservation, such as conservation of Olive Ridley turtles in Odisha.[51] With enhanced capacity and capabilities, the SMP has the potential to contribute in even larger measure to overall maritime security.

The capability developments undertaken primarily for coastal security have been leveraged for other operational requirements as well. For example, during Cyclones Amphan (May 20/ West Bengal) and Nisarga (June 20/ Maharashtra), local nodes of the CSN passed security/safety messages, including in the vernacular, on Very High Frequency (VHF) to all mariners at sea.[52]

Fisheries Management

Coastal States have taken several measures to strengthen fisheries MCS. In July 2020, Gujarat amended the Gujarat Fisheries Act, 2003 through the Gujarat Ordinance No. 4 of 2020 for strengthening fisheries monitoring and enforcement.[53] Some of the salient features of the ordinance include: defining "*crossing of notional Indo-Pak International Maritime Boundary Line*;" extension of powers of Enforcement Officer (officials of the fisheries department) to Police Sub-Inspector (or above) posted at notified Marine Police Stations, including powers of search/ seizure and the use of force; powers of the State Government to make rules under the Act not only for protection of fish, but also for internal security; and, enhanced fines for illegal fishing. Subsequently, in October 2020, the Governor gave his assent to the Gujarat Fisheries (Amendment) Act, 2020.[54]

Karnataka is considering an amendment to the Karnataka Marine Fishing Regulation Act, 1986 to strengthen fisheries enforcement including making certain offences cognisable and raising the upper limit of fines.[55] In addition, Karnataka has taken an initiative to provide QR-code based biometric cards to fishermen through the *Seva Sindhu* portal,[56] and is also considering providing reservations to fishers in the SMP.[57] Earlier this month, the Karnataka Marine Police also launched the *Kadalu* app for monitoring movement of fishing boats and fishers.[58]

The Government of Goa is reportedly considering notifying privately-owned fish landing centres. Notably, the application process is likely to require inputs such as proposed activities, monitoring mechanism for boat movements, layout and demarcation of areas, etc.[59] The requirement of Closed-Circuit Television (CCTV), including remote monitoring by security agencies, is also likely to be made mandatory.

Overall, expanding the enforcement powers of state fisheries laws to include the SMP, enhanced fines for fisheries offences, inclusion of security aspects into fishery laws, and improved monitoring mechanisms at fish landing centres are significant steps taken by some States to improve fisheries MCS. However, the need would be for all States to strengthen MCS measures. In this regard, the Centre's initiative, the PMMSY, could be a key enabler.

Community Policing

The Minister of State for Shipping (Independent Charge) at a seminar on 'Challenges of Coastal Community and their Role in Nation Building,' in December 2019, underscored the importance of empowering the coastal community "*who remain at the vanguard of the country's coastal security*."[60] Furthermore, ingenious ways to involve the fishing community to deal with certain security challenges in the maritime domain have also been advocated.[61]

Community-engagement is a well-entrenched concept in policing. The Civil Defence and Home Guards are examples of organisations that engage the community. Another example of community engagement is that of Special Police Officers (SPOs). In the maritime context, as mentioned earlier, community engagement for coastal security received renewed thrust after the '26/11' incident, but remains largely *ad hoc*. Institutionalisation of community-engagement for maritime security therefore emerges as a possible way ahead for which either existing organisations can be leveraged, or alternatively, a dedicated organisation may merit consideration.

Pending Reforms

Apex-Level Body

The *Report of the Group of Ministers on National Security* (2001) had recommended the setting-up of an apex body for the management of maritime affairs to provide institutionalized linkages between the maritime security agencies and other stakeholders at the Centre and in States.[62] Subsequently, the Indian Navy had proposed

the setting-up of a National Maritime Commission to chalk out the country's long-term maritime policy.[63] A Standing Committee of Defence Report (2014) had also recommended the establishment of a 'Maritime Commission' or a similar agency and a PAC Report of 2015 also highlighted the need for putting in place effective mechanisms for interagency coordination.[64] As brought out earlier, the PAC has once again, in 2020, reiterated this need. In 2014, the Government, recognising the importance of coastal security, also announced the government's intention of setting up a National Maritime Authority (NMA).[65]

The External Affairs Minister in his address at the Sardar Patel Memorial Lecture 2020 on 31 October 2020 highlighted that safeguarding borders is a 24X7 exercise and stressed on the importance of requisite structures and systems for national security.[66] However, he also cautioned against advocating sweeping solutions without adequate ground work. He also highlighted that breaking silos and integrated governance, especially in national security, have been the Government's areas of focus. The setting-up of the DMA and the proposed setting-up of theatre commands are examples in this regard.

In a recent article, Honorary Fellow at the National Maritime Foundation, Commodore C Uday Bhaskar (Retd.), highlighted the importance of comprehending SAGAR from its "*vast and delicate multi-layered complexity*" and reiterated the "*need for a single body that could pull all the threads into a harmonious collective effort.*" In this regard, he has also recommended a revisit of the NMA proposal as a policy imperative.[67]

Presently, the NCSMCS set-up after the '26/11' incident chaired by the Cabinet Secretary is the apex-level coordination body on coastal and maritime security that meets periodically. Considering the increasing focus on issues maritime, including maritime security, a standing apex-level body, such as the proposed NMA, may well be needed. As such, several bodies have already made similar recommendations.

NMDA

In January 2010, the Indian Navy brought out an approach paper for a comprehensive approach to MDA through the National Maritime Domain Awareness (NMDA)

project.[68] The aim of the project was to integrate all available resources and all stakeholders into one integrated system, and to create a Common Operational Plot (COP) amongst all maritime stakeholders. In short, the project aims to consolidate the gains accrued from the National Command Control Communication and Intelligence (NC3I) Network, which networks only the Indian Navy and Coast Guard and integrates a few sensors and databases.

Separately, towards enhanced regional MDA, the IFC-IOR was set-up by the Indian Navy in December 2018 and this has contributed to greater domain awareness and improved international information sharing.[69] The seas are a seamless medium and such regional efforts complement those by national agencies and facilitate an improved understanding of the wider oceanic spaces and possible impact of regional developments on maritime security.

In relation to the threat from long endurance Unmanned Underwater Vessels (UUV), such as the Chinese *Sea-Wing*, former Foreign Secretary Vijay Gokhale highlighted the need for Underwater Domain Awareness (UDA) as a "*pressing need*" and urged for greater cooperation between domestic and like-minded countries.[70] Increasingly, the concept of MDA is widening to include other domains as well such as the airspace above, the waters below, and the contiguous coast. The NMDA project would need to be cognisant of the ever-expanding needs for MDA.

The NMDA project, when implemented, is likely to be a game changer in the management of maritime security in India first, by significantly shortening the Observe-Orient-Decide-Act (OODA) loop, and second, by facilitating integration of essentially naval concepts, such as MDA, Network Centric Operations (NCO) and COP into the operational philosophy of all maritime security agencies. Furthermore, the implementation of the NMDA project will not only consolidate on the significant strides made in domain awareness post '26/11,' but also plug a gap at the national level.

Trends and Imperatives

In the previous sections, some of the major developments at the national and state levels have been examined. Broadly, these include reorganisation of the MoD and proposed raising of a Peninsular Command; continued efforts at strengthening

fisheries MCS and MDA; capability enhancement of maritime security agencies such as the Coast Guard and the SMP, including legal empowerment; and, enhanced cooperation between States for coastal security. Some of the other trends that emerge are wider engagement of States and the SMP in maritime security; increasing convergence of development goals and security requirements; and, enhanced focus on maritime security studies, including maritime security law. Notwithstanding, some major reforms are yet to be implemented.

Having covered the ongoing developments and the observed trends, some of the imperatives are as follows:

- As India increasingly focuses on the seas for its geopolitical, economic and security interests, the long-standing recommendation for single-point body at the apex level, such as the NMA, merits a revisit.

- In view of the planned raising of a Peninsular Command and the enduring need for unitary command structures for effective operational response, the modalities for integration or coordination of the proposed Command with other elements of the coastal security construct, which includes the Coast Guard and the SMP, merits consideration.

- Prioritisation of the NMDA project, which has the potential to revolutionise MDA in India. Further, enhancement of the MDA architecture in India by integration of contiguous air, underwater and coastal elements.

- Further strengthening of the legislative framework such as through enactment of the bills under consideration and strengthening of state fisheries legislations.

- Continuing focus on capacity augmentation and capability development for coastal and maritime security, in particular the SMP, including procurement of additional vessels.

- Greater zonal coordination between adjoining States.

- Continued focus on fisheries MCS.

- Institutionalisation of community-engagement and leveraging the planned expansion of the NCC to support maritime and coastal security efforts by security agencies.

- Leveraging 'Made in India' systems, such as coastal radars and NC3I network, and indigenously built patrol ships and craft, for regional capacity building and capability development in accordance with the SAGAR vision.

Conclusion

'26/11' marked a paradigm shift in the management of coastal and maritime security in India. While there has been no terror attack since then, there have been reports of likely attacks using the sea route. There have also been reports of a range of other forms of maritime crime, including armed robbery. Considering the possible nexus between criminal elements and terrorists, there is a need to remain vigilant against maritime crime in all its forms.

Maritime security governance has been progressively strengthened through a Whole-of-Government approach. Twelve years after '26/11' there can be little doubt about the significant progress that has been made to respond to possible challenges to coastal and maritime security. Recent initiatives taken by some States to strengthen coastal and maritime security are indeed noteworthy. Also noteworthy is the convergence of development and security needs as evinced in the PMMSY programme. However, two of the big-ticket reforms in maritime security governance namely setting-up of a single-point apex body for maritime affairs and the NMDA project are yet to be implemented.

One of the major recent developments has been the setting-up of the DMA and the proposed raising of a Peninsular Command. In the raising of a Peninsular Command, due consideration needs to be given to the ways and means to achieve the overall ends of 'theaterisation,' and concomitantly those for maritime and coastal security.

As India increasingly looks outward, it is important to note that the foundational elements for India's regional vision—SAGAR or the Indo-Pacific Oceans Initiative (IPOI)—are in the maritime security governance structures within India itself. Therefore, strengthening maritime and coastal security governance becomes an enabler and facilitator for India's regional vision.

While continued efforts are being made by multiple agencies to strengthen maritime and coastal security across all levels of governance, many issues will continue to remain a work-in-progress. While further strengthening of initiatives across sectors and governance levels are imperative, pending reforms such as the NMA and the NMDA also merit renewed focus.

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India's Coastal Security Conundrum

The evolution of the coastal security construct in India has been driven primarily by four events: illegal immigration in the 1990s; the Mumbai blasts of 1993; the Kargil War of 1999 which led to the Group of Ministers (GoM) Report on national security (including coastal security); and finally, the Mumbai attacks in 2008 ('26/11') which led to sweeping changes in the management of coastal security in India. Since '26/11' there has been no incident of maritime terrorism; however, the threat from maritime terrorism continues to exist as is evident from reports about the training of certain terror groups in underwater attacks to carry out *Samundari Jihad* (seaborne jihad) against India.[1] As regards other maritime crimes, an analysis of the monthly maritime security updates published by the Information Fusion Centre – Indian Ocean Region (IFC-IOR) in 2020 highlighted the prevalence of maritime crimes in several coastal States.[2] This includes armed robbery, illegal fishing, poaching, drug trafficking, smuggling, and illegal migration. However, in a country which recorded close to 52 lakh cognisable crimes in 2019, the prevalence of maritime crime is infinitesimal.[3] Notwithstanding the statistics, the Mumbai blasts (1993) provides historical evidence about the potential of criminal elements to metamorphose into more sinister forms, and therefore the need to remain watchful of maritime crime. This paper will cover certain major developments that could impact the contours of the future of coastal security in India, some overarching challenges (and possible solutions), and finally, prospects.

Major Developments

In December 2019, the Department of Military Affairs (DMA), or the *Sainya Karya Vibhag,* was created in the Ministry of Defence (MoD)[4]. The responsibilities of the

DMA include optimal utilisation of resources and promotion of 'jointness,' including by raising of theatre commands.[5] General Bipin Rawat assumed responsibility as Chief of Defence Staff (CDS) and Secretary, DMA on 01 January 2020.[6] While previously the Department of Defence (DoD), or the *Raksha Vibhag,* oversaw the functioning of both the principal maritime security agencies viz. the Indian Navy and Coast Guard, following the creation of the DMA, only the Coast Guard continues to function under the DoD.[7] In February 2020, the CDS in an interaction with the media, stated that an Indian Ocean-centered Peninsular Command could be formed by end 2021.[8] He also highlighted that the "security of peninsular India should be the responsibility of one Commander." As per subsequent media reports in December 2020, the Indian Navy will submit a study to the CDS on the Maritime Theatre Command (MTC)[9] by January 2021.[10] Broadly, the MTC is proposed to be constituted by merging the Eastern and Western Naval Commands, and also amalgamating elements of the Indian Army and Indian Air Force. In addition, assets of the Coast Guard are planned to be placed under the 'operational control' of the MTC. The proposed reorganization, which also includes elements of the Coast Guard, will surely have an impact on future coastal security operations.

The Prime Minister in his Independence Day speech on 15 August 2020 highlighted the importance of the coast from a global trade perspective and the work being undertaken towards development of a four-lane coastal highway as follow-on to the SAGARMALA project. He also highlighted the government's focus on island development.[11] Subsequently, on 08 November 2020, the PM announced the renaming of the Ministry of Shipping (MoS) to Ministry of Ports, Shipping, and Waterways (MoPS&W), as this would give more clarity on the work being undertaken by the ministry.[12] He also highlighted the government's focus on multi-modal connectivity. Earlier in September 2020, the PM launched the PRADHAN MANTRI MATSYA SAMPADA YOJANA (PMMSY), a Rs 20,000 plus crore scheme to boost the fisheries sector.[13] Notably, this programme also caters for fisheries monitoring and control, and other safety- and security-related projects in the fisheries sector. With regard to coastal tourism, eight beaches in India have recently been certified with a 'Blue Flag' certification which necessitates meeting of several stringent criteria including those for environment, safety and security, and accessibility.[14] The PMMSY, and to some extent the 'Blue Flag' certification, reflect

the increased focus on safety and security in maritime related development projects in India.

Coastal Security Construct: Overarching Challenges

Cooperative Federalism

In accordance with Article 246 and Seventh Schedule of the Constitution of India, legislative powers are distributed amongst the Union and the States through the Union, State, and Concurrent List.[16] Accordingly, responsibilities for coastal security, which spread across a wide swath of activities, are shared across Central ministries, maritime security forces, and agencies of the Central Government, as well as departments, police, and other agencies of the State governments and are governed by distinct administrative units viz. States (including districts) and Union Territories (UT).[17] This brings along unique challenges in the management of coastal security and accentuates the need for the deepening of cooperative federalism for maritime and coastal security. It is a fact that several coastal States have taken multiple initiatives to strengthen maritime and coastal security. Notable initiatives include the strengthening of the legal framework and fisheries monitoring and control mechanisms, and capacity building, including of the State Marine Police (SMP).[18] States are key stakeholders in the coastal security construct, and state-level measures can contribute significantly to strengthen overall maritime and coastal security in India. Conversely, without the active participation of States, there will remain gaps in the overall construct for maritime and coastal security.

Overlapping Responsibilities

The Department of Border Management (DoBM) in the Ministry of Home Affairs (MHA) is responsible for "management of international land and coastal borders excluding those subjects, specifically allocated to the Ministry of Defence and Ministry of External Affairs."[19] While the MHA has a dedicated Central Armed Police Force (CAPF) for each of the land borders, it however does not have a maritime

force. Operationally, the two principal maritime security agencies viz. the Indian Navy and the Coast Guard function under different departments of the Ministry of Defence viz. the DMA and the DoD respectively, and the Coastal Police or the State Marine Police (SMP) function under respective State governments or UT administration. In addition, the Customs functions under the Ministry of Finance. Furthermore, the operational jurisdictions of maritime security agencies also overlap, such as between the Coast Guard and the SMP.[20] The relationships and overlaps in responsibilities between maritime security agencies evolve over time and are dependent on numerous factors, including legacy factors. Around the world, in an overwhelmingly large number of countries maritime security agencies, such as navies and coast guards (or equivalents) operate with overlaps in responsibilities (hybrid models).[21] However, overlaps can lead to dilution of focus of security agencies from their primary responsibilities, and increase the scope of interagency friction.

In India, the raising of the Coast Guard (1978) and subsequently the GoM Recommendation (2001) for 'One Border-One Force' are examples of efforts at moving away from hybrid models for maritime security and border management respectively towards single-point responsibilities. The raising of the MTC is based on the need for enhancing 'jointmanship' between the three defence forces, optimal utilisation of resources, and as highlighted by the CDS, also the need for a unitary command structure for the maritime theatre. As the proposed MTC will report to the CDS (and not to the Chief of the Naval Staff), and may also exercise control of Coast Guard assets, the proposed MTC will have significant implications for coastal and maritime security in India.[22] Consequently, the aims of 'theaterisation' will also need to concomitantly cater for related aspects of coastal and maritime security.

Strengthening Coordination

The coordination mechanisms for coastal security have evolved over time. In 2009, the National Committee for Strengthening Maritime and Coastal Security against Threats from the Sea (NCSMCS) was established under the chairpersonship of the Cabinet Secretary, and subsequently in 2013, the Steering Committee for Review Coastal Security, under the chairpersonship of the Secretary (Border Management),

MHA was also established. State and District level coordination committees were established in 2016. Issues related to coastal security have also been discussed at zonal forums such as the Inter-State Councils.[23] In addition to dedicated forums for coastal security, aspects related to coastal security are discussed at a number of other sectoral forums as well, such as those related to the offshore, fisheries, and shipping sectors.

The establishment of committees across multiple levels of governance is a positive development, albeit relatively nascent. Over time, and with due focus, these forums can emerge as important agents for a bottom-up approach to strengthening maritime and coastal security. However, despite repeated recommendations by various committees for a standing body at the apex level, such a body is yet to be established. The need for such a body has been recommended by the GoM (2001), the Standing Committee on Defence (2014) and the Public Accounts Committee (2015 and 2020).[24] In 2014, the President also announced the government's intention of setting up a National Maritime Authority (NMA).[25]

Operational coordination at the foundational level is undertaken between the Coast Guard and the SMP through a 'hub-and-spoke' model encompassing Coast Guard stations as hubs and Coastal Police Stations as spokes. At the next level, the coordination is undertaken between naval and coast guard echelons through respective operations centres, and finally, at the apex level the Joint Operations Centres (JOCs), located at Mumbai, Kochi, Visakhapatnam and Port Blair coordinate the overall operational effort. While the Indian Navy and the Coast Guard are networked in real-time, other stakeholders are yet to be integrated. Consequently, there remain gaps in real-time operational coordination amongst agencies.

Maritime Domain Awareness

After the '26/11' incident, electronic surveillance and Maritime Domain Awareness (MDA) emerged as an area of focus. While there existed legacy systems for developing MDA such as position reporting systems, the setting up of the coastal radar chain [Coastal Surveillance Network (CSN)] and the National Automatic Identification System (NAIS) were significant developments to strengthen coastal/ near coast electronic surveillance. More recently, in February 2020, M/s Bharat Electronics

Limited (BEL) signed a contract with the MoD, to establish Phase-II of the CSN which will double the radar coverage along the Indian coast.[26]

The National Command Control Communication and Intelligence (NC3I) Network which connects 51 naval and coast guard stations and facilitates the development of a Common Operational Plot (COP) by fusing information from multiple sources and real-time exchange of information was established in 2014. The Information Management Analysis Centre (IMAC) is the nerve centre of the network. Progressively, IMAC has been working with partners to integrate maritime sensors and databases towards developing comprehensive national-level MDA.[27] The Information Fusion Centre-Indian Ocean Region (IFC-IOR) established in 2018, four years after the NC3I Network and co-located with the IMAC, promotes information sharing at a regional level. As on 26 November 2020, the IFC-IOR has established linkages with 21 partner countries and 22 multi-national agencies.[28]

In January 2010, the Indian Navy brought out an approach paper for a comprehensive approach to MDA through the National Maritime Domain Awareness (NMDA) project.[29] The aim of the project was to integrate all available resources and all stakeholders into one integrated system and to create a COP amongst all maritime stakeholders (and not just maritime security agencies). Despite a long delay, as per media reports in December 2020, the Cabinet Committee on Security is considering the proposal.[30] The NMDA project has transformative potential, and if approved, will be a game-changer in the management of maritime security in India.

Sectoral Issues

In the fisheries sector, since the '26/11' incident, several measures have been taken to strengthen fisheries monitoring and control. Some of the major initiatives in recent years have been the setting-up of a dedicated Department of Fisheries (DoF); sanction of the PMMSY; successful completion of trials of a transponder system for vessels not mandated to be fitted with an AIS system, and, strengthening of the State Marine Fisheries Regulation Act in Gujarat. In addition, a national Marine Fisheries Regulation Bill and a national Fisheries Policy are also being progressed. Notwithstanding the progressive improvement, overall, the fisheries Monitoring,

Control and Surveillance (MCS) mechanisms need further strengthening. Hopefully, the PMMSY will be leveraged to address such issues, and States will take the lead in this regard.

Presently, ports involved in international trade are required to be compliant with the International Maritime Organisation (IMO) mandated International Ship and Port Security (ISPS) Code. In addition, guidelines have also been promulgated by the Centre for security of non-major ports which are administered by States (and not involved in international trade). In other words, port security in non-major ports is not based on any mandatory requirement, such as the ISPS code, but is based on voluntary compliance. Just as the ISPS code created an international ecosystem of comprehensive measures for security of global supply chains, uniform minimum standards for security across all non-major ports would strengthen port security in India. Also perhaps, considering the threat environment, there is a need for going beyond the ISPS Code and setting additional security protocols for major ports.

In accordance with the concept of community policing, efforts at integrating the community into the security matrix have been progressively consolidated. However, there is no institutional mechanism for community-engagement in maritime security. Further, there is a need for providing incentives to the community, such as through award schemes. The National Cadet Corps (NCC) is being extended in 173 border districts, including coastal border districts with the dual aims of availability of trained manpower for disaster management and skill training of youth for a career in the armed forces.[31] The NCC has the potential to contribute effectively towards addressing challenges like disaster management and other security-related tasks, and this potential could be leveraged by maritime security agencies.[32]

Capacity-Building

After the '26/11' incident the Coast Guard has witnessed an exponential growth in its capacity - both afloat and ashore. In a short span after the '26/11' incident, the Coast Guard has almost doubled its capacity.[33] The Coast Guard — now one of the largest in the world — is also actively progressing its 'Vision 2025' of having a fleet of about 200 ships/ craft and 100 aircraft.[34] The SMP, on the other hand,

despite efforts at capacity-building, have been facing difficulties in boat maintenance, and this will invariably have an effect on the operational availability of boats for patrol. Consequently, States need to strengthen the technical support facilities for maintenance of boats. In 2019, the National Academy of Coastal Policing (NACP) started functioning from an interim campus in Devbhoomi Dwarka, Gujarat. This will not only contribute to strengthening the human resources aspect of coastal policing in India, but also perhaps facilitate bringing about pan-India standardisation in training and operations amongst the 13 SMPs.

The institutionalisation of the bi-annual coastal security exercises facilitates the activation of the entire state machinery to deal with simulated threats to coastal security. This is a unique exercise and perhaps has no parallel in the land-based context. Strengthening such exercises can only lead to better outcomes, such as in coordination and interoperability between agencies, and progressively in addressing voids through policy interventions. The conduct of national-level exercise 'SEA VIGIL' in 2019 was a high point in the evolution of the construct. A robust mechanism for coastal security also supports coastal defence in armed conflict, and therefore such efforts must be consolidated.

Legal Framework

The legal framework for maritime security is inherently complex. Domestically, there is an inherent tussle between the need to adhere to international obligations and a nation's own specific security requirements which may call for additional measures. The fact that maritime security laws involve multiple sectors — fishing, shipping, ports, offshore energy, science and technology, tourism, etc — the process of strengthening the overall legal framework for maritime security (and its enforcement) involves multiple stakeholders. Furthermore, considering the need to deal with emerging threats, and other developments such as technology, the legal framework also needs to remain adaptive and responsive.

On 05 December 2019 the MoD, through a gazette notification, empowered members of the Coast Guard to address maritime crimes within the maritime zones of India.[35] This notification provides the Coast Guard with enforcement jurisdiction

over all Central legislations applicable in the Indian maritime zones, and significantly augments the enforcement jurisdiction of the Coast Guard in the designated areas of responsibility of the Coast Guard.

To strengthen the legal framework for activities in or related to the maritime domain several initiatives have been taken. The National Marine Fisheries (Regulation and Management) Bill, 2020 was listed for introduction in the Budget Session of Parliament in 2020.[36] The objectives of the bill *inter alia* include regulation of fishing in the Exclusive Economic Zone (EEZ) and promotion of safety and security of fishers at sea. In addition, the Ministry of Ports, Shipping and Waterways has put out three draft Bills for public consultations, namely the Aids to Navigation Bill, 2020, the Coastal Shipping Bill, 2020, and the Merchant Shipping Bill, 2020. In addition, the Major Port Authorities Bill, 2020 is also under consideration by the Rajya Sabha, and the Inland Vessels Bill, 2020 is also being progressed.[37] The Ministry of External Affairs is also steering the Anti-Maritime Piracy Bill, 2019.

The legal framework provides the basis for the regulation of maritime activities, and its enforcement by empowered agencies. The enactment of laws can in many cases, as witnessed earlier, be a protracted process. Furthermore, procedural issues can also delay the legislative process. Consequently, strengthening the legal framework requires dedicated focus.

Prospects

As per media reports, the Raksha Mantri had stated that subsequent to strengthening of both internal and external security, it is now "almost impossible to execute another 26/11 attack."[38] Commodore RS Vasan (Retd.), Secretary and Director, Chennai Centre for China Studies (C3S) has noted that in the absence of any major security breach the need is for "cautious optimism."[39] Indeed, there are several reasons for optimism, as also several for exercising caution. On the optimistic side:

First, it is certain that coastal security will continue to be progressively strengthened;

Second, the proposed MTC will shape the contours of the future of maritime and coastal security in India. This is likely to be based on greater synergies, optimal exploitation of resources, and a singular command structure.

Third, it is likely that States — particularly those with higher threat perception — will play a greater role in strengthening coastal and maritime security.

Fourth, as evinced in the PMMSY programme it is likely that in the future security requirements would be dovetailed within developmental projects. In other words, it is likely that there will be greater internalisation of security.

Fifth, with the focus of the government on breaking silos and a greater focus on developing MDA, there is a fair chance of NMA and NMDA projects being progressed in some form.

Sixth, it is near certain that the MDA concept will be expanded to include more elements, including further integration with contiguous domains, such as the underwater domain. This will also include information sharing arrangements with foreign countries.

Seventh, it is very likely that the legal framework for maritime activities, including maritime security, will be strengthened both by the Centre and coastal States.

Eight, it is likely that greater interagency coordination for coastal and maritime security will progressively lead to the breaking of silos in overall maritime security governance.

Ninth, it is highly probable that a strengthened SMP will play a wider role in maritime issues, including in fisheries MCS.

Finally, it is likely elements of the NCC and other community-based organisations will integrate further with the coastal security construct.

While there is a case for optimism, there is also a case for caution: *First*, the threats to maritime security from a range of actors, including terrorists, are real; *Second*, it is highly likely that local maritime crimes will continue to be endemic, and these will need to be watched and suppressed; *Third*, despite the major strides

in developing MDA there remain several challenges; *Fourth*, it is very likely that there will be disparities between States with regards state-level security measures; *Fifth*, the strengthening of SMP is likely to be slow as States remain dependent on the Centre for support for capacity-building; *Sixth*, further strengthening of coastal and maritime security will be dependent on implementation strategies for projects, such as in the case of transponders for boats, or the PMMSY; and *finally*, continuing overlaps of responsibility could lead to greater interagency friction, which would need to be managed.

Conclusion

'26/11' marked a paradigm shift in border, coastal and maritime security management, and the present structures for maritime security governance are vastly different from what they were prior to the incident. India's development agenda is closely linked to the seas, and the security of the maritime domain and the coastal region, therefore, assumes even greater salience. One of the biggest reforms in maritime security, albeit with a defence focus, is the proposed MTC. This is likely to have a significant impact on the management of maritime and coastal security. In addition, the NMA and the NMDA are long pending reforms in the maritime security sector. Some of the other broad areas of focus are strengthening cooperative federalism in maritime and coastal security; strengthening fisheries MCS by the implementation of technical solutions, such as the transponder system; strengthening port security measures, especially in non-major ports; continuing efforts at capacity-building of all stakeholders, particularly the police; and finally, strengthening the legal framework.

In short, considering the progress made, there are several reasons for optimism; however, considering the threat environment there is also a need to exercise due caution. Strengthening of maritime and coastal security in India, therefore, needs to be viewed as a continuum of activities, and not just as a one-time response to the '26/11' incident.

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India @75: Reflections on the Homeland Dimensions of Maritime Security in India

To celebrate and commemorate 75 years of independence [India@75], the Government of India launched the *Azadi Ka Amrit Mahotsav* (AKAM) initiative, a 75-week countdown to the 75th anniversary of independence, on 12 March 2021.[1] The initiative, divided into five themes, not only celebrates the *freedom struggle* and the country's *achievements*, but also, looking ahead till 2047 [India@100 (*Amrit Kaal*)] focuses on *actions* to help India take its rightful position in the new world order, *ideas* (and ideals) to guide the country, and the *resolve* to shape India's destiny.[2]

As India celebrated AKAM — and in the spirit of AKAM — over the last year there have been two landmark developments with potentially far-reaching implications for the future of maritime security. On 09 August 2021, Prime Minister Narendra Modi chaired the UN Security Council High-Level Open Debate on "Enhancing Maritime Security: A Case For International Cooperation," under the Indian presidency of the Security Council. The relevance of the event can be gauged from the twin facts that this was the first time that maritime security was discussed in a holistic manner and as an exclusive agenda item at the UN Security Council, and that it was also the first time that an Indian Prime Minister was chairing an open debate in the UN Security Council.[3] Subsequently, in February 2022, Vice Admiral G Ashok Kumar (Retired), was appointed India's first National Maritime Security Coordinator (NMSC).[4] The appointment of the NMSC realised a long-pending reform, which had been recommended in the *Report of the Group of Ministers on National Security* (2001).[5] Both developments are reflective of the distance that the country has traversed since Independence, the growing confidence of India as a maritime nation, as well as the vision and resolve for strengthening maritime security, not just in India, but internationally as well. Notably, while Prime Minster Modi highlighted India's five principles for international cooperation, including

jointly facing natural disasters and maritime threats created by non-State actors and preserving the maritime environment and resources, these principles also have implications for the homeland dimensions of maritime security.

In the backdrop of India completing 75 years of its Independence, this commemorative article reflects on the events that shaped India's approach to the homeland dimensions of maritime security and its evolution.

An Overview of Events that Shaped India's Approach

The Indian Navy was the only dedicated maritime force at the time of Independence, and it largely continued to be so till the raising of the Coast Guard 30 years later in 1977. However, in the Andaman and Nicobar (A&N) island chain, a Police Marine Force (PMF) was raised way back in 1957 as a 'police coast guard,' and the Border Security Force (BSF) in 1966, soon after its raising in 1965, established its marine wing to facilitate presence in riverine areas along India's borders.[6] Interestingly, more than four decades later, the 'A&N model' of a State police formed the template on which the Group of Ministers (GoM), in their 2001 report on reforming national security, recommended the setting-up of coastal police, or State Marine Police (SMP), in all coastal States of the Union. Another interesting facet is that, despite a role limited to within the Indian baseline, the BSF, with its dedicated 'water wing,' is perhaps the force with the largest inventory of vessels (some 450 of them), albeit mostly boats and small craft.[7] This is reflective of the successful 'marinisation' of a force, which was essentially not a maritime force. It is, therefore, a model worthy of emulation by other similar forces.

Smuggling emerged as the dominant non-traditional maritime security threat in independent India, and by the 1960s, smuggling by sea was 'rampant' and threatened the economy of the country.[8] In this backdrop, based on directives of the Prime Minister, the "Dr BD Nag Chaudhari Committee" was constituted, in 1970, to examine the issue. This committee submitted its report in 1971.[9] The 1971 armed conflict between India and Pakistan also resulted in a rise in smuggling, with a further detrimental impact on the Indian economy.[10] In 1974, the Government approved the setting up of a Customs Marine Organisation (CMO), under a naval officer on deputation to the Customs, with 20 patrol craft and 50 confiscated dhows.[11] After

the raising of the Coast Guard in 1977, the CMO was, in 1982, merged into the Coast Guard.[12] However, after the Kargil conflict with Pakistan (1999), the GoM Report (2001) recommended the strengthening of the Customs organisation, which essentially meant the revival of the marine dimensions of the Customs department.[13] Accordingly, between 2008 and 2012, Customs procured 109 boats for discharging the 'preventive' functions of the Customs organisation.[14]

The 3rd UN Conference on the Law of the Sea (UNCLOS III), which commenced its negotiations in 1973, witnessed arguments for creating a *sui generis* zone, namely, the Exclusive Economic Zone (EEZ), over which a coastal State could exercise sovereign rights over natural resources. Insofar as India was concerned, a major outcome was the creation of a large EEZ over which India would need to exercise its rights — essentially a constabulary function. In 1974, the Indian Navy suggested the creation of a Coast Guard organisation.[15] At that time, the Chief of the Naval Staff, had presciently stressed the need for greater coordination, an integrated approach, and an avoidance of duplication — issues that still remain relevant 50 years later.[16] Subsequently, in September 1974, the Government constituted a committee under Shri KF Rustamji, Special Secretary, to examine *inter alia* the formation of a coast guard.[17] In 1975, the committee submitted its report and strongly recommended the *"setting up of a 'Coast Guard' type of organization for general superintendence and policing in our sea areas."*[18] Against the backdrop of UNCLOS III, the increasing emphasis on law enforcement, especially to counter smuggling, discovery of oil in the offshore areas, and the need for an agency for benign 'safety and protection' tasks, the Coast Guard came into being on 01 February 1977 with two frigates and five patrol boats, and was formally 'inaugurated' on 19 August 1978.[19] The Parliament enacted the Coast Guard Act on 18 August 1978.[20] In the four decades-plus of its existence, the Coast Guard has grown from just seven surface platforms at the time of its inception to a force of 158 ships and craft and 70 aircraft (as of January 2022), reportedly making it the fourth largest Coast Guard in the world.[21]

By the 1990s, with the repealing of Gold Control Act, 1968, and the liberalisation of the Indian economy, infiltration/ terrorism replaced smuggling as the principal non-traditional maritime security threat that the country faced. In the 1990s, three operations were instituted *inter alia* to prevent the smuggling of weapons and explosives into the country: Op TASHA (Tamil Nadu/ 1990), Op SWAN

(Maharashtra-Gujarat/ 1993), and Op LEECH (Andaman and Nicobar/ 1998), with Ops TASHA and SWAN being longstanding ones.[22]

In 1990, with the withdrawal of Indian Peace Keeping Force (IPKF) from Sri Lanka, the protection of the Tamil Nadu coast was entrusted to the Indian Navy and the Coast Guard.[23] Op TASHA, a Low Intensity Maritime Operation (LIMO), commenced in June 1990 in the Palk Bay, to curb the smuggling of arms and ammunition, poaching, illegal immigration and activities of Sri Lankan Tamil militants.[24] In retrospect, Op TASHA, which was the first standing operation to involve the Indian Navy, the Indian Coast Guard, and the State police, facilitated the institutionalisation of multi-layered patrolling, intelligence sharing, and the development of institutional structures for inter-agency coordination in Tamil Nadu. This operation, perhaps, laid the foundation of the coastal security construct in India. Notably, a dedicated Coastal Security Group (CSG) of the Tamil Nadu Police was raised in 1994.[25]

Subsequent to the terror attack in Mumbai in March 1993, which involved the use of the sea route for landing of ammunition at a location south of Mumbai, intelligence revealed the likelihood of the landing of arms and explosives along the west coast of India, from Gujarat to the Konkan coast.[26] In April 1993, a month after the blast, Op SWAN was launched at the request of the Ministry of Home Affairs (MHA).[27] The operation, largely similar to Op TASHA, involved the States of Gujarat and Maharashtra, the Indian Navy and the Indian Coast Guard, supported by the Customs and the State Police.[28] In July 1999, the Indian Navy, along with the Maharashtra Police, implemented a community initiative, the *Sagar Rakshak Dal*, in coastal villages in Maharashtra. This was driven by the need for improving surveillance at a time when technology was limited, and was, perhaps, the first major initiative towards integrating the community for maritime and coastal security.[29] Op SWAN took forward the lessons that had been imbibed from Op TASHA, which was limited to a single State on the east coast. Both these operations certainly contributed positively and significantly to the evolution of the coastal security construct in India. In effect, by the late 1990s, three of the 13 coastal States/ Union Territories (UTs), viz., Gujarat, Maharashtra, and Tamil Nadu, had functional coastal security organisations, and at least two more, viz., A&N and Karnataka, had established marine wings of their respective police force.

After the Kargil Conflict of 1999, the Kargil Review Committee (KRC) was set up under the chairpersonship of Dr K Subrahmanyam. The Committee, *inter alia*, urged that a thorough and expeditious review of the national security system in its entirety be expeditiously undertaken.[30] In April 2000, based on the recommendations of the KRC, a Group of Ministers (GoM) was tasked to review the national security system in its entirety, consider the recommendations of the KRC, and formulate specific proposals for implementation.[31] In turn, the GoM set up four Task Forces, including one on Border Management.[32] The report, submitted a year later in May 2001, included a section on "Maritime Borders and Island Territories" and made several recommendations to strengthen maritime 'border' management. The most notable of these recommendations related to the strengthening of the Coast Guard and the raising of specialised Marine Police units in all coastal States and island territories. The report constitutes a seminal step in the evolution of the construct for coastal security on a pan-India basis and, for the first time, comprehensively and holistically examined issues related to the security of the coast and island territories. The recommendations, once approved by the Cabinet Committee of Security (CCS), were transformed into a veritable action plan for reforming national security, including those related to maritime 'borders' and island territories. Subsequently, in January 2005, the CCS also approved the first phase of the Coastal Security Scheme (CSS) for raising a Coastal Police in all coastal States, for implementation in 2005–06. This ushered in a new paradigm of marine policing in India.

On 26 November 2008, while GoM recommendations were still under implementation, foreign terrorists using the sea route attacked Mumbai ('26/11'). This led to the revamp of the construct for maritime security in India, especially coastal and offshore security, and reflected a paradigm shift in the approach to the homeland dimensions of maritime security. Broadly, it led to the allocation of specific responsibilities for maritime security agencies, such as the Indian Navy, the Indian Coast Guard, and SMP; capacity building of security agencies; an enhanced focus on electronic surveillance in general and Maritime Domain Awareness (MDA) in particular; the progressive institutionalisation of coordination mechanisms; the strengthening of interagency operational coordination; and an increased focus on community engagement. Collectively, these measures have transformed India's

approach to maritime and coastal security — regrettably however, this has been done reactively.

Some Reflections

There are decades where nothing happens; and there are weeks where decades happen.[33]

Atypical Evolution

In the context of maritime security, according to the 'pragmatic ordering process' — a multi-stage model of transformation based on the developments in the Western Indian Ocean Region (WIOR) — there are five stages between exiting from an older established order and entering a new one: the emergence of a new problem (*problematisation*), an informal process (*informality*), 'experiments' (*experimentation*) to deal with the uncertainties of a new problem, *codification* of successful experimentation, and, thereafter, *consolidation*.[34] The model, based on the WIOR experience, is not designed to be a universal model, but one that illuminates and provides a heuristic for exploration.

From the available literature it appears that in India there has been little time for informality and experimentation, but there has, indeed, been a focus on high-level examinations by committees and groups towards addressing challenges ('problems'), as well as improvisations to deal with these challenges. The '26/11' case is paradigmatic in this regard — in about two months after the incident, a significantly reformed order was instituted. This notwithstanding, the 'new' model was built on localised 'experiments' of the past, such as Ops TASHA and SWAN; the Indian experience of dealing with terrorism in non-coastal States, and land-border management; successful innovations, such as the Indian Navy developed MDA system; etc. While in the past, 'crisis-driven ordering' perhaps necessitated a heuristic but imperfect approach to deal with future and emerging challenges, pragmatic ordering may perhaps facilitate a more ideal approach to address emerging and future maritime security challenges. In contrast to the past, the institutional mechanisms developed after '26/11' engender planned and experimented transitions to newer models, and consequently, these need to be leveraged for future and emerging challenges.

In an 'ideal' transition model, which lies in a S-shaped pattern, there are four stages: pre-development, take-off, acceleration, and then stabilisation (Figure 1).[35] In the first stage (pre-development), the initial steps at transitioning are not readily apparent. In the second stage (take-off), thresholds are breached for transitioning into a new model. In the third stage (acceleration), structural changes become more apparent. Finally, in the fourth stage (stabilisation), the rate of change reduces and a new equilibrium is reached. As evinced in the earlier section which provided an overview of the events that shaped India's approach, there has been a series of transitions in the past 50 years, some overlapping, but all driven primarily by new challenges (and crises). As one transition stabilised, there arose newer challenges that needed to be addressed and new transitions to be made — change has, in fact, been the only constant. In the context of reforms after '26/11,' the CCS directives of February 2009 reflect a 'take off' or inflexion point, which 'accelerated' in successive years by way of the implementation of various initiatives and processes, and has now reached a phase of relative 'stabilisation.' Looking ahead, the next generation of reforms need to be taken in a *preventive* context, driven by processes that review the present and peer into the future through periodic assessments, evaluations, audits, and strategic reviews, and articulate the way forward through vision, strategy, and
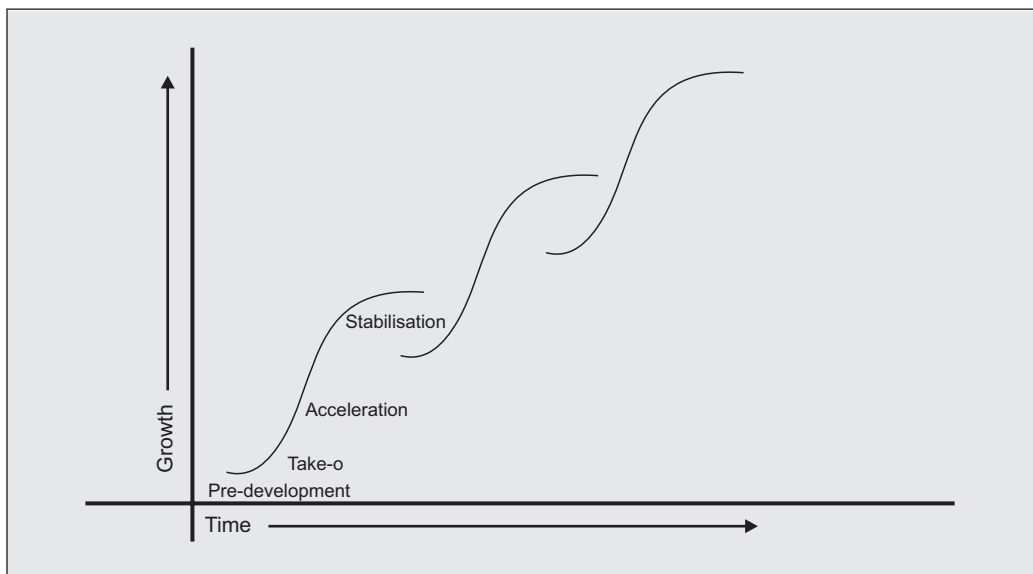

Figure 1: S-Shaped Transition

plan documents, and not by a *responsive* or *reactive* context as has often been the case in the past.[36]

Conceptual Evolution

The concept of 'maritime security' has no universally accepted definition, but is acknowledged to have multiple dimensions, and its usage is largely contextual. In other words, maritime security could mean different things to different referents. Christian Bueger (2015) in a widely cited and popular article has described maritime security as a web of relations between concepts such as sea power, marine safety, blue economy and human resilience, and opines that each of these concepts points to different dimensions of maritime security, such as national security, marine environment, economic development and human security.[37] Subsequently, in 2021, he, along with his co-authors, conceptualised three dimensions of maritime security to be inter-State disputes, extremist violence *at* sea, and transnational organised crime.[38] In a classical sense, as KR Singh in *Coastal Security: Maritime Dimensions of India's Homeland* (2012) brings out, these dimensions relate to defence, 'security,' and law enforcement respectively. In other words, the contemporary dimensions of maritime security reflect a conflation of traditional approaches to security and law enforcement. The 2021 UN Security Council Presidential Statement on the August 2021 open debate on maritime security, however, retained its focus on maritime crime, transnational organised crime, and non-traditional threats, despite discussions on inter-State disputes.[39]

The available evidence points to MHA introducing the term 'coastal security' into officialese primarily in the context of border management and marine policing in the early years of the 2000s.[40] An etymological study may well reveal that this distinctive maritime concept, which is now being used in other countries as well, originated in India. Progressively, the term was also imbibed into naval doctrine in 2009, and doctrinally developed in the 2015 naval strategy, where it described coastal security as a subset of maritime security focused on coastal waters.[41] While coastal defence has been an enduring naval concept, coastal security as a distinct concept is only a recent addition. However, as highlighted earlier, the concepts of

security and defence are no longer mutually exclusive, and particularly in the context of coastal and offshore security and defence, there are significant overlaps.[42] In fact, robust structures for coastal security engender coastal defence. In contrast to the naval strategy, which views coastal security as a subset of maritime security, KR Singh (2012), viewed coastal security from a different perspective as the maritime dimension of homeland security, perhaps driven by the fact that coastal border management is the responsibility of the MHA. It is the liminality of the concept, involving the seas and the lands, which perhaps gives rise to differing approaches to the issue.

The evolution of the theory and practice of 'coastal security' in India is indicative of similar linkages to other concepts and dimensions of security as has been described by Christian Bueger regarding maritime security, albeit in the limited spatial context of the coast and nearshore waters. Neither the concept of maritime security nor that of coastal security has reached a point of finalisation, but rather, they continue to evolve. However, the concept of coastal security — as an integral component of maritime security, as espoused in the Indian Navy's strategy — needs to evolve further and gain traction in reflecting its wider maritime remit beyond the confines of border management to which it has largely been tethered. Likewise, literature on maritime security too needs to give conceptual space to coastal security. Redefining concepts and their relationship to other concepts could lead to a fresh pathways encompassing a holistic approach while approaching the future.

Changing Contours of Maritime Security Governance

(W)holistic Approach. Maritime security governance in India today is characterised by an inclusive *'whole-of'* paradigm, a global trend highlighting the movement from isolated silos in public administration and governance to formal and informal networks driven, *inter alia*, by factors such as the need for collaborative responses to complex problems.[43] The 'whole-of' paradigm pertains not only to government(s) [*whole-of-government*], but also to the nation [*whole-of nation*], or across society [*whole-of-society*]. From essentially a single agency activity till the early 1970s, the governance of maritime and coastal security has established itself as a multi-stakeholder, multi-sectoral, multi-level activity involving a host of ministries, departments, agencies,

as well as civil society at large, through a mix of largely formal, but also informal processes, especially after the '26/11' incident. Operationally, Exercise SEA VIGIL (2019), a biennial national exercise, is an exemplar of the 'whole-of' paradigm, as it brings together the entire nation and all available resources, including those of maritime sectors and the community to facilitate collaborative responses, albeit in simulated scenarios. Likewise, Exercise SAGAR KAVACH is reflective of the 'whole-of' paradigm at the level of States. The establishment of coordinating committees at multiple levels of governance — the National Committee for Coastal and Maritime Security (NCSMCS) in 2009, the Steering Committee for Review of Coastal Security (SCRCS) in 2013, and the State and District level Coastal Security Committees in 2016 — has institutionalised mechanisms for policy coordination and implementation across the Centre and States, as well as within states and districts. With the appointment of the NMSC in 2022, the 'whole-of' paradigm is only likely to get further streamlined and consolidated. The 'whole-of' paradigm, which focuses on the whole, rather than parts, would be an important facilitator to meet the ends of 'holistic maritime security.' As such, the whole is greater than the sum of its parts.

Fragmentation. Paradoxically, the 'whole-of' paradigm notwithstanding, the management of maritime security, spread over functions, sectors, agencies, as also between the Centre and States, is inherently fragmented, and 'siloed.' However, despite the negative connotations associated with fragmentation, a recent study (2022) argues that fragmentation in a regional maritime security cooperation context — described as a non-hierarchical proliferation of arrangements — facilitates increased 'socialisation' amongst stakeholders, which by itself can lead to the *development of trust and collective identification between actors.*[44] This is likely to be true not just in the context of regional cooperation, but also for domestic maritime security coordination. Therefore, while fragmentation is perhaps inevitable, the plethora of sectoral and functional forums for coordination, as well as for intelligence and information sharing, need to be effectively and positively leveraged to further and promote national interests.

Coordinated, but not Unified. At the operational level, several important initiatives have been taken to streamline coordination and have facilitated greater 'unity of effort.' These include, amongst others: the institution of the 'hub-and-

spoke model' between the Indian Coast Guard and the SMP; the establishment and the NC3I network between the Indian Navy and the Indian Coast Guard; the establishment of Coastal Security Operation Centres (CSOCs) across different echelons of the Indian Coast Guard in a hierarchical structure and their interface with the Joint Operations Centres (JOCs) at the apex-level of the hierarchy; the formulation of Standard Operating Procedures (SOPs), etc. While a multi-layered approach to coastal security has been adopted, the GoM Report of 2001, acknowledging issues related to 'command and control' associated with the deployment of multiple forces, had enunciated the 'one-border-one-force' principle to obviate *"problems of conflict in command and control."*[45] Towards enhancing coordination and improve jointness among the armed forces in the maritime domain, a Maritime Theatre Command (MTC) is under consideration as a *"one-point command structure for all sea-going warships, submarines,* [aero] *planes, and surveillance assets like drones."*[46] Further, as per media reports, the MTC is expected to unify and integrate assets of the three defence forces, as also the Coast Guard, which is an armed force, under the Ministry of Defence (MoD).

A recent study of some Asian States (2022) revealed three models of maritime law enforcement: *unified command* [maritime assets from different agencies temporarily assigned under a joint operational command], *unified force* [all maritime assets are centralised under a single agency], and '*division of labour*' [multiple agencies with their own assets, authorities, and operational tasks].[47] The author concludes that *"unified force and unified command models are better modes of maritime security governance in managing limited maritime resources than the ineffective and inefficient division of labour model."*[48] Another study, in 2018, dilated on the pervasive 'hybrid model,' which is based on the degree of formalisation of the division of responsibilities between military (navies) and non-military agencies.[49] Hybrid models, as per the analysis of the authors, reflect a pragmatic approach, as opposed to an idealised approach.[50]

In short, there is no unanimity as to the ideal operational model, as each one has its advantages, as well as disadvantages. However, it is a fact that coordinated models have shortcomings, which could at a critical time affect effectiveness of operational actions. The fact that 'unity of command,' as opposed to 'unity of effort,' is considered as a principle of war by some militaries is not without reason.

Securitisation. Another trend — a consequence of incidents like '26/11' and the institutionalisation of coordination measures amongst the government, security agencies, and other stakeholders — has been progressive 'securitisation,' albeit not in a classical sense of according high urgency and top prioritisation, but a more nuanced long-term cultural transformation amongst maritime stakeholders in the manner in which they think about security.[51] The inclusion of offences in the Marine Aids to Navigation Act, 2021, including intentionally or negligently obstructing, or destroying, Aids-to-Navigation (AtoN) or Vessel Traffic Services (VTS), and non-compliance with directions of a VTS provider is one such example at the level of the Centre.[52] Likewise, at the level of States, in 2020, the Gujarat Fisheries Act of 2003, was amended to enable the strengthening of fisheries monitoring, enforcement, and to enhance security.[53] Similarly, the draft policy framework for India's blue economy, which is aimed at enhancing the contribution of the blue economy to India's GDP, improving the lives of coastal communities, and the preservation of marine biodiversity, also focuses on maintenance of security of marine areas and resources.[54] Accordingly, one of the themes of the draft policy is focused on *"security, strategic dimensions, and international engagement."* Overall, securitisation, if managed through a long-term approach, tends to be largely positive as it increases the possibility of resource allocation.[55] The fact is that considering the threat perception, there is no option, but to securitise.

Top-Down and Bottom-Up. While the recommendations of the GoM Report (2001) and the CCS Directives (2009) are reflective of a top-down approach, developments have also been bottom-up. Four examples of a bottom-up approach include: (1) the PMF model of A&N (1957) which subsequently became a template for other coastal States to follow, albeit close to five decades later (2001); (2) the extrapolation of the multi-tiered model and state-level coordination mechanisms first instituted in Tamil Nadu (1990) and then further consolidated in Gujarat and Maharashtra (1993) as part of OP TASHA and Op SWAN, respectively, across all coastal States (2009); (3) the ReALCraft [Registration and Licensing of Fishing Craft] portal developed in Kerala (2008) for fishing-vessel registration and fishing licensing, which was extended to the rest of the country (2014); and (4) the experience of the Indian Navy in Net-Centric Operations (NCO) and MDA, commencing in the

late-1990s, which was then leveraged to develop the National Command, Control, Communication, and Intelligence (NC3I) network (2014) and put in place the Information Fusion Centre-Indian Ocean Region (IOR) in 2018. Put differently, innovations at the level of States and individual departments/ agencies have significantly impacted the development of structures at the national level, and are reflective of a bottom-up approach. The future may be no different, and therefore, while having a global maritime security perspective, the next model and solutions for emulation may yet again come from local innovations and improvisations. This notwithstanding, with increasing focus on maritime security cooperation with foreign countries, best practices from elsewhere must also shape the future.

Emerging and Future Challenges: Imperative for Change

The present construct for coastal security has evolved over the years primarily to respond to challenges such as smuggling, infiltration, maritime terrorism, etc. Yet, the fact is that risks from these non-traditional threats have not abated. The threat of maritime terrorism is widely considered to be a latent one. However, increasing incidents of drug seizures at sea and in Indian ports, are indicative of new and dangerous trends. The nexus between drug traffickers and terror organisations, and terror-financing through drug deals further compounds the issue. The magnitude of the menace can be gauged from the fact that, as per media reports, the total value of total drugs seized in India in 2021 was more than the budget of some States.[56] In addition, there have also been seizures of banned dual-use items under the SCOMET list [Special Chemicals, Organisms, Material, Equipment, and Technology] published by the Directorate General of Foreign Trade (DGFT) from Indian ports.[57] In essence, in addition to safeguarding the maritime boundaries and coastal zones, the protection of the country's 'economic frontiers' also need focused attention.

The IFC-IOR *Annual Report 2021* highlights four categories of emerging maritime security threats: 'hybrid threats,'[58] cyber threats, marine environmental pollution, and climate change.[59] The first category is of particular and immediate concern as it is indicative of a proliferation of advanced and dangerous military hardware to non-State actors. While the report is based on incidents elsewhere, it holds important lessons about which India must be mindful. In an article of 2021

related to the UK's *National Strategy for Maritime Security*, the authors highlight the following important trends of maritime insecurity: grey zone warfare at sea, the spill over of violent extremism on land to the sea, the growing nexus between maritime crime and terrorism, and the continued evolution of maritime (blue) crime.[60] Environmental security at sea and data-cable security are other areas that the authors recommend that the UK's strategy should focus upon. Collectively, both, the report and the article, are reflective of the future concerns — *neo* non-traditional threats — that would need to be handled differently than in the past. Established models for handling threats 'at,' 'in' and 'from' the sea could well become outmoded. The S-shaped curve for transition, is also applicable for innovation, and unless new innovations are instituted, readiness for the next generation of challenges may well remain behind the curve.

Conclusion

A number of events and developments have shaped the evolution of the domestic or homeland dimensions of maritime security in India. While smuggling became a major threat in the 1960s, infiltration and terrorism replaced smuggling as the predominant threat in the 1990s, which led to the development of localised solutions in coastal States, such as Gujarat, Maharashtra, and Tamil Nadu. The Kargil conflict (1999) and the subsequent GoM Report (2001), which looked at reforming national security, also included several recommendations for strengthening maritime border management and coastal security, and the wider participation of maritime stakeholders. '26/11,' however, was a watershed that brought about transformational changes in India's approach to maritime and coastal security.

The transition to newer models of governance has been atypical and largely in a responsive or reactive context. With the strengthening the institutional mechanisms across several levels of governance the next generation of reforms need to be taken in a preventive context, driven by processes that review the present and peer into the future through periodic assessments, evaluations, audits, and strategic reviews, and articulate the way forward through vision, strategy, and plan documents. As concepts, maritime security and coastal security continue to evolve. While approaching the

future, redefining concepts and its relationship with other concepts could also lead to fresh pathways, engendering a holistic approach to maritime security. The concept of coastal security as an integral component of maritime security, as espoused in the Indian Navy's strategy, need to evolve further and gain traction to reflect its maritime remit beyond the confines of border management to which it has largely been tethered. Likewise, literature on maritime security too needs to give conceptual space to coastal security.

Unlike in the past, maritime security governance in India today is characterised by an inclusive *'whole-of'* paradigm, which is reflective of the collaborative approach to maritime security. This notwithstanding, fragmentation is inevitable. However, fragmentation, too, can contribute to greater socialisation, trust-building, and a collective identification of issues. Another feature of the evolving architecture has been a focus on coordinated structures towards achieving 'unity of effort.' While some scholars argue in favour of unified structures, others favour 'hybrid' models that reflect pragmatism as opposed to idealism. However robustly argued the debate, it must be conceded that 'unity of command,' is an enduring military principle, and not without reason. The MTC is an important step in this context. Two other features of the evolutionary process have been increasing securitisation and the interplay of both top-down and bottom-up approaches in the evolution of the construct. In an environment of high risks, securitisation is inevitable, and lessons from the past are indicative of the fact that local solutions and innovations can offer great promise in a national context.

Trends, reports, and studies are indicative of the waxing and waning of existing threats and concerns about emerging *neo* non-traditional threats, such as hybrid threats, cyber threats, climate change, etc. Each one of these emerging and future threats has implications for maritime India. In the face of these challenges, established models may well become outmoded. Therefore, there are important imperatives for future-proofing. Finally, looking ahead to India@100, the strengthening of maritime security is an unending work-in-process, rather than a journey with a defined end. In the past there may have been decades where nothing happened and there may equally have been weeks where decades happen, but that is now history.

<div align="right">08 August 2022</div>

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Conceptual Evolution

An Integrated Approach to Coastal and Offshore Defence: Leveraging the Coastal Security Construct

The second edition of Exercise SEA VIGIL, a pan-India biennial coastal defence exercise, was conducted on 12 and 13 January 2021.[1] The exercise, which is India's largest such exercise, was facilitated by Central ministries and State governments, and is conducted in the build-up to the Indian Navy's theatre-level war-fighting exercise TROPEX [Theatre-level Readiness Operational Exercise].[2] The exercise conducted along the Indian coast, and maritime zones, exercised both peacetime and wartime contingencies.[3] All coastal States, Union Territories, and maritime security stakeholders, including the coastal and fishing communities, participated in the exercise. The exercise this year was conducted against the backdrop of tensions with China.

The exercise saw the deployment of the entire coastal security apparatus, including 110 surface assets of the Indian Navy and Coast Guard.[4] Considering the fact that other maritime elements of the coastal security construct — State Marine Police, Customs, Border Security Force, Central Industrial Security Force, etc. — were also deployed, the total number of surface assets deployed could have been in the 500-600 range.[5] These numbers are significantly more than some of the largest naval exercises in the world.[6] In addition to surface assets, air assets were also deployed; and Indian Navy Marine Commandos (MARCOs), the National Security Guard (NSG), and State police teams were also integrated into the response-chain. The exercise, highly important in terms of national security, met all the objectives and highlighted the progress made in enhanced cooperation and coordination amongst all agencies.[7]

Spectrum of Maritime Security Exercises

The present construct for coastal security was established soon after the 2008 Mumbai attacks. Since then, a host of steps have been taken by all stakeholders to strengthen aspects related to coastal security under their respective charters, which continue to be progressively consolidated, and improved upon. More significant, amongst the steps taken, are assigning responsibilities for coastal security to maritime security agencies; capacity-building and capability-enhancement of security agencies; and a thrust on Maritime Domain Awareness (MDA) and electronic surveillance of the coastal areas.

One of initiatives was the conduct of the biannual coastal security exercises, Exercise SAGAR KAVACH, by the Coast Guard in coastal States and Union Territories. The exercise is conducted either independently for a State, or is combined with an adjoining State, and includes participation by all stakeholders.[8] The primary objective of the exercise is to assess the effectiveness of measures instituted, and in turn to strengthen the system by acting on the lessons learnt.[9] These exercises facilitate operational training, audit of operational and information-sharing procedures, identification of voids, streamlining of Standard Operating Procedures (SOPs), etc.[10] Likewise, the biannual offshore security exercise, Exercise PRASTHAN, is conducted in the Offshore Development Areas (ODA) by the Indian Navy.[11]

The first Exercise SEA VIGIL was conducted on 22 and 23 January 2019 by the Indian Navy, in close coordination with the Coast Guard, a decade after the '26/11' incident.[12] The exercise was conducted in two phases.[13] In the first phase, audits were undertaken by multi-agency teams to assess preparedness of fish landing centres, ports, lighthouses, etc, and in the second phase, a range of contingencies, including simulated attacks on vital assets, were exercised to assess response, coordination, and information-sharing.[14] A debrief of the exercise was also conducted over teleconference simultaneously with all States, and key takeaways deliberated and disseminated for follow-up action.[15]

TROPEX is a theatre-level naval exercise which focuses on naval war-fighting in a large maritime theatre of operations, extending well beyond India's maritime zones.[16] The exercise includes the participation of the Indian Army and the Indian

Air Force, and the Coast Guard. The exercise consists of two phases; a joint work-up phase, which includes weapon firings, and a tactical phase.[17]

In 2018, the Indian Navy revamped its operational exercise plans *inter alia to* cater for a two-front war.[18] The revised plan, with a focus on joint war-fighting, caters for scenarios such as terrorist attack from the sea on critical infrastructure, offshore defence, protection of trade, etc. [19] Accordingly, two major exercises are being conducted: Exercise ENCORE [Eastern Naval Command Operational Readiness Exercise] and Exercise PASCHIM LEHER on the east and west coast respectively.[20] Coastal and offshore defence are being exercised during both the exercises.[21] Separately, the tri-service Andaman and Nicobar Command also periodically conducts the Defence of Andaman and Nicobar Exercise (DANX), Exercise KAVACH, and Amphibious Exercises (AMPHEX).[22]

Theoretical Framework: Doctrine-Concept-Strategy

The term 'coastal' encompasses both the landward and seaward dimensions, and consequently the defence or security of the coast inherently encompasses activities both at sea and ashore, working in close coordination with each other. Coastal and offshore defence, in a conflict with another nation, requires preventing and countering seaborne attacks against coastal and offshore installations.[23] Multi-dimensional attacks could be launched from ships, aircraft, or submarines using stand-off weapons, or could also be undertaken by marines and Special Forces.[24] Mines could also be offensively deployed off ports and harbours. Therefore, defence of coastal and offshore assets involves both offensive and defensive tasks, including coastal battery launched missile attacks, Air Defence (AD), Naval Cooperation and Guidance to Shipping (NCAGS), Mine Counter Measures (MCM), and preventing infiltration from the sea, etc.

In peacetime, coastal security largely focuses on preventing infiltration by terrorists using the sea route and, given the extent of India's coastline and many islands, entails a wide remit of activities. While the operational end of such activities includes surveillance and patrol by ships, aircraft, and shore-based surveillance using electronic means, other related activities include security of ports and islands,

protection of Vital Areas (VAs)/ Vital Points (VPs), regulation and monitoring of maritime activities, such as shipping and fishing, etc.

The concepts of defence and security are not mutually exclusive, but are interrelated and mutually supportive.[25] With the increasing blurring of lines between traditional and non-traditional threats, the threat spectrum has become more complex. Accordingly, the response mechanisms have also blurred with the existing responses catering for both types of threats. Specifically, with regard to coastal/ offshore security and defence, while the overall concept of defence incorporates a wider threat spectrum, and also some specialised activities, the underlying capabilities for coastal security, which focus on infiltration prevention through the sea routes and regulation of maritime activities, are integral to the concept of 'coastal defence.' Notably, *Ensuring Secure Seas: Indian Maritime Security Strategy* (IMSS 2015) highlights that "an effective organisation for coastal security also facilitates coastal defence."[26]

While the primary role of the Indian Navy is its military or war-fighting role, one of the missions of the Coast Guard is to "back-up the Navy during war."[27] Likewise, in a land-based context border guarding forces such as the Border Security Force (BSF) have both peacetime and wartime tasks in guarding the borders.[28] The police of border States, such as the Punjab Police, also act as a 'layer of defence.'[29] Overall, the armed forces and police organisations have their respective roles to play across the conflict spectrum in a mutually supportive and coordinated manner.

The entire spectrum of exercises in a security context can include single sector, or unidimensional exercises, such as those undertaken in ports; multi-disciplinary exercises, such as coastal/ offshore exercises, communication exercises; virtual or simulated exercises; table-top exercises; and, information sessions/ seminars.[30] Each exercise has its own specific aims and objectives. For example, a national-level exercise, in contrast to a state-level exercise, facilitates apex-level coordination and assessment across all States. In addition to exercises, drills also contribute towards strengthening security preparedness.[31]

IMSS 2015 states that "joint coastal security exercises will be progressed as a central means of enhancing preparedness and coordinated operational response, amongst the multiple agencies."[32] Progressively, a robust framework of periodic

exercises has indeed been developed. These exercises now vary in scale (state, zonal, and national levels) and scope (security or defence exercises). Conduct of the maiden Exercise SEA VIGIL in 2019 was a practical manifestation of the strategy which not only highlighted the importance of exercises, but also the inextricable linkages between security and defence.

Imperatives

In India's federal structure, the responsibilities of coastal security are shared between the Centre and States.[33] However, the defence of India, including preparation for defence, is an item in the Union List. At the Centre, specific responsibilities are shared across ministries, offices, and agencies. Over time coordinating mechanisms for coastal security have been established across administrative levels from the district to the national level. Considering limited resources, leveraging existing mechanisms is key to effectively and efficiently strengthening the defence effort along the coast and in the offshore areas.

The coastal security construct established post the Mumbai attacks in 2008, focused mainly on preventing terrorist infiltration through the sea route, was a paradigm shift in the management of coastal (and maritime) security in India. Since then, the interagency interaction has facilitated improved coordination across a spectrum of activities which are not limited to coastal security, and this has resulted in the strengthening of defence of the coastal and offshore areas as well. The integration of the community has been another important facet of the revamped construct. The coordinated deployment of few hundred ships and craft close-coast, along with community participation, not only facilitates efficient utilisation of available resources, but also provides greater room for the Indian Navy and the Coast Guard to deploy resources for other conflict and conflict-related support tasks. In due course, by putting in all available resources together, a 1000 asset strong maritime capacity may also be achieved in India.[34] Therefore, for strengthening coastal defence, operational inter-agency linkages and community-engagements need to be continually strengthened.

Presently, the lowest level at which exercises are conducted is at the state-level. Other exercises include; firstly, combined exercises between adjoining States; secondly,

major exercises across multiple States within a seaboard; thirdly, a national-level exercise, which is held across the entire Indian coastline; and fourthly, a theatre-level exercise, which is held across a wide maritime theatre. As the district administration is the first responder in any crisis focused exercises/drills at the district level, conducted under the aegis of the District Coastal Security Committees, could be introduced to complement existing exercise efforts.

In addition to these exercises, focused drills in sectors, such as ports, and offshore sector, cater for 'point security.' These include periodic drills and exercises in International Ship and Port Security (ISPS) Code-compliant ports, and security drills in the offshore sector.[35] It is likely that other Vital Areas (VAs)/ Vital Points (VPs) along the coast also follow a similar pattern of audits, drills, and exercises. Such measures, based on vulnerability-threat assessments at local levels, are considered necessary for the protection of critical maritime infrastructure, and other important coastal assets such as iconic structures, important industries, non-major ports, fishing harbours, tourist spots, etc.

The monsoon period, which is not conducive for small boat operations, precludes the conduct of any large-scale exercise at sea. The monsoon period could therefore be used for the conduct of other forms of exercises such as table-top exercise, simulated exercises, or communication exercises. A normal gradation would normally need to include a table-top exercise, communication exercises, simulated exercises, and finally an operational exercise. Simulated exercises in particular are an effective alternative to real exercises. An annual calendar, harmonising and integrating different forms of exercises would facilitate an optimised approach.

At a larger level, operational exercises, whether conducted at the state or the national level need to consider integrating with broader crisis management institutions within the State and the Centre to deal with special situations that may arise. Such situations, could require wider coordination, or augmentation of local resources, like the deployment of special forces or disaster management forces

Conclusion

The concepts of security and defence are not mutually exclusive, and particularly in the context of coastal and offshore security and defence, there are significant overlaps.

The underlying measures to prevent infiltration from the sea during peace are not very different from the measures that need to be taken in conflict. Consequently, robust coastal security engenders robust coastal defence. Defence forces, Central forces, and police organisations have roles to perform across the spectrum of conflict.

The coastal security construct established after the Mumbai attacks involving all stakeholders marked a paradigm shift in the management of maritime and coastal security in India. One of the important initiatives has been the conduct of biannual coastal and offshore security exercises, and more lately biannual coastal defence exercises. The scale of these exercises varies from the state to the national level. Each of these exercises has a specific aim and work complementarily to achieve larger maritime security objectives. These are also complemented by sectoral exercises and drills, such as in port and the offshore sectors. Over time, the conduct of the exercises has been reviewed to ensure relevance and contemporaneousness with the threat environment.

The benefits from such regular exercises are immense. However, these exercises could be complemented by drills across the maritime security sector, and with exercises encompassing a smaller maritime front in some cases, such as in a district. Further, the overall schedule could consider a mix of various kinds of exercises and engagements amongst the agencies to preclude a sense of monotony with a singular type of engagement. Operational exercises also need to engage with crisis management institutions, to the maximum possible extent.

The revamped coastal security construct has bolstered India's coastal defence capabilities. However, it should be remembered that coastal defence is a wider concept. Induction of Mine Counter Measure Vessels (MCMVs), possibly on lease as an *ad hoc* measure, and acquisition of Next Generation Maritime Mobile Coastal Battery (NGMMCB) are also needed to strengthen the nation's coastal defences.[36] The proposed integrated tri-service Maritime Theatre Command (MTC), which is envisaged to include Coast Guard assets, would also bring in greater synergy and optimal resource utilisation, including for coastal and offshore security and defence.

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Marine Policing and Maritime Security in India: Evolving Dimensions

While navies and coast guards dominate the discourse on maritime security, marine units of the police, in India and abroad, are key stakeholders for maritime security and safety, especially in a federal system. Many such units have an ancient history. However, their vital role (and immense potential) as a maritime security agency has been largely overlooked and undervalued. The evolution of the Marine Police in independent India has been uneven and driven by local factors. A decade after independence, in 1957, a Police Coast Guard was created by Andaman and Nicobar (A&N) Islands as an adjunct to the A&N Police.[1] A decade later, in 1968, the unit was restructured and renamed Police Marine Force (PMF). In 1991, the Tamil Nadu government created the Coastal Security Group (CSG) for preventing smuggling and infiltration.[2] Two years later, in 1993, the Indian Navy and the Coast Guard, along with Gujarat and Maharashtra Police, began Joint Coastal Patrol (JCP) in the backdrop of the Mumbai attacks of 1993 and intelligence about the possibility of arms and ammunition being landed along the Gujarat–Maharashtra coast.[3]

The Group of Ministers (GoM) report of 2001, as part of its recommendations for strengthening maritime border and island security, cited the A&N model and recommended the setting up of a specialised Marine Police in all coastal States.[4] Based on this recommendation, the marine elements of the State police were formed in all coastal States and Union Territories in the latter half of the 2000s. In 2005, the Ministry of Home Affairs (MHA) formulated the Coastal Security Scheme (CSS) to develop state capacity for policing and patrolling coastal areas.[5] This was further supplemented after the Mumbai attacks of November 2008 ("26/11") through the second phase of the CSS. In the revamped coastal security construct, operationally, the Marine Police[6] is the inner tier of three-tiered architecture, which also includes

the Indian Navy and the Coast Guard as the outer and intermediate layers. Reports of Parliamentary Committees and the Comptroller and Auditor General (C&AG) in the years following the "26/11" incident have highlighted several gaps in coastal policing, including issues related to lack of infrastructure, unsuitability and lack of maintenance of boats, manpower shortages, poor training, etc.[7] The Marine Police has often, uncharitably, been referred to as the "weakest link" in coastal security.[8]

While an earlier article argued that the Marine Police has the potential to contribute in a larger measure to overall maritime security, this article further explores the history, and the theory and practice of marine policing in India and its relationship with maritime security.

Evolution and Conceptual Framework

The MHA, in *Annual Report 2003–04*, included "coastal security" as the responsibility of the Security Division of the MHA and "coastal borders" within the charter of the Border Management (BM) Division.[9] Recognising the importance of "coastal security" as a standalone activity, *Annual Report 2004–05* of the MHA, for the first time, introduced a dedicated section on "coastal security."[10] The report highlighted that the CSS was a scheme for "strengthening infrastructure including vessels for policing and patrolling the coastal area."[11] In 2006–07, the coastal security responsibility that was with the Security Division of the MHA was transferred to the BM Division.[12] The Annual *Report 2006–07* stated the objective of the CSS as "countering illegal cross border activities and criminal activities using coast or sea."[13] The allocation of responsibilities for coastal security to the BM Division, thus, marked the anchoring of coastal security as fundamentally a border management issue in India.

In the backdrop of the "26/11" incident, it was realised that coastal security could no longer be approached as a silo. Therefore, the MHA's *Annual Report 2008–09*, recognising the linkages with maritime security, for the first time conflated coastal security with maritime security. This marked a paradigm shift in the approach of the government to coastal security, and overall maritime security governance, in India.[14] The scope of coastal security was also expanded beyond coastal policing and embraced diverse security issues in maritime sectors, such as ports, shipping and

fisheries, and a layered approach to coastal security was adopted involving the Indian Navy, Coast Guard and the Marine Police.[15] Subsequently, in 2009, the National Committee for Strengthening Maritime and Coastal Security Against Threats from the Sea (NCSMCS) was constituted under the chairpersonship of the Cabinet Secretary as the apex-level body for maritime and coastal security in India.[16] In fact, the first decade of the twenty-first century, beginning with the GoM report in 2001 and culminating with the directives of the Cabinet Committee of Security in 2009, marks a momentous decade which has shaped India's approach to maritime security.[17]

Like the MHA, the Ministry of Defence (MoD) also used the term "coastal security" in its *Annual Report 2003–04*. However, this was in the context of the deployment of Indian Navy ships to Mozambique for the African Union Summit in July 2003.[18] The near-simultaneous inclusion of the term in the annual reports of the MHA and the MoD is reflective of the transformation that was underway in India, based on the GoM recommendations for strengthening coastal border management in the country. At that time, the MoD termed its engagement in operations to prevent smuggling and refugee influx, along with the Coast Guard and the Marine Police — such as in Tamil Nadu (Operation TASHA) and in Maharashtra and Gujarat (Operation SWAN) — as Low Intensity Maritime Operations (LIMO).[19] Doctrinally, LIMO pertains to operations in the maritime domain to counter insurgents, guerrillas and terrorists.[20] It is obvious that the intent of both the above-mentioned operations was to sanitise the approaches from the sea from attempts at infiltration. Also, importantly, both operations were forerunners of the pan-India coastal security construct established after the "26/11" incident. The next mention of "coastal security" is five years later in the MoD's *Annual Report 2008–09*, in connection with the additional responsibilities entrusted to the Indian Navy and Coast Guard for coastal security.[21] Overall, the available evidence points to MHA introducing the term "coastal security" into officialese primarily in the context of border management and marine policing. The term was imbibed into naval doctrine in 2009, and the future approach was further articulated in the naval strategy of 2015.

The official history of the Indian Navy makes its first mention of "coastal security" with reference to engagement of the coastal community of Maharashtra

for community policing in 1999, six years after the Mumbai blasts in 1993.[22] The *Indian Maritime Doctrine* of 2004 did not mention coastal security, but its subsequent edition, in 2009, includes maritime terrorism as a threat and "coastal and offshore security" as an objective for the Indian Navy in the constabulary role.[23] The inclusion of the concept in the doctrine marks an important milestone. Six years later, the *Indian Maritime Security Strategy* (2015) described coastal security as a subset of maritime security, focused on the coastal waters that entails the "protection, preservation and promotion of peace, stability and security in coastal waters, against various threats."[24] Further, it amplified that the canvas is wide and encompasses "maritime border management, island security, maintenance of peace, stability and good order in coastal areas and enforcement of laws therein, security of ports, coastal installations and other structures, including Vital Areas and Vital Points (VAs/VPs), vessels and personnel operating in coastal areas."[25] It also recognised the State police as a key stakeholder in the coastal security construct.[26]

The *Indian Maritime Security Strategy*, thus, approaches coastal security as a holistic concept within the overarching maritime security framework and does not limit itself to the concept of border management to which marine policing has traditionally been anchored in India, or to LIMO, an operational activity focused only on countering infiltration using the sea routes. An analysis of the MHA's annual reports since 2008-09 — a period of over a decade — indicates that the description of coastal security has expanded in intervening years, beyond just "policing and patrolling the coastal area." Media reports on activities undertaken by the Marine Police also provide useful insights into their expanding roles and engagement.

Marine Policing and Maritime Security

Broadly, the roles and functions of the police, as enunciated by the Bureau of Police Research and Design (BPR&D), include law *enforcement*, promotion and preservation of public order, internal security, protection of public property, crime prevention, assistance in disasters, intelligence gathering, promotion of amity, etc.[27] While the origin of contemporary marine policing in India is largely based on the need to prevent infiltration through the sea routes, law enforcement is the primary role and

the *raison d'être* of the police. Consequently, the Marine Police, like the Coast Guard, is essentially a Maritime Law Enforcement Agency (MLEA). However, unlike the Coast Guard whose enforcement jurisdiction extends to the Exclusive Economic Zone (EEZ), the enforcement jurisdiction of the Marine Police is limited to the territorial seas. However, its investigative jurisdiction extends beyond the territorial seas.[28]

A scrutiny of relevant literature and media reports indicates that, de facto, the responsibilities of the Marine Police in India now encompass a wide range of missions and tasks. These include: coastal border management; coastal patrolling (up to 5 nautical miles from the coast); prevention of infiltration; maritime law enforcement (including prevention, investigation and prosecution of maritime crimes); maintenance of law and order in coastal areas; fisheries monitoring and enforcement; protection of Critical Maritime Infrastructure (CMI), such as Single Point Moorings (SPM), ports and other vital assets/areas along the coast; intelligence collection, inter-agency coordination; assistance to lead agencies in tasks, such as coastal defence, disaster management, oil pollution response and search and rescue (SAR); safety of fishers, tourists and coastal population; biodiversity conservation; and facilitating community participation in coastal security.[29]

The term "maritime security" has no universally accepted definition, has multiple dimensions, and, its usage is largely contextual. In 2008, the United Nations (UN) General Assembly identified piracy and armed robbery, terrorist acts, illicit trafficking in arms and weapons of mass destruction, illicit trafficking in narcotic drugs and psychotropic substances, smuggling and trafficking of persons by sea, Illegal, Unregulated And Unreported (IUU) fishing, and intentional and unlawful damage to the marine environment as specific challenges to maritime security.[30] On 09 August 2021, Prime Minister Narendra Modi chaired a high-level open debate on "Enhancing Maritime Security – A Case for International Cooperation."[31] While the debate covered a range of issues, including inter-state disputes, the outcome document, in the form a UN Presidential Statement on maritime security, retains its focus on maritime crimes, transnational organised crime and non-traditional threats.[32]

David Slogget has viewed maritime security as a layered concept, comprising four physical layers and seven dimensions. Much like the Indian layered approach

to maritime security, the four physical layers described by Slogget include the inner layer (immediate littoral zone), intermediate layer (between the territorial sea and the outer reaches of the EEZ), the boundary layer (outer extent of EEZ) and the outer layer (beyond the EEZ).[33] He also articulates seven dimensions of maritime security (Table 1).[34] Meanwhile, Christian Bueger (2015) posited that maritime security is a web of relations between concepts such as sea power, marine safety, blue economy and human resilience, and that each of these concepts point to different dimensions of maritime security, such as national security, marine environment, economic development and human security.[35] Writing in 2021 in the context of the UN Security Council debate, he identifies three dimensions of maritime security: (i) inter-state disputes; (ii) extremist violence; and (iii) blue crime.[36] Table 1 highlights the role of the Marine Police in India in various dimensions of maritime security.

Table 1: Marine Police and Maritime Security

Sr.	Dimensions (Slogget)	Marine Police	Dimensions (Bueger)	Marine Police	Marine Police Activities
1.	State-on-State	Yes	*National Security*	Yes	• Coastal defence • Coastal security • Border management • Intelligence collection
2.	Terrorism	Yes	[Interstate disputes; extremist violence]	Yes	
3.	Trade Protection	Yes	*Economic Development*		• Port/CMI security • Fisheries enforcement • Biodiversity protection • Customs enforcement
4.	Resource Management	Yes	[Blue Crime]		
5.	Smuggling	Yes			
6.	Disasters	Yes	*Human Security* [Extremist violence]	Yes	SAR/MEDEVAC HADR
7.	Oceanography	No	*Marine Environment*	Yes	Assistance in pollution response

Note: MEDEVAC: medical evacuation; HADR: humanitarian assistance and disaster relief.

It is evident from Table 1 that the tasks being performed by the Marine Police in India encompass multiple dimensions — if not all dimensions — of maritime security, albeit with its role limited spatially to the inner layer (immediate littoral zonal), which in legal terms is the territorial seas of India. Considering that the basic approaches for preventing infiltration from the sea, in peace or in war, are broadly similar, the Marine Police, as also other coastal security stakeholders, have progressively been integrated into the national coastal defence framework as well. A comparison with the Coast Guard Act, 1978 and doctrinal publications of the Indian Navy, namely, *Indian Maritime Doctrine* and *Indian Maritime Security Strategy*, also reveals overlaps in some roles of the Marine Police with India's other maritime security agencies. The limitations in its functioning are relevant, but that does not take away from the fact that Marine Police has progressively taken on a wider role in maritime security.

The genesis for creating a Marine Police across all coastal States, as highlighted earlier, was the pressing need to strengthen maritime border and island security primarily to prevent infiltration from the sea. While the focus of the Marine Police overwhelmingly continues to be on the original objectives, the expanded scope of activities reflects the continuing evolution of the Marine Police in India. The principal law enforcement charter of the police *ipso facto* also means the Marine Police, as a wing of the State Police, is not only responsible for patrolling and enforcement within its jurisdiction of 5 nm but also for investigation and prosecution of all crimes in all the maritime zones of India. Broadly, this includes the entire spectrum of what is commonly termed as non-traditional threats to maritime security, including violent extremism and blue crimes. It must be noted that a comprehensive approach to maritime security also includes the criminal justice system, and the Marine Police has a pre-eminent role and an almost exclusive role in the investigation and prosecution of crime within India's maritime zones. Some notable cases with maritime dimensions investigated by the State police include the assassination of former Prime Minister Shri Rajiv Gandhi (1991), the Mumbai blasts (1993), the *Alondra Rainbow* case (1999), the Mumbai attacks (2008), piracy cases off Lakshadweep Islands (2010–11), the *Enrica Lexie* case (2012) and the *Seaman Guard Ohio* case (2013).

The wider presence of the Marine Police (approximately 204 locations) along the Indian coast vis-à-vis other maritime security agencies (approximately 51 locations for the Indian Navy and the Coast Guard combined) and the deeper connections of

the Marine Police with the local populace means that the Marine Police potentially would be the first responder in a range of contingencies, particularly those in coastal waters and on the coast. The institutionalised linkages of the Marine Police with the Navy, through the JOCs, and with the Coast Guard stations through the "hub and spoke" model also facilitates quick mobilisation of all local resources and maritime assets to respond to coastal and maritime contingencies.

Some Imperatives

Need for a Holistic Approach to Marine Policing. The anchoring of maritime security around border management in the maritime security governance framework in India, provided the necessary fillip to coastal border management initially and then to related maritime security issues. This indeed ushered in a paradigm shift in maritime security governance in India, and progressively the Marine Police has been engaged in multiple dimensions of maritime security. The GoM had also recommended that "an apex body for management of maritime affairs should be formed for institutionalized linkages between the Navy, Coast Guard and the concerned Ministries of the Central and the State Governments." [37] This recommendation, however, has not materialised over two decades. The reported appointment of a National Maritime *Security* Coordinator (NMSC), as a single focal point to interface between different dimensions and stakeholders of maritime security, such as the Marine Police, is likely to usher in a more comprehensive approach to maritime security in India, beyond that of coastal border management and 'preventing threats *from* the sea.'[38] As India envisions a wider role for itself in global and regional maritime security, the Marine Police can potentially play a wider role in maritime security within the territorial seas of India.[39]

Doctrinal and Conceptual Clarity. The lack of a clear doctrinal articulation on marine policing makes it difficult to comprehend the multiple dimensions of marine policing, and its relationship with wider concepts, such as national security, coastal security, and maritime security.[40] Furthermore, unlike the Indian Navy and Coast Guard, and other Central Armed Police Forces (CAPFs) engaged in maritime/ coastal security, forging a uniform maritime identity across the Marine Police spread across 13 coastal States and Union Territories has its own challenges. It is therefore

incumbent on the principal maritime security agencies, that is, the Indian Navy *and* the Coast Guard, to sensitise and assist the Marine Police in developing an identity and culture that embraces the wider concept of maritime security, without diluting the focus on its primary role in law enforcement and infiltration prevention. Partnering with the BPR&D, National Academy of Coastal Policing (NACP) and state-level police training establishments, to develop doctrinal and conceptual clarity in marine policing at the national and at the state level, would be key steps. This is especially true as the concept of maritime security continues to evolve.

Capacity Building. The lack of resources and capabilities with the Marine Police is a major impediment that has to be overcome. The total outlay for raising the Marine Police and its further consolidation over a 15-year period (2005–20) over two phases of the CSS, for a coastline which extends to over 7,500 km, was around Rs 2,225.91 crore, at an average of about Rs 148 crore per year.[41] In contrast, the allocation for the Indo-Tibetan Border Police (ITBP) – a Central Armed Police Force (CAPF) – which is the designated force for guarding the 3,488 km India–China border, for 2021–22 alone, is Rs 6,567.17 crore.[42] It, however, does merit a *mention* that the budget of the Coast Guard has more than doubled from Rs 2,016 crore in 2010–11 to Rs 5,032.76 crore in 2021–12.[43] In a federal system, the MHA will need to give the necessary impetus and financial stimulus for capacity building of the Marine Police, including through perhaps a third phase of the CSS, especially as boats from the first phase near obsolescence. Finally, States themselves, and the State police in particular, will have to take the lead in strengthening the capacity and capabilities of respective marine wings. A rotational policy for police personnel, while having its own utility, could be prejudicial to the development of requisite human resources for maritime policing and other specialised activities at sea. Raising a permanent Marine Police cadre within the State police would perhaps be a key enabler. In addition, there is a need to build capacity for maritime crime investigation, a responsibility which is manifestly that of the State police.

Conclusion

Since the early 1990s, the State police have been engaging with the Indian Navy and the Coast Guard to prevent infiltration from the sea. In the early part of the

2000s, based on the recommendations of a GoM, initial efforts at strengthening marine policing were made; these were further consolidated after the "26/11" incident. Considering the genesis of marine policing in India and the focus of the government after the "26/11" incident, marine policing in India has been largely focused on preventing infiltration from the sea. The fact that the Marine Police is an MLEA automatically brings with it the constabulary responsibility for countering maritime crimes and for providing the legal finish to crime at sea. In addition, the Marine Police has progressively engaged itself in a range of benign tasks that foster human security. A correlation between the practice of marine policing in India and the theories of maritime security is reflective of the wider role of Marine Police in maritime security, albeit near the coast.

It is unlikely that marine policing within a federal structure will ever achieve a homogeneous identity, but as a maritime security agency, the Marine Police can significantly contribute to maritime safety and security in multifarious ways. However, it needs to do so without diluting its primary objective. The principal maritime security agencies, the Indian Navy and the Coast Guard, need to locally support the Marine Police in developing a distinct maritime identity and culture, and the Centre needs to support the States in capacity building. The States themselves, particularly the State police, need to take the lead in consolidating the gains, which may otherwise be lost. Two decades since the raising of a Marine Police was recommended by the GoM, it is perhaps time for the Marine Police to shrug off the "weakest link" tag and consolidate its role as one of India's maritime security agencies. As India envisions a wider role for itself in regional maritime security, it can ill afford to neglect the Marine Police which secures its coast and nearshore waters.

25 November 2021

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Cooperative Security Federalism

Strengthening Maritime and Coastal Security in India by States and Union Territories

L iterally, 'security' means the state of being free from danger or threat, including the 'safety of a state or organisation against criminal activity such as terrorism, theft, or espionage.'[1] As per the *Ensuring Secure Seas: Indian Maritime Security Strategy* document, " in the broadest sense, security can be understood in terms of the presence of freedom and the absence of fear and want – with regard to pursuit of the core purpose and values governing the existence and evolution of a society and state." Furthermore, "national security is viewed in a holistic framework, which extends to all aspects of societal well-being and growth, including physical, economic, energy, food, water, health, and environment."

The concept of 'maritime security' is relatively new with its origins in the 1990s.[2] It does not have a universally accepted definition and, its usage being largely contextual, can be viewed comprehensively to encompass security from both traditional and non-traditional threats to security in the maritime domain and adjoining coast. Or, it could be viewed from narrower compartmentalised and fragmented perspectives, to exclude certain elements. A typical approach to classic maritime security, especially in an Indian context, would entail 'defence' (against State actors), 'security' (primarily against non-State actors, or State-sponsored non-State actors, particularly those resorting to 'unlawful acts against safety of maritime navigation' at sea, or those using the sea to commit acts of violence ashore), and 'maritime crime' (enforcement of laws applicable to the maritime domain).[3] Consequently, maritime security governance encompasses a wide range of functions, which includes operational actions, but is not limited to it.

As per *Ensuring Secure Seas*, "maritime governance relates to structured and coordinated actions to govern the maritime domain under India's jurisdiction, with

multiple agencies and functions involved." This essentially includes mechanisms for policy and review; centralised monitoring mechanisms; and, the legislative and regulatory framework. The strategy document also highlights that the "legislative and regulatory framework for maritime domain requires regular review and revision, to identify and address any limitations." In essence, the strategy alludes to the need for a whole-of-government approach and structures for cooperation between the Centre and States/Union Territories (UTs).[4]

Conceptually, the US *Maritime Security Sector Reform* Guide defines six functions for the maritime security sector primarily at the national-level: maritime governance, maritime civil and criminal authority, maritime defence, maritime safety, maritime response and recovery, and maritime economy. While the functions apply across all levels of governance, in particular, the Guide highlights the roles of 'sub-national' level structures with respect to the following:[5]

- Delineation of roles and responsibilities between national and sub-national agencies to ensure inter-agency and intergovernmental coordination in support of national strategy (maritime agency organisation).

- Delineation of roles and responsibilities within maritime agencies with defence roles, at the national and sub-national levels, and to coordinate in support of national strategy (maritime defence administration).

- Aid to civil power (maritime defence assistance to civil authorities).

- Response to maritime-related incidents (emergency response administration).

Commodore Sam Bateman, Royal Australian Navy (Retd.), has posited that, "capacities for maritime security are required at the provincial, national, regional (and international) levels. Such capacities are required in the form of institutional arrangements (work allocation, committees, Information Centres, Op Centres, etc.); legislative framework, including state legislations; and, availability of resources in terms of assets, manpower, technology, etc."[6]

This paper examines the role of States in security—particularly maritime and coastal security—and how it could be strengthened, especially with an operational

focus. The relevance of the paper is in the fact that the Indian Navy is the agency responsible for overall maritime security, including coastal and offshore security.

Maritime Security Governance in India

India has a federal structure of governance. The key features of a federal system include dual governments (the national or federal Government and the Government of each component State); division of authority between the national and state governments; supreme powers vested with the government, whether national or state; and, the overriding authority of Courts to interpret the Constitution (independent judiciary).[7] The relation between the Union and the States is covered in Part XI of the Constitution. It includes *Legislative Relations* (Chapter I) and *Administrative Relations* (Chapter II). In accordance with Article 246 and Seventh Schedule of the Constitution of India, legislative powers are distributed amongst the Union and the State through the Union, State, and Concurrent List.

In general, the distribution of executive powers follows the distribution of legislative powers.[8] The Union and the State have exclusive executive power over matters included in List I and List II of the Seventh Schedule respectively. For matters in the Concurrent List (List III of the Seventh Schedule) the executive function ordinarily remains with the States, but is subject to provisions of the Constitution or any law of the Parliament conferring such function expressly on the Union.

Considering the provisions of the Constitution of India, and the concept of maritime security, which covers a wide swath—from law enforcement to national defence (and the overlaps therein)—the governance of maritime security in India transcends all the three lists and is undertaken concurrently by the Centre and States in coordination with each other.

Increasing the Role of States in Maritime Security

Since independence, the overarching responsibility for maritime defence and security has been with the Centre viz. the Indian Navy. In the backdrop of discussions at the 3rd Conference on the Law of the Sea (UNCLOS III) on the creation of *sui generis*

zone viz. the Exclusive Economic Zone (EEZ), the raising of the Coast Guard was proposed by the Indian Navy to avoid duplication and economise effort, and to enable the Indian Navy to focus on its primary warfighting charter.[9] The Coast Guard was raised in 1977 'for ensuring the security of the maritime zones of India with a view to the protection of maritime and other national interests in such zones and for matters connected therewith.'[10] However, the overall responsibility for maritime security continued to be with the Centre.

In 1983, a commission under Justice RS Sarkaria (Sarkaria Commission) comprehensively reviewed the working of the existing arrangements between the Union and States.[11] Chapter VII of the Commission's report pertained to deployment of Union Armed Forces in States for public order duties. *Inter alia* it recommended: self-reliance of the State police so that assistance of the Union is necessary only during severe disturbances; personnel exchange between State and Central Police, including common training centres; and financial support to states for strengthening armed police.

Subsequent to the 1999 Kargil War, based on the recommendations of the Kargil Review Committee (KRC), a Group of Ministers (GoM) was set-up in April 2000 to review the national security system in its entirety and to formulate specific proposals for implementation. The creation of a Department of Border Management (DoBM) and the setting up of specialised Marine Police in all coastal States and island territories were some of the major recommendations with regard to coastal border management. The subsequent implementation of the recommendations marked a paradigm shift in the management of maritime security in India with focused attention to 'coastal borders' at the national-level by the DoBM and a greater operational role of states in territorial waters.

The setting up of the Marine Police in States was undertaken through a Ministry of Home Affairs (MHA) financed Coastal Security Scheme (CSS) Phase I. The components of the scheme included provisioning of boats, establishment of Coastal Police Stations (CPS)/ check-posts/ outposts, and procurement of vehicles.[12] While the provisioning of boats was undertaken by the MHA on behalf of the States, all other components were progressed by the states with financial support from MHA. The MHA-driven scheme was a key driver for the 'marinisation' of the police force.

In addition to the recommendation for Marine Police, some other recommendations related to States included integration of the Navy's War Watching Organisation into the surveillance and reporting chain; development of island territories; and, representation of the Indian Navy and Coast Guard in State Maritime Boards/ Maritime State Development Council (MSDC).[13]

In 2007, a commission under retired Justice Madan Mohan Punchhi examined and reviewed Centre-State relations in view of the changes in the polity and economy of India since the Sarkaria Commission.[14] The commission submitted its report in 2010. Volume V of the report addresses the issue of management of internal security in a federal set-up.[31] Towards improving the interface of the Centre and State with regard to the internal security, the Commission recommended that specific internal security problems be addressed through greater emphasis on development; improving the security apparatus and ensuring similarity of objectives of the Centre and concerned States; implementation of police reforms; and, adoption of new approaches and tools to criminal justice system involving all levels of government.

Subsequent to the '26/11' terrorist attack from Pakistan, a new paradigm of maritime and coastal security emerged. At the level of the Centre, the Indian Navy was designated as the agency responsible for overall maritime security, including coastal and offshore security, and the Coast Guard was entrusted with the responsibility for coastal security in territorial waters, as also for overall coordination between Central and State agencies in matters related to coastal security. Other measures pertained to capacity building and capability augmentation of maritime security agencies, particularly the Coast Guard; increased focus on electronic surveillance, Maritime Domain Awareness (MDA) and networking by Central agencies, such as the Indian Navy, Coast Guard, the Director General Lighthouse and Lightships, and a Public Sector Undertaking viz. Offshore and Natural Gas Commission (ONGC); and, establishment of coordination mechanisms across levels of governance, including the national-level coordination mechanism viz. the National Committee for Strengthening Maritime and Coastal Security Against Threats from the Sea (NCSMCS) under the Cabinet Secretary involving all major maritime stakeholders, including the States.

The new paradigm also involved a significant greater role for States in coastal and maritime security. Although there is variance in the implementation of measures

by various States/ UTs, *inter alia* the development trajectory has included the following:[15]

- **Governance**

  - Integration of state-level departments/ agencies/ stakeholders in the maritime/ coastal security construct. This includes the departments of fisheries, forest, home, ports, transport, forest and wildlife, etc; state-level security agencies, such as the Coastal Police/ State Marine Police (SMP), State police, State Reserve Police, State Industrial Security Force, Home Guards/ Marine Home Guards (MHGs), India Reserve Battalions (IRBn), etc.

  - Setting-up of state-level and district-level coordination committees for coastal security.[16]

  - Establishment of State Maritime Boards (SMBs)/ equivalents.

  - Allocation of jurisdiction to one Coastal Police Station in each state to deal with maritime crime in 'international' waters.

- **Capacity Building/ Capability Augmentation**

  - Capacity-building of the SMP by implementation of MHA CSS Phase II.

  - Raising of dedicated wings of the police in some States, such as the Marine Task Force (MTF) in Gujarat and the Marine Enforcement Wing (MEW) in Tamil Nadu.

  - Capability-building through *ad hoc* training programmes to SMP with the assistance of the Indian Navy and Coast Guard.

  - Coastal Mapping.

  - Active support, coordination and participation of state-level stakeholders in exercises and drills, such as the major national coastal defence Exercise *Sea Vigil*, biannual coastal security exercises (Exercise *Sagar Kavach*), and security drills such as Exercise *Sajag*.

- **Inter-agency Coordination**

  - Integration with inter-agency coordination structures such as through the Joint Operations Centre (JOC) and the 'hub-and-spoke' model.

- **Sectoral Initiatives**

  - Implementation of measures for improved monitoring and control of the fisheries sector. This included registration of fishing boats; issuance of biometric identity cards to fishermen; colour coding of boats; notification of fishery landing sites and establishment of monitoring measures for such sites; establishment of lanes in some harbours, etc.

  - Implementation of measures for improved security of non-major ports/ Single Point Moorings (SPMs) in accordance with MHA guidelines.

- **Community Engagement**

  - Focus on community engagement through Community Interaction Programmes (CIP), engagement of community as MHGs, etc.

The new paradigm necessitated greater coordination and integration between the Central and State agencies for coastal security for a wide range of security-related activities across maritime sectors. In other words, coastal security now entailed a holistic approach to security. It is evident that in the past decade States have taken substantial initiatives towards strengthening maritime and coastal security.

Strengthening the Role of States in Maritime Security

The States have emerged, post '26/11,' as key stakeholders in the national quest for strengthening maritime and coastal security with a pivotal role across the spectrum of functions for maritime security. Notwithstanding, as brought out earlier, the role of the Centre and States in public order/ security is inherently complex. For example, the proposal for setting up a National Counter Terrorism Centre (NCTC) was opposed on the grounds that it would violate the principles of federalism.[17] Some of the inherent issues of security governance in a federal governance structure, especially from a maritime security perspective are:

- The blurring of concepts of 'security' and 'defence' necessitating a greater role of States in the security and defence of the nation.

- Multiplicity of agencies (and overlaps in jurisdiction and responsibilities) with respective chains of reporting reduces agility in decision-making, information-sharing, and response.

- Dependence of States on the Centre for financial support for capacity-building/ capability-augmentation.

- Differing threat perceptions lead to differing approaches to security.

- Non-uniform implementation of national projects/directives across States.

- As coastal security gained considerable focus only after '26/11,' lack of institutional orientation, knowledge and expertise within the state governments relating to maritime security.

Between 2011 and 2018, the Parliamentary Accounts Committee (PAC), Parliamentary Committees, the Comptroller and Auditor General (C&AG), have examined issues related to coastal security, including coastal policing, and implementation of the CSS.[18] Some of the issues highlighted/ recommendations include the following:

- Slow progress with regard to implementation of CSS Phase II, including in procurement of boats and construction of jetties.

- Poor maintenance support for boats and shortfalls in patrolling effort.

- Shortage of manpower in the SMP and lack of adequate training.

- Need for improving coordination and consultation between Central and State Governments

- Enhancing MDA.

- Legal empowerment of maritime security agencies.

- Strengthening of measures for port security.

- Strengthening fisheries Monitoring Control and Surveillance (MCS) by fitment of tracking devices on fishing boats, registration of all boats, improving measures for safety and security of fishers at sea, etc.

- Further integration of coastal communities into the security framework.

The above leads us to the question as to what the contours are for strengthening the role of States in maritime and coastal security. The suggested broad areas of focus include the following:

- Capacity-building of the SMP, and other agencies of the State such as the MTF and MEW, with the aim of States exercising complete jurisdiction over the entire adjoining territorial waters.

- Capability-augmentation of the coastal police by raising a dedicated force/ specialised teams; procurement of larger vessels and aerial assets such as UAVs; transition to network-centric operational concept; revitalisation of training; etc.

- Focus on inter-agency operational coordination and information-sharing by establishing active linkages with Operation/ Information Centres, and integration of information sources/ sensor data with overarching national-level systems such as the National Command Control Communication and Intelligence (NC3I) Network. This will facilitate better coordination and greater transparency of the coastal and maritime spaces and development of a Common Operational Picture (COP) across all maritime security agencies.

- Strengthening of security (and safety) mechanisms in maritime sectors which are primarily governed by States, such as fisheries, port, shipping, and tourism sectors.

- Strengthening (and institutionalisation) of mechanisms for community-participation in the maritime/ coastal security construct.

- Strengthening the legislative framework for maritime enforcement such as in the fisheries sector.

- Periodic review of Standard Operating Procedures (SOPs) and regular focused audits of specific elements of the maritime security construct.

- Leveraging institutional mechanisms for coastal and maritime security, at the national- and state-levels, to incrementally consolidate on gains made and to address identified gaps.

This leads us to the final question as to how state-led initiatives will contribute to overall maritime security. The likely effects of robust state-level mechanisms on overall maritime security are listed below:

- Removal of overlaps in jurisdiction and responsibilities, especially in the territorial waters. This will also contribute to achieve the overarching aim of 'one border-one force' and unitary responsibilities in designated maritime zones.

- COP and real-time awareness amongst all maritime security agencies and other stakeholders (Central or State) will enhance MDA and speed-up operational responses. This will contribute towards economising effort and enhancing cooperation and synergy amongst stakeholders.

- Strengthening MCS ashore, and at sea, complemented with other measures such as transponders on smaller boats, has the potential to significantly mitigate one of the most challenging aspects of operations at sea – identification of small craft.

- Strengthening the legislative framework in States, such as with penalties for non-compliance with security-related initiatives in maritime sectors and empowerment of agencies for enforcement, will not only deter offenders, but will also facilitate a 'legal finish' to maritime crime.

- Enhanced engagement of the large maritime community in the security construct through institutional mechanisms has the potential for contributing significantly towards improving security and response to emerging situations at sea, and for enhancing safety at sea.

- In view of the inextricable linkages between security and defence, several elements of wartime coastal defence such as war-watching organisation, naval control of shipping, activation of coastal batteries, establishment of swept channels, etc. are undertaken in coordination with state/ district administration and local authorities. Robust inter-agency peacetime linkages are a foundational requisite for coordination for wartime defence.

Conclusion

There has been a paradigm change in the management of maritime security in India over the past decade. The responsibility for maritime security in India is shared between the Centre and States and their multiple organs, wherein States have a pivotal role. Post '26/11' the role of States in maritime security has increased manifold, which augurs well for overall maritime security. Activities at sea are invariably linked to activities on land – robust mechanisms at the state-level are a facilitator and enabler for effective operational response to both traditional and non-traditional threats at or from the sea. Furthermore, progressively strengthening role of States in maritime security has the potential to reshape the maritime security construct, especially at a time when India faces increasing challenges from external aggression, and in accordance with its proactive foreign policy, strives to be a net security provider in the wider Indian Ocean Region.[19]

04 December 2020

ENDNOTES

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Author's Notes

Strengthening Maritime Security Governance in India: A Case for 'State Maritime Security Coordinators'

Earlier this year, in February, Vice Admiral G Ashok Kumar (Retired), former Vice Chief of the Naval Staff (VCNS), was appointed as India's first National Maritime Security Coordinator (NMSC).[1] Reportedly, the NMSC is part of the National Security Council Secretariat (NSCS) and reports to the National Security Adviser (NSA).[2] While there has been no official announcement on the mandate of the NMSC, as per media reports, the broad responsibility of the NMSC will be to function as the nodal point for developing a cohesive approach to maritime security amongst the numerous maritime security stakeholders — including those of the Centre and States, as well as between military and civilian agencies — through 'better' coordination.[3] The NMSC is also likely to function as the principal advisor to the Government on maritime security.[4] In the absence of a formal announcement of the mandate, while some have hoped that it will look beyond the "narrow confines of coastal security and related activities," the other view is that the mandate perhaps 'ticks too many boxes.'[5] However, as is apparent from the designation — *maritime security coordinator* — it is likely that the mandate will be an inclusive one including the multiple dimensions of maritime security, despite the original recommendation being made over two decades ago in the context of 'maritime borders.' Considering the growing importance of the maritime domain from multiple perspectives — developmental, security, defence, and foreign policy — the appointment of the NMSC has been widely acknowledged as a positive development and is seen as part of the continuing reforms of the higher military and national security architecture.[6] It also reflects the consistent efforts by the Government at strengthening maritime security, not just in India, but also in other areas of maritime interest, in a period

which extends to a little over two decades commencing with the recommendations of *Report of the Group of Ministers on National Security* (GoM Report) of 2001.[7]

The genesis of an apex-level coordination mechanism can be traced to the GoM Report (2001) which had recommended the setting-up of an apex body for the management of maritime affairs to provide institutionalised linkages between the maritime security agencies and other stakeholders of the Centre and in States.[8] Subsequently, in 2005, the Indian Navy had also proposed the setting-up of a National Maritime Commission to chalk out the country's long-term maritime policy.[9] After the '26/11' attacks, the Ministry of Defence (MoD) proposed a Maritime Security Advisory Board.[10] Notwithstanding the proposal for a board, in 2009, the National Committee for Strengthening Maritime and Coastal Security (NCSMCS), under the chairpersonship of the Cabinet Secretary, and including high-ranking officials of all stakeholders, was constituted as the apex level coordination mechanism for maritime and coastal security. A Standing Committee of Defence Report (2014) and a Public Accounts Committee (PAC) Report (2015) also respectively highlighted the need for Maritime Commission (or a similar agency), and for putting in place effective mechanisms for interagency coordination.[11] In 2014, the Government, recognising the importance of coastal security, also announced its intention of setting up a National Maritime Authority (NMA).[12] However, by March 2017, the proposal had been kept in abeyance as NCSMCS was performing a similar function.[13] After a brief hiatus, in 2020, the PAC again highlighted issues related with coordination.[14] Finally, as per media reports in July 2021, there were indications of the possibility of the Government appointing an NMSC, and it is understood that the proposal for appointing a NMSC — and not a body/commission/ authority as had been recommended previously — was cleared by the Government in November 2021.[15] Overall, the appointment, while being a positive development, appears to fall short of past recommendations (of a body), but will nonetheless facilitate the achievement of the objectives of past recommendations, albeit in a different form. Overall, it is fairly clear that over the years there has been a widespread understanding of the need for better coordination at the level of the Centre. However, it is intriguing as to why a similar need has not been felt at the level of States since many of the challenges are similar.

In the backdrop of the recent institutionalisation of the NMSC by the Centre, this article explores the need for the appointment of State Maritime Security Coordinators (SMSC) to discharge similar functions as the NMSC in States and to interface with the NMSC.

Security in a Federal Framework

Federalism and 'Security Federalism'

The key features of a federal system include dual governments (as against unitary governments) viz. the national government (or central, or union, or federal government, or 'Centre') and the government of each component state (state government); division of authority between the national and state governments; supreme powers vested with the government(s), whether national or state; and, the overriding authority of courts to interpret the Constitution, in other words, an independent judiciary.[16] Scholars on federalism, have also distinguished between the *ideal* of federalism (division of areas between governments), the federal *system* (constitutional arrangement), and the federal *process* which is "the ensemble of actual participatory, legislative and policy interactions that relate the structures of the federal system, to the dynamics of everyday political life."[17] The appointment of the NMSC with its objective of coordinating *inter alia* between Centre and States, is reflective of the federal process. The question that emerges is that, whether an SMSC at the state level can provide complementarity to the NMSC to strengthen federal processes.

Unlike the concept of 'fiscal federalism,' which was introduced in the late 1950s and is intrinsic to fiscal policy-making in federal systems, in the security realm, the literature on local governments and national security — in other words 'security federalism' — is sparse.[18] Federalism and 'security federalism' in different countries has been shaped by 'historical contingent developments,' and this has been the case in India as well, including for coastal and maritime security.[19] While the Mumbai blasts (1993) and Mumbai attacks (2008) are two notable examples of events shaping the contours of 'maritime security federalism' in India, they are not the only examples.

Overall, there are variations in how 'security federalism' is manifested in different countries. However, some of the salient characteristics include: differing perceptions

of threats and risks, amongst the dual governments; differences in territorial jurisdiction; high levels of 'centralisation' of security in 'heterogenous' federations, especially when confronted with major security challenges; conceptual differences on the approach to security (narrow or broad-based); asymmetry in power distribution (as also in capabilities and capacities); differing approaches, which could be 'top-down,' or 'bottom-up,' and, finally, the politicisation of federalism.[20] Broadly, federal structures, require effective 'vertical' coordination between governments, balancing of powers ['shared rule' with 'self-rule']; and leveraging the principle of subsidiarity.

Federalism in India

India has adopted a federal structure of governance.[21] The federal system is based on the Part XI of the Constitution which covers the relation between the Union and the States. In accordance with Article 246 and Seventh Schedule of the Constitution of India, legislative powers are distributed amongst the Union and the States through the Union, State, and Concurrent List; however, *per se* 'security' is not a subject in any of the three lists.[22] Notably, in general, the distribution of executive powers follows the distribution of legislative powers.[23] The Union, State and Concurrent Lists have 99, 61, and 52 subjects respectively which cover various subjects, which, in the context of maritime security, include defence, foreign affairs, etc. and specific maritime sectors, such as ports, fisheries, shipping, inland waterways, etc. In effect, the roles of the Centre and States in maritime security are derived from the Constitutional allocation of legislative powers.

Federalism in India is also considered as 'asymmetric' as the Centre and the States do not have 'matching powers' and there are certain differences in the relationship between some States/ Union Territories and the Centre.[24] However, the Central Government has a unifying role towards achieving 'unity amidst diversity.'[25] Federal governance is driven by the concept of 'cooperative federalism' based on the inherently complementary role of the Centre and States: a strong Centre in India is necessary for strong States and vice versa.[26] The institutional mechanisms for coordination of policies and their implementation is undertaken through the Inter-State Council (ISC) and the five Zonal Councils, with two viz. the Western Zonal Council and the

Eastern Zonal Council covering peninsular India.[27] In a further push to cooperative federalism, in May this year, the ISC and ISC Standing Committee, chaired by the Prime Minster and the Union Home Minister respectively, were further expanded, including by adding 10 Union Ministers as permanent invitees to the ISC.[28] Notwithstanding, there remain challenges to federalism, including for overall effective coordination and cooperation; this is true not only for security, but also for other areas of governance.[29] In general, the (vertical) distribution of powers in a federal systems is considered to be an impediment to effective decision-making, thereby adversely impacting the federal process.[30] It has also been argued that the federal system and process in India, when examined from the lens of national security, shows a distinct trajectory towards 'centralisation,' and a concentration of power amongst both the Central and State executives.[31] It has also been argued that the absence of the concept of a 'federal crime' in India; the need for cooperation of the state for Central agencies to operate; and a fragmented intelligence-intelligence set-up are some of the other challenges in Centre-State cooperation in security.[32]

Maritime Security and Federalism in India

The consequence of the federal structure is the fragmentation of governance, including of the Indian maritime zones and maritime sectors, and thereby maritime security itself, both spatially and functionally. Fragmentation is also both 'vertical' and 'horizontal': vertical, between the Centre and States, and horizontal, between bodies of the Centre and States themselves. For example, spatially, the 'ownership' of "lands, minerals and other things of value underlying the ocean within the territorial waters or the continental shelf of India," and of other resources in the Exclusive Economic Zone (EEZ) vests with the Centre, with the remaining rights in territorial seas being bestowed on States, such as fisheries.[33] Likewise, maritime security agencies, Central Armed Police Forces (CAPFs), and the State Marine Police (SMP) have jurisdictional limits, albeit with some overlaps. Functionally, in the maritime security sector, while Central and State forces extensively coordinate with each other, the Indian Navy and the Coast Guard are responsible to the Centre, albeit to different departments in the MoD, the SMP is responsible to the state governments. Likewise in the port sector, the responsibilities are shared between the Centre for 'major' ports

and States for 'non-major' ports. Therefore, strengthening maritime security in a federal framework necessitates complementary actions along the 'vertical' axis by the Centre and States, and over time, complementarity has indeed emerged. Even across the 'horizontal' axis, that is within the Centre and States there is fragmentation as different ministries/ departments/ agencies are responsible for different subjects. The challenges of horizontal and vertical fragmentation, can be mitigated either by consolidation, or through better coordination; better coordination is the more pragmatic option. However, unlike the NMSC there does not appear to be any standing body in States for cross-cutting all-round coordination, a gap which has only recently been addressed by the Centre by the appointment of the NMSC.

Maritime security has linkages with a number of different concepts and themes. A theoretical framework for maritime security includes inter-state disputes, extremist violence, and 'blue crimes,' or maritime crimes covering the expanse from law enforcement at one end to naval operations at the other.[34] However, increasingly theoretical distinctions in all its forms are blurring, such as those between crime and extremism, between traditional threats and non-traditional threats, between security and defence, etc. Notwithstanding, from a maritime security perspective, *defence of India*, *naval forces,* and *other armed forces of the Union* is listed in the Union List, *public order* and *police* in the State List, and *criminal procedures* in the Concurrent List. In other words, at two ends of the spectrum, the preponderant responsibly of the Centre is for the defence of India, and that of maritime crime in territorial seas that of the States. Considering the focus of the article, it is instructive to note that the State and Concurrent List also include areas as diverse as ports, fisheries, waterways, forests, wildlife, etc. In short, the governance of maritime security in India — despite being stove-piped into the three 'lists' — transcends all the three lists and is undertaken concurrently by the Centre and States in coordination with each other.[35]

Till the raising of the State Marine Police (SMP) on a pan-India basis across all States and Union Territories in the early 2000s on the recommendations of the GoM Report (2001), the governance of maritime security was largely 'centralised.' The Indian Navy, the Customs Marine Organisation (1974) and the Coast Guard (1977) were the primary agencies responsible for the issues which are now collectively considered as 'maritime security.' Notwithstanding the 'centralisation,'

driven by local factors such as smuggling, poaching, infiltration, etc, some States had developed limited maritime capabilities; the Police Marine Force in Andaman and Nicobar Islands (1957), the Coastal Security Group in Tamil Nadu (1994), the Karnataka State Coastal Security Police Force (KSCSPF) in Karnataka (1998) are notable examples. The Gujarat and Maharashtra Police too was engaged in strengthening coastal security after the Mumbai attack of 1993. Notwithstanding the few exceptions, 21st century challenges to national security provided the necessary stimulus to shift from the 'centralised' model to a cooperative and decentralised model for coastal security involving both the Centre and States; the '26/11' incident only consolidated the process which had been initiated earlier with necessary executive directives. Progressively, the SMP engagement has gone beyond its initial aims and now includes multiple facets of the maritime security paradigm.

Broadly, maritime capabilities in the form of institutions and resources, duly supported by legislative framework are the *sine qua non* for maritime security; these are required across all levels of domestic governance. Considering the importance of States (and districts) in overall governance, progressively, national level institutional mechanisms, have also been replicated at state-level; for example, the NCSMCS which was established in 2009 has been complemented by state- and district-level coastal security committees in 2016. Similar corresponding mechanisms exist at the national- and state-levels in other areas as well, such as for intelligence sharing (MAC/SMAC), countering drug trafficking (the NCORD established in 2016 was expanded to state and district level in 2019), industrial security (CISF/SISF), disaster management (NDRF/SDRF), etc.[36] In the same vein, the appointment of an SMSC may therefore by a natural corollary to the appointment of an NMSC to support institutional linkages between States and the Centre. With limited resources, operationally, Central and State agencies cooperate with each other on 'Lead Agency-Supporting Agency' model playing interchangeable roles in different maritime security missions, further necessitating close cooperation and collaboration between Central and State agencies, including for capability enhancement. States in in particular also have a lead role to play, for example, in maritime crime investigation to provide a 'legal finish' to maritime crimes. In short, a holistic view of maritime security encompassing its multifarious dimensions needs requisite institutions and

resources at all levels of governance, including in States. Strong maritime security institutions and capabilities at the state level are in fact the essential building blocks for overall maritime security in India.

Imperatives for a State Maritime Security Coordinator

Management of the security sector *inter alia* necessitates horizontal and vertical linkages within and across levels of governance, and measures for oversight and management.[37] It has been posited that capacities for maritime security are required at various levels including the provincial, state and national levels; this also includes constitution of maritime security committees, task forces, etc. at each level.[38] Replication of national level structures at the state and district levels, such as for coastal security, disaster management and for countering drug trafficking, are reflective of the need for 'opposite numbers' at the level of States and in some cases even districts. It therefore flows from a theoretical (and practical) perspective, that the NMSC which is a 'top-down' measure would need to be complemented with an SMSC as a reciprocal 'bottom-up' measure.

As highlighted earlier, the challenges of fragmentation of the governance not only have a vertical dimension between the Centre and States (and below), but also have a horizontal dimension at both the national and state levels. The challenges of States which too have to coordinate amongst multiple stakeholders (and the Centre) at a basic level are unlikely to be hugely different from that of the Centre, despite the larger remit of the Centre. With greater focus on the blue and maritime economies to meet the developmental agenda, the scope of maritime activities is only set to grow exponentially. Further, emerging maritime security threats, such as hybrid threats and climate change, are only likely to exacerbate maritime security challenges. It is a fact is that the concept of maritime security is widening to include newer dimensions and as the concepts of maritime security and ocean governance begin to overlap at the theoretical level, so will the need for furthering horizontal and vertical linkages between *all* maritime stakeholders – security or otherwise. This is as much reflected in emerging practice, as in theory. The draft policy framework on India's blue economy importantly states that the objective of the framework will be

" to enhance the country's GDP by promoting sustainable and inclusive economic growth in this new domain while aligning India's development agenda with national security goals and international commitments."[39] It further goes on to state that for strengthening 'marine' and coastal security "a comprehensive plan will be formulated and implemented in partnership with the States."[40] In other words, what is emerging is the multi-faceted role of States in maritime and coastal security, which goes beyond 'public order' and 'policing' to include other facets, such as maritime sectors, critical maritime infrastructure protection, community engagement, etc. States also integral to the military missions/ tasks of coastal, offshore, and harbour defence as an effective organisation for security also facilitates effective defence.[41] Notwithstanding the future, it is a well-known fact that some of the major challenges which States face presently include those related to marine policing, port security and fisheries management. While States have taken several initiatives to strengthen maritime governance, such as by establishing the State Maritime Boards (SMB) for non-major ports and coordination mechanisms for coastal security, overall States do not have the equivalent of the NMSC for cross-cutting coordination to cover the entire spectrum of maritime security. In other words, the need for horizontal and vertical linkages is as necessary in States as it is in the Centre.

Till now, the 'committee-based' system at the apex level meant that stakeholders met at periodic intervals, discussed an agenda, and came to certain decisions based on the discussions during the meeting. While indeed the system was a significant advancement over the lack of any coordinating system previously, and has facilitated the fruition of several noteworthy and transformative initiatives to strengthen maritime and coastal security, the inability to provide continuous oversight and management, and focus beyond specific issues, such as border management, rather than the entire spectrum of maritime security were possibly two gaps that the NMSC will now address at the national level. Similarly, if States were not to reform, a similar gap could possibly accentuate itself at the level of States, albeit to a lesser extent. Broadly, the recommendations for an apex level body in the past was to have representatives of principal stakeholders on one standing platform for providing the necessary broad-based and cross-cutting oversight and coordination, beyond the narrower confines of allocations of business and legislative responsibilities of individual ministries/ agencies. The body (or equivalent organisation/ individual) in States, could facilitate

a comprehensive, cohesive, and integrated approach to maritime security issues at the state level and provide policy advice to the State Government, much like the NMSC at the Centre, and could also function as a single point-of-contact for the NMSC.

Related to federalism is the principle of subsidiarity — essentially a principle of the European Union (EU) — that guarantees a degree of independence for a lower authority in relation to a higher body or for a local authority in relation to central government, in other words the sharing of powers.[42] The principle holds that public functions should be performed by the lowest level of governance, as long as they can be performed adequately.[43] Put differently, a federal authority should have a subsidiary role, performing only those functions which cannot be performed adequately by States.[44] In India, as an example in the maritime sector, the National Policy on Marine Fisheries, 2017 acknowledges the principle of subsidiarity as one of the seven pillars of the policy framework, and the principle also finds reflection in the draft 2020 policy.[45] Another example relates to the port sector, if security of non-major ports, the responsibility of States, is well implemented by the States themselves, there would be no need for intervention by the central agencies for security of non-major ports.[46] Considering the wide scope of maritime security, several issues concerning coastal and maritime security can be handled at the level of States themselves, such as local maritime crimes, leaving the Centre to focus on wider and more critical issues, such as national defence and regional maritime security. Over the years, States, from having a negligible role in maritime and coastal security, have emerged as key stakeholder for coastal security; over time, States may be able to play a much wider role in those subjects in which it has competence. Therefore, robust cross-cutting governance structures for maritime security in States is an imperative to support of the principle of subsidiarity.

Conclusion

Over the past two decades a need had been felt for an apex level body for coordination of maritime and coastal security, emerging from the recommendation of the GoM Report (2001) which further gained traction in the years following the '26/11' incident; the need had been regularly endorsed at the highest-levels of governance. The appointment of the NMSC towards meeting that end is a major reform with

promising possibilities, and is also reflective of the consistent efforts being taken by India to strengthen not just domestic, but also regional maritime security. What has however been intriguing is that while States face similar challenges of vertical coordination (with the Centre), and horizontal coordination (amongst state departments), as well as issues of civil-military coordination, the need for such a body at the state level has largely been left out of the narrative for strengthening maritime security in India. As such, 'security federalism,' including the roles of States in the wider security architecture, is a topic with little scholarship not just in India, but elsewhere as well. This article attempted to explore concept of 'security federalism' with a focus on whether SMSC could address maritime security governance challenges at the state level.

Federal governance is generally characterised by a degree of centralisation and asymmetry between governments, often biased in the favour of the Central (federal) Government, and fragmentation (as well as overlaps) in jurisdictions and governance. Broadly, federal structures require effective 'vertical' coordination, balancing of power, and leveraging the principle of subsidiarity. In India, 'cooperative federalism,' based on the complementary role of the Centre and States, is the mantra Centre-State relationship. However, this does not come without its own set of challenges, such as in coordination. In India, till the turn of the 21st century, maritime security was largely a centralised affair; however, the emergence of contemporary threats led to wider 'federalisation' with a larger role for States; it began with the GoM Report (2001) which led to the raising of SMP, and was further consolidated through several initiatives across multiple sectors in the years after the '26/11' incident which transformed the management of maritime and coastal security in India. In essence, despite subjects being stove-piped into the three 'lists,' maritime security governance in India *de facto* transcends all the three lists and is undertaken concurrently by the Centre and States in coordination with each other.[47] The appointment of the NMSC will only facilitate increased coherence and promote unity of effort at the national level. However, this is not the case in States, which presently do not have a standing coordinating body like the NMSC. In practice, across functional areas, there has been a mushrooming of institutions, bodies and resources at the state level which mirror (and sometimes follow) national-level institutions, bodies, and resources; these are essentially fundamental to governance, irrespective of the level of governance. In

this context, the main imperatives for appointing an SMSC are four-fold: first, the fundamental need to have institutions across all levels of governance; second, as the scope of maritime security expands and overlaps with ocean governance, there is a need for enhanced cross-cutting coordination across maritime stakeholders outside of the more contemporary focus of states which has been on coastal security; third, overcoming the limitations of 'committee-based' approaches to more institutional mechanisms; and fourth, leveraging the principle of subsidiarity by strengthening of maritime security in States, so that the Centre, while coordinating with States, can also focus on issues which are outside the remit of States.

No level of government is equipped to confront the security challenges of the 21st century by itself.[48] Therefore, harnessing state and local institutions for national security is an enduring imperative – as much in the maritime domain, as it is in the land-based context. The '26/11' incident is only a stark reminder of this reality. It is only through horizontal, vertical, and transverse coordination, in other words all-round coordination, that unity of effort can be achieved towards meeting the objectives of holistic maritime security. Therefore, there appears to be case for appointing SMSC by states – cooperative federalism is finally about the Centre and State complementing each other in the pursuit of national objectives.

<div align="right">23 July 2022</div>

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Author's Notes

As per media reports, States have been asked to' nominate' SMSC to coordinate and work more closely with other maritime security agencies.[49] While this initiative is laudable, this article argues for setting-up institutional mechanisms in States, akin to the NMSC in the Centre.

This article expands on earlier articles on security federalism and book by the author on coastal security:

"India's maritime security governance challenges: A decade after "26/11," Maritime Affairs: Journal of the National Maritime Foundation of India, 14:2, 106-119, DOI: 10.1080/09733159.2019.1565442

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Thematic Issues

Maritime Safety and Security in India: Fisheries "MCS" a Key Enabler

India has close to 2,60,000 registered fishing vessels.[1] These include deep-sea fishing vessels (61), motorised mechanical vessels (62,130), motorised non-mechanical vessels (1,40,272) and non-motorised/traditional boats (55,748). These boats operate from 1,265 marine fish landing centres along the 7,516.6 kilometre (km) Indian coastline.[2] Overall, it is estimated that around 54,00,000 fishers are employed full-time with the fisheries industry.[3] The Gross Value Added (GVA) of the fisheries sector — one of India's blue economy sectors — in the national economy in 2018–19 was Rs 2,12,915 crore, accounting for 1.24 per cent of the total national GVA.[4] From 2014–15 to 2018–19, the average growth rate of the fisheries sector has been 10.88 per cent.[5] In the financial year 2019–20, India exported 12,89,651 metric tonnes of seafood worth US$ 6.68 billion (Rs 46,663 crore), and the government's target is to reach Rs 1 lakh crore worth of exports by 2025.[6] As per the Food and Agricultural Organization (FAO) report of 2020 on the state of world fisheries and aquaculture, India accounts for 6 per cent of global capture fisheries and is ranked fourth after China (15 per cent), Indonesia and Peru (both 7 per cent).[7] India is also the fourth largest exporter of fish since 2017, after China, Norway, and Vietnam.[8]

The aim of fisheries Monitoring, Control and Surveillance (MCS) is to promote sustainable utilisation of the fishery resources available to a country and is a key element of a country's fisheries management plan.[9] MCS measures also facilitate conservation, law enforcement and security. The three elements of MCS include: (i) monitoring (measurement of fishing effort and resource yields); (ii) control (regulatory conditions); and (iii) surveillance (observation required to maintain compliance with the regulatory controls).[10] Surveillance, in particular, also has an enforcement dimension and includes, *inter alia*, the prevention of poaching and illegal fishing. Comprehensive MCS encompasses the entire spectrum of activities

from before a fishing vessel sails out till it returns and lands its catch, and also includes post-landing activities.[11] Typically, MCS-related activities, which are undertaken ashore and at sea, include licensing; record-keeping; tracking systems, such as Vessel Monitoring Systems (VMS),[12] or equivalent system; on-board observer programmes; vessel boarding and inspections; implementation of port state measures; etc.[13] Some of the essential elements of an MCS system include, among others, installation of VMS; establishing a fisheries monitoring centre for the continuous monitoring of VMS data; and, adequate inspection capacity for the control of fishing operations, including landings and transhipments.[14] Gaps in fishery management practices, including MCS, could lead to sanctions, such as by the European Union.[15]

In 2008, the UN General Assembly identified Illegal, Unreported And Unregulated (IUU) fishing as one of the specific challenges to maritime security; but notably, the UN Security Council Presidential Statement on maritime security of August 2021, while making a reference to "other illicit activities," does not make a specific mention of IUU fishing.[16] The *Indian Maritime Security Strategy* (2015) also recognises IUU fishing as a non-traditional threat to maritime security.[17] In addition to IUU fishing, fishing vessels are often used to commit other forms of maritime crime, such as drug trafficking, human trafficking, arms trafficking, piracy and armed robbery.

As per the FAO, inadequate MCS is often associated with IUU fishing, and as a corollary, could also be associated with other crime involving fishing vessels.[18] Conversely, robust MCS is a deterrent for IUU fishing and other forms of maritime crime and engenders maritime security. MCS can also contribute towards developing an understanding of the fisheries sector and thereby is a facilitator for Maritime Domain Awareness (MDA),[19] which, in turn, is widely considered as a *sine qua non* for maritime security. Strengthening fisheries management, particularly MCS, can therefore contribute significantly towards promoting maritime security in India. This article attempts to examine the history and trajectory of MCS in India, primarily from a maritime safety and security perspective, and makes suggestions on the future course.

MCS in India: Policy Pronouncements

The Marine Fishing Policy, 2004 highlighted that "enforcing monitoring control and surveillance system (MCS) would be ensured."[20] A decade later, in 2014, an

expert committee constituted for a comprehensive review of deep-sea fishing policy and guidelines, under the chairpersonship of Dr B. Meenakumari, Deputy Director General, Indian Council of Agricultural Research(ICAR), acknowledged that a sound MCS can improve fisheries management and reduce IUU fishing.[21] The committee drew on the recommendations made earlier by a working group on an MCS structure for India as part of the 12th Five Year Plan (2012–17). These included: setting up MCS divisions at both the Centre and in all the States; issuance of biometric cards and creation of fishers database; mandatory registration of all fishing vessels, irrespective of type; colour coding of boats; fitment of Global Positioning System (GPS), Automatic Identification System (AIS) and Distress Alert Transponder (DAT)[22] for improved safety and tracking; setting up of harbour-based MCS units/MCS committees comprising representatives of fishing associations; awareness campaigns; etc.[23] The Meenakumari Committee endorsed the need for strengthening MCS, and also recommended installation of VMS for deep-sea fishing vessels. However, as per subsequent media reports, the recommendations of the committee were "withdrawn."[24]

The centrally sponsored scheme — Blue Revolution (*Neeli Kranti*) — introduced in 2015–16 had an MCS component, which included, amongst others, the continuation of issuance of biometric identity cards to fishers, fishing vessel registration, and importantly, upgrade of the 166 registration centres into Fisheries Monitoring, Control and Surveillance Centres (FMCS).[25] The National Policy on Marine Fisheries, 2017 also highlighted the role of MCS in fisheries management. It envisaged a phased approach to strengthening MCS functions by introducing chip-based smart registration cards, use of log books and movement tokens, colour coding of fishing vessels, issuance of biometric cards, as well as the use of space and Information And Communication Technologies (ICT), such as AIS/VMS.[26] The draft National Fisheries Policy, 2020 too emphasises on the need for setting up MCS systems, and for greater engagement amongst all stakeholders.[27] In addition, it proposes setting up of a National Marine Fisheries Authority, *inter alia*, for implementation of MCS measures.[28] In a similar vein, the draft policy framework for India's Blue Economy, recommends strengthening MCS in order to "track the movement of fishing vessels in order to know where and when the fish are caught, how, and by whom" as one of the

recommendations for increasing sustainable marine capture fisheries in accordance with UN Sustainable Development Goal (SDG) 14 (Life below water)."[29]

In May 2020, the Cabinet approved the PRADHAN MANTRI MATSYA SAMPADA YOJANA (PMMSY), a five-year programme for sustainable and responsible development of fisheries sector in India, with an investment of Rs 20,050 crore spread over a five-year period. The investment is shared by the Centre, States, and beneficiaries.[30] The aim of the project includes developing a robust fisheries management and regulatory framework, and also seeks convergence with programmes under Ministry of Home Affairs (MHA) and Department of Space for MCS implementation, including through satellite-based tracking and satellite communication.[31] The plan also envisages improving safety of fishers at sea and upgrading of fishing harbours and landing centres.

Strengthening MCS: Incremental Progress

Traditionally, the fisheries sector was not directly associated with maritime security; as such, maritime security itself is a contemporary concept. However, subsequent to the attacks on Mumbai in November 2008, the erstwhile Department of Animal Husbandry, Dairying and Fisheries (DADF) and fisheries departments in States were integrated into coordinating forums for coastal (and maritime) security. On 05 February 2019, the Department of Fisheries (DoF) was carved out of the DADF, under the Ministry of Fisheries, Animal Husbandry and Dairying, for dedicated focus on the fisheries sector.[32] The DoF is responsible for policy formulation and schemes relating to promotion and development of fisheries in India, including infrastructure development and central fisheries institutes. Some of the significant initiatives taken towards strengthening MCS in India in the past decade are enumerated next:

In 2009, the erstwhile DADF launched a scheme for the issuance of biometric Marine Fisheries Identity Card (MFID) to marine fishers and for creation of a National Marine Fishers Database (NMFD).[33]

In 2011, it was decided to roll out a pan-India portal, the ReALCraft (Registration and Licensing of Fishing Craft), for online registration of fishing

vessels and licensing for fishing. [34] The portal is the centralised repository for registration and licensing information, and stakeholders, including maritime security agencies, have been provided access to the portal.

In 2014, the Centre delegated the powers of registration, survey and classification of Indian fishing vessels (irrespective of size or length) to the fisheries department of coastal States/Union Territories.[35]

In 2017, the Central Marine Fisheries Research Institute (CMFRI) developed a Geographic Information System (GIS) database of all fish landing centres with associated details.[36]

In 2019, it was decided the marine fishers venturing into the sea should carry QR code-basedcode based Aadhar cards.[37]

In 2020, a specialised wing of the Tamil Nadu Police — the Marine Enforcement Wing (MEW) — commenced functioning for enforcement of the State fisheries legislation; Tamil Nadu became the second State to have a dedicated wing after Kerala, which had raised an MEW in 1984.[38]

In addition, State governments have also assigned colour codes to fishing vessels to facilitate identification at sea (colour coding).[39]

To address issues of fisher safety and security, a number of technological solutions have been progressively developed. These include: satellite-based systems, such as the DAT; a dedicated satellite-based tracking system; the NavIC Messaging Receiver (NMR);[40] and the GAGAN Enabled Mariner's Instrument for Navigation and Information (GEMINI) system.[41] While the DAT is exclusively dedicated for raising distress alerts from sea, other satellite-based systems facilitate positional information and other value-added services to fishers, such as alerts and warnings, and advisories.[42] In 2016, based on Proof of Concept (PoC) trials by the Indian Navy and the Indian Space Research Organisation (ISRO), a dedicated indigenous satellite-based tracking system using GSAT-6 satellite was found promising,[43] and by 2019, field trials on fishing vessels were successfully completed in Gujarat, Tamil Nadu and Puducherry.[44]

As per decisions at the 17th meeting of the National Committee for Strengthening Maritime and Coastal Security against Threats from the Sea (NCSMCS), held in September 2019, the DoF was to make provisions for implementation of the system on priority. [45] In January 2020, the Prime Minister handed over the keys of deep-sea fishing vessels and transponders to select farmers of Tamil Nadu.[46] Further, about 4,997 mechanised boats in Tamil Nadu were planned to be fitted with the transponder.[47] In December 2020, Bharat Sanchar Nigam Limited (BSNL), in partnership with a private firm M/s Skylotech India, introduced a satellite-based narrowband Internet of Things (IoT) network, with potentially wide-ranging applications in the fisheries sector.[48] The system also supports vessel monitoring and two-way messaging.[49] In July 2021, Skylotech also entered into a partnership with India's National Federation of Fishers Cooperatives Limited (FISHCOPFED) for delivering IoT-based solutions to the fisheries sector.[50] To encourage fitment of communication equipment and transponders, a subsidy of between 40 per cent and 60 per cent is being provided, under the PMMSY, to motorised and traditional fishing vessels.[51]

To strengthen the legal framework, the National Marine Fisheries (Regulation and Management) Bill, 2020 was listed for introduction in the budget session of the Parliament in 2020.[52] The objectives of the bill, *inter alia*, include regulation of fishing in the Exclusive Economic Zone (EEZ) and promotion of safety and security of fishers at sea. In July 2020, Gujarat amended the Gujarat Fisheries Act, 2003 through the Gujarat Ordinance No. 4 of 2020 for strengthening fisheries monitoring and enforcement.[53] The statement of reasons to the ordinance highlights the need for providing mechanisms to regulate and monitor fishing, empowering the police to work with the fisheries department and the Coast Guard, "so that the security of the State is not jeopardized by anybody under the garb of the fishing activities in the territorial waters."[54] Subsequent to the issuance of the ordnance, the Gujarat Fisheries Act, 2003 was amended in September 2020.[55]

Accelerating Progress

Addressing Underlying Constraints. In 2008, a workshop on MCS in India under the aegis of the Bay of Bengal Programme Inter-Governmental Organisation (BOBP-IGO) identified some of the constraints in implementing MCS in India as: lack of

accurate statistics/scientific information; lack of community awareness; large number of inaccessible landing points; lack of supporting legislations; inadequate manpower and funding; inadequate interest by State authorities; and, weak enforcement mechanisms (including failure of a central scheme wherein boats were provided to States in the 1990s).[56] Since 2008, a number of initiatives have been taken to address these constraints; however, as a comprehensive MCS structure is yet to evolve, some of the broad underlying constraints presumably continue to this day and may need to be progressively addressed.

Tracking at Sea. While merchant ships engaged in international systems are mandatorily required to be fitted with identification and tracking systems, such as the Long-Range Identification and Tracking (LRIT) and AIS, most fishing vessels, other than deep sea vessels, are not required to be fitted with such systems. From a security and safety perspective, the non-availability of a tracking system for fishing vessels complicates domain awareness and can also lead to wasteful operational effort in physical identification, whether it be for constabulary tasks, such as fisheries enforcement, response to piratical incidents against fishing vessels, maritime casualty investigation in case of collisions, etc., or in the case of benign tasks, such as search and rescue and medical/casualty evacuation from fishing vessels.

The Department-related Parliamentary Standing Committee on Home Affairs, in 2014 and 2018, while examining issues related to the Coastal Security Scheme (CSS) of the MHA for coastal policing and the impact of Cyclone Ockhi respectively, had made certain recommendations relating to the fisheries sector, such as tracking of fishing vessels, installation of DAT/NMR, etc.[57] Likewise, in 2017, the Committee on External Affairs, while examining Indo-Pak relations issues, had recommended installation of GPS to facilitate tracking of fishing vessels and the need for bolstering mechanisms for safety and security of fishers, including through awareness campaigns.[58] A 2015 report of the Public Accounts Committee(PAC) had also recommended the use of technology for tracking ships and vessels in the Indian maritime zone.[59]

Considering the different types of fishing vessels and their operating areas, there may be a need for unique solutions, which may need to be further integrated. Notwithstanding the intent as envisaged in policies, the recommendations of high-

powered committees and the development and availability of multiple technological solutions, it is unclear if a pan-India mandatory solution for different classes of fishing vessels has finally been implemented. Implementing suitable solution(s) for tracking of fishing vessels therefore continues to be an overarching imperative from both a safety and a security perspective.

Harmonising and Integrating Solutions. Over the years, several incremental, but fragmented, steps have been taken by the Centre and State governments to address issues related to MCS. These have been driven by security and safety concerns, as well as the increased recognition, particularly in a few coastal States, of the need to address gaps in MCS in India. Some of the notable measures by the Centre include the ReALCraft portal, the MFID, the DAT and an indigenously developed tracking system for fishing vessels. States and other agencies, including central agencies, have also partnered in developing solutions to meet the safety and security requirements of fishers through mobile applications, NMR, GEMINI, the Skylo IoT system, etc. These have also possibly led to a degree of duplication of effort. Despite these efforts, an integrated, harmonised and holistic MCS system at the national/state level is however yet to be developed. The federal system can possibly create certain complications in the development of an integrated system, but a robust MCS is in the interest of all stakeholders, including the States and fishers themselves, and a harmonised and integrated system needs to be pursued.

Institutional Arrangements and Legal Framework. Despite its wide utility in maritime safety and security, MCS is essentially a fisheries-driven activity which is supported in some aspects, such as with regard to surveillance, by maritime security/ law enforcement agencies. Consequently, MCS systems need to be developed and operated by the fisheries departments, in partnership with other stakeholders, including security agencies. There are multiple agencies and institutes that are already involved in specific aspects related to MCS in India; the need is perhaps for a holistic and comprehensive approach to MCS. An integrated MCS solution could link up with security-led systems, such as the National Command Control Communication and Information (NC3I) network, or the proposed National Maritime Domain Awareness (NMDA) project, in line with other systems that have been developed by the shipping sector and integrated with the NC3I network, such as the LRIT system and the National AIS (NAIS) chain.

Strengthening MCS includes activities both afloat (ships and aircraft) and ashore (land component).[61] Shore-based monitoring through dedicated field-level MCS units/MCS centres had been recommended (and planned) in the past. Any national-level system needs a hierarchical architecture and in the case of MCS, field-level activities at over 1,200 fish landing centres/fishing harbours need to be linked through a suitable hierarchical system, such as the proposed FMCS. Technological solutions — linking fishing harbours/landing centres, fishing vessels and related agencies — will need to be developed to build near real-time MCS in India. It may well be necessary to leapfrog through technologically driven solutions, as has been done by some other countries, such as neighbouring Maldives, Sri Lanka, and Thailand.

There is also a need to strengthen the underlying legislative framework for fisheries so as to provide statutory provisions for compliance and enforcement of MCS measures, both at the national and state level. Notably, the Group of Ministers 2001 report had recommended that "the laws and procedures relating to detention and prosecution of poachers and confiscation of boats need to be tightened."[62]

Conclusion

The Mumbai attacks in 2008 led to the revamp of the coastal security construct in India, and this led to the subsequent integration of the fisheries sector into the security construct. While the need to develop MCS structures had been envisioned in the early 2000s, after the Mumbai attack, several initiatives were taken to address specific gaps in the fisheries sector. Notwithstanding the significant progress in several aspects, two issues that particularly merit attention are: first, the implementation of a comprehensive monitoring/tracking system at sea, as has already been recommended by several committees; and second, the development of an integrated shore component for MCS. Robust MCS is a *sine qua* non for sustainable fisheries, maritime and coastal security, economic progress, as well as the security, safety, and well-being of the fishers themselves. Consequently, developing an integrated fisheries MCS system in India needs to be given due consideration and priority.

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Acknowledgement

Biodiversity Conservation in India:
The Security Dimension

Biodiversity Conservation and Maritime Security

Biological diversity, or biodiversity, is defined as the "variability among living organisms from all sources including, *inter alia*, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems."[1] In accordance with the Convention of Biodiversity (CBD), 1992, State responsibilities for conservation include amongst others *in situ* measures within natural habitats, such as selection, establishment and management of protected areas, *ex situ* measures outside natural habitats, and cross-sectoral integration.[2] Biodiversity conservation is increasingly regarded as one of the challenges in the maritime domain.[3]

Maritime security has no universally accepted definition and is largely contextual. However, maritime security is inextricably linked to the protection of the maritime environment, including marine biodiversity. Maritime security is also considered integral to the wider international ocean governance framework encompassing biodiversity protection.[4] In India, from a maritime security standpoint, the Coast Guard Act, 1978, includes, within the broader framework of protection of the maritime interests in the Indian maritime zones, the responsibility to protect and preserve the maritime environment.[5] While in practice Indian maritime security agencies have been part of conservation efforts for the protection of the Olive Ridley sea turtle (*Lepidochelys olivacea*) for several years, biodiversity protection has been a late addition to the discourse on *holistic* maritime security. [6] Clearly, this is a case of theory following practice.

Coastal security is recognised as a subset of maritime security focused on coastal waters and adjoining land areas. While the initial efforts of the coastal security

paradigm were directed at preventing infiltration from the sea, and to strengthen border management, the coastal security paradigm now aims to achieve security against a range of threats and encompasses a wide remit, including maritime law-enforcement.[7] In recent years evidence, albeit limited, has emerged of the positive correlation between strengthening security and biodiversity conservation, and the scientific community has also recognised the importance of the coastal security framework in "securing and governing marine resources."[8]

This article endeavours to explore the history and the convergences — conceptual and practical — between biodiversity conservation and the maritime/ coastal security construct in India, based on the protection efforts of the Olive Ridley sea turtles.

Evolving Role of Security Agencies in Biodiversity Conservation: The 'Gahirmatha Model'

India has 131 Marine Protected Areas (MPAs) which include sanctuaries, national parks, and community reserves, with a total area of 1864.84 square kilometres.[9] The Olive Ridley sea turtle has been listed by the International Union for Conservation of Nature, (IUCN) as a vulnerable species under the IUCN Red List of threatened species and is also listed as protected species under Schedule I of the Wildlife Protection Act, 1972. [10] The turtles are particularly well known for their unique mass nesting (Arribada), wherein thousands of female turtles congregate on their natal beach to lay their eggs.[11] Gahirmatha, located on the Odisha coast, is the largest mass nesting site for the Olive Ridley sea turtles in the world, and has been designated as a sanctuary.[12] Consequently, India has an important responsibility in protecting this vulnerable species.

The 'Gahirmatha Model' for biodiversity conservation of the Olive Ridley turtles in Odisha has evolved over the past four decades. Joint patrolling by the Odisha forest department, police, the Indian Navy and the Coast Guard for protection of Olive Ridley sea turtles has been recorded as far back as 1981, soon after the raising of the Coast Guard in 1977.[13] Presently, the Coast Guard conducts Operation OLIVIA, an annual operation for the protection of the Olive Ridley sea turtle.[14] The operation, executed in coordination with the fisheries and forest departments,

includes enforcement of protection measures by Coast Guard ships and aircraft in the seaward approaches to the rookeries.[15]

In the late 1990s and early 2000s, a number of judicial decisions, and directives of the Supreme Court-appointed Central Empowered Committee (CEC), focused on developing an integrated response for the conservation of the Olive Ridley sea turtle.[16] *Inter alia* this included restrictions on fishing activities; capacity-building and capability-enhancement of agencies responsible for conservation; improving coordination between law enforcement agencies and other stakeholders; strengthening community engagement; and, intensification of patrolling at sea. Broadly, many of the directives focused on fisheries enforcement and Monitoring, Control and Surveillance (MCS) activities. Notably, the need for tracking devices for monitoring fishing vessels, which gained traction particularly after the Mumbai terrorist attacks of 2008 (26/11), was highlighted even at that time, albeit from a conservation perspective.

In 2001, following the 1999 Kargil War, a report of a Group of Ministers on national security made several far-reaching recommendations on national security, including the security of maritime borders and island territories. Amongst the recommendations was the setting up of a specialised Marine Police for coastal policing in all coastal States with the assistance of the Ministry of Home Affairs (MHA). Accordingly, between 2005 and 2011, a marine wing of the State police, the State Marine Police (SMP), was raised in all coastal States and Union Territories. This included the establishment of Coastal Police Stations (CPS) and the provisioning of boats for patrolling. Consequent to the raising of the SMP, the Odisha SMP was integrated into the overall biodiversity conservation efforts, including enforcement at sea and beach patrols ashore.[17]

'26/11' marked a paradigm shift in the management of coastal security in India. In addition to the designation of specific responsibilities for coastal security, several initiatives were taken to strengthen coastal security across the Indian coastline. These included strengthening interagency coordination and information sharing; enhancing electronic surveillance and development of Maritime Domain Awareness (MDA), such as by the establishment of coastal radars; enhanced regulation in maritime sectors, including fisheries; closer engagement with the coastal/ fishing

communities; conducting multifaceted coastal exercises involving all stakeholders, etc. Operationally, a tiered approach for coastal security was implemented with the Indian Navy, the Coast Guard, and the SMP as the outer, the intermediate, and inner tiers. Other security agencies, such as the Central Industrial Security Force (CISF) in ports, and the Forest Department in Andaman and Nicobar, were also integrated into the coastal security construct.[18] The initiatives taken to support coastal security also support other activities, such as maritime law enforcement, search and rescue, biodiversity conservation, disaster response, etc. Specifically, a study on poaching in Andaman and Nicobar, from 2011-2018, revealed a dramatic drop in poaching incidents.[19] This could possibly be correlated with the development of the coastal security architecture post '26/11.'

In addition to coordinated patrolling, several other measures have been taken to protect the Olive Ridley turtles. Every year, a seven-month fishing ban is implemented in an area which extends to 20 kilometres off the coast of Gahirmatha by the Odisha Government from November to May.[20] The forest department has also made efforts to physically demarcate the no-fishing zone by placement of buoys.[21] Onshore, the forest department works with local conservation bodies for preparing the beach for the nesting season and sets up turtle protection camps in some islands.[22] Towards validating the migration pattern of the turtles, conservation agencies have also tagged turtles.[23] Conservation efforts are also coordinated with neighbouring Dhamra and Paradip ports and the Integrated Test Range (ITR) at the Abdul Kalam Island which adjoins the sanctuary.[24] Furthermore, under the CBD, an Area Beyond National Jurisdiction (ABNJ) in the Bay of Bengal, encompassing the migratory corridor of the Olive Ridley sea turtle, has been designated as an Ecologically or Biologically Significant Area (EBSA) termed as the "Olive Ridley Sea Turtle Migratory Corridor in the Bay of Bengal."[25]

Notwithstanding the progress in conservation efforts, in February 2021, the Orissa High Court *suo motu* registered a Public Interest Litigation (PIL) based on the reported death of 800 turtles in the months of January 2021 and February 2021.[26] A committee set up by the High Court estimated that between 2010-11 and 2019-20 the annual mortality of Olive Ridley sea turtles was around 4000 to 7000 "mainly due to trawling operations."[27] In March 2021, the high court directed *inter alia* prohibition of fishing in the notified areas by the SMP; enforcement of

the fishing ban by the Coast Guard in coordination with State departments and Centre; capacity-building of the three CPS with boats and "an additional force for protection of the sanctuary through joint patrolling with the Forest Department;" demarcation of the no-fishing zone; fencing of the nesting areas; technological monitoring of fishing boat movements (GPS devices / transponders); and, from a community perspective, provision of financial assistance to affected fishers.[28] The enduring focus of the conservation efforts in Gahirmatha over the past twenty-five years — much like the more recent efforts for coastal security — continues to be on capacity-building, improving coordination, regulation of fishing activities, and on community engagement.

Beyond Gahirmatha, a comprehensive approach to biodiversity conservation, in association with maritime security agencies, is also taking shape. In Lakshadweep, towards enhancing protection of sea cucumbers, in February 2020, the world's first sea cucumber conservation reserve — Dr KK Mohammed Koya Sea Cucumber Conservation Reserve — was established in an area of about 239 square km in Cheryapani, a coral atoll.[29] The same year, the Lakshadweep Marine Wildlife Protection Force (LMWPF) was also raised.[30] The LMWPF Watchers are a dedicated body for the protection of the fragile marine ecosystem in the islands, and are being trained by the Indian Navy, Coast Guard, Lakshadweep Police, and Indian Reserve Battalion (IRBn).[31] Notably, a study on poaching and smuggling of sea cucumbers in the period 2015-20 by OceansAsia, attributed increasing arrests and seizures in 2019 and 2020 to increased monitoring and enforcement by Indian and Sri Lankan authorities."[32] In addition, in the east coast, as per media reports in September 2021, the Tamil Nadu Government will be setting up a 500 square kilometres conservation reserve for dugongs (also known as sea cows) in the Palk Bay.[33] The proposed approach, like elsewhere, would focus on engagement with the fishing communities and in banning of fishing practices that could endanger the dugongs.[34]

Maritime Security and Biodiversity Conservation

Indian maritime security agencies have been part of the conservation efforts for the Olive Ridley sea turtle for over four decades. This notwithstanding, these efforts have largely not been part of the maritime security discourse in India, and marine

conservationists, too, have largely not focused on the important role of maritime security/ policing agencies in coastal biodiversity conservation. However, as brought out earlier, more recent literature is reflective of increasing convergences between biodiversity conservation efforts and maritime/ coastal security.[35] In addition to the developing conceptual conflation — in and outside India — some of the areas of convergence and focus for both biodiversity conservation and coastal security include fisheries enforcement, capacity building and capability enhancement; technology adaptation; and wider community engagement. These are discussed in the following paragraphs.

Fisheries Enforcement. Reports of violation of protection measures for the Olive Ridley sea turtles by fishers off the Gahirmatha coast continue to be reported, including violent interactions with enforcement agencies.[36] Notably, the committee set up by the High Court of Orissa concluded that trawling has been a major contributor to sea turtle mortality. Coastal biodiversity protection initiatives, like the Gahirmatha model, are therefore significantly dependent upon and inextricably linked to fisheries enforcement. Similarly, several coastal security initiatives have also been focused on strengthening the regulatory framework for the fisheries sector, such as through centralised registration and licensing, issuance of biometric identity cards, monitoring of fish landing centres, etc. Strengthening Fisheries MCS is therefore a key imperative, not only for sustainable fisheries, but also for biodiversity conservation and for coastal security. In addition, raising dedicated policing mechanisms for fisheries enforcement, such as the Marine Enforcement Wing (MEW) of the Kerala and Tamil Nadu Police could also be duplicated in other States.

Capacity-Building and Capability-Enhancement. Broadly, coastal security encompasses a tiered approach for 'area security' complemented by 'point security' measures aimed at localised protection such as in ports, and for critical maritime infrastructure. An added layer of localised patrolling, such as in a MPA, can, in addition to protection of the MPA, also contribute towards overall coastal security efforts. For example, security efforts at Gahirmatha sanctuary for biodiversity conservation, and port security measures at Paradip and Dhamra ports complement and support the overall tiered approach to coastal security. In other words, wider area security can only be achieved if each element in the wider construct is independently secure, and independent efforts are coordinated between adjoining elements.

The procurement of high-speed boats for the Odisha Forest Department in 2016 is good example of maritime capability-development for biodiversity conservation.[37] The Border Security Force, Central Industrial Police Force, and the SMP, and are other examples of traditionally land-based armed police forces which have progressively developed maritime capabilities. However, developing the capabilities to operate, maintain, and train those responsible for operating boats requires significant investments by the operating agencies. Raising of dedicated specialised marine wings of the forest guards for protection of MPAs as has been alluded to by the High Court of Orissa for Gahirmatha — on the lines of the LMWPF in the Lakshadweep — could lead to greater focus and operational effectiveness in MPAs. Capabilities of these specialised wings could be further developed by their participation in periodic drills, like SAJAG, and exercises, like SAGAR KAVACH and SEA VIGIL, and regular training with security agencies .[38]

Technology: Maritime Domain Awareness (MDA) and Marine Spatial Planning (MSP). Maritime Domain Awareness (MDA) is widely considered as a facilitator for maritime security, and increasing efforts are being made to enhance domain awareness, especially along the coastline, through initiatives such as a transponder system for fishing vessels. To better understand the migration pattern, movement of turtles at sea are also being tracked. While MDA is a key enabler for operational response, the integration of tracking data from sea turtle migration, shipping, and fishing, has the potential to improve conservation efforts at greater distances from the coast, such as in the EEZ and in designated EBSAs in ABNJ. This integration could also provide evidence for the prosecution of poachers. Other coastal security initiatives, such as coastal geospatial databases, could also contribute to management of MPAs. In October 2021, GATI SHAKTI — the national master plan for infrastructure development — a digital platform for integrated planning was launched. [39] The portal will leverage technology, including satellite imagery, for spatial planning. From a maritime perspective, the draft policy framework for India's blue economy advocates the need for a national Coastal Marine Spatial Planning (NCMSP) framework in line with international guidance/ practice.[40] Although focused on development, the portal could facilitate identification of conservation requirements in maritime infrastructure development projects. Therefore, maritime sectors, such as shipping and fishing, as well as development, conservation and security

agencies, need to collaborate, using technical tools such as MDA and MSP, towards not only a better understanding of the overall environment, but also complementing efforts to achieving common national objectives.

Community Engagement. One of the major initiatives taken by the Indian Navy in the late 1990s was to focus on community engagement. After '26/11,' such efforts have been consolidated on a pan-India basis and fishers have been integrated with maritime security agencies as their 'eyes and ears.' Engagement of security agencies with the community is undertaken primarily through regular Community Interaction Programmes (CIPs), and a dedicated toll-free number for the community to contact the SMP. The National Cadet Corps (NCC) is also being progressively expanded in coastal areas. In a similar vein, community engagement can also be made a pillar of coastal biodiversity conservation efforts, especially in ecologically sensitive areas, and community engagement programmes could be leveraged for multipurpose sensitisation of the community.

Conclusion

The concept of maritime security is inextricably linked to the protection and preservation of the maritime environment and ecology. Indian maritime security agencies have been engaged in conservation efforts to protect the Olive Ridley sea turtle for several decades. This engagement predates the more contemporary notions of maritime and coastal security. While the '26/11' incident led to a paradigm shift in the management of coastal security in India, the national- and state-level capabilities developed under the new paradigm are now being leveraged across a spectrum of missions and tasks, including biodiversity conservation. There is some evidence, from the island territories, indicating the positive impact of strengthening security measures on biodiversity conservation efforts. There is also growing evidence of the need for developing dedicated mechanisms of protection of biodiversity, such as in Lakshadweep (sea cucumber) and Tamil Nadu (sea cow). The 'Gahirmatha' model, despite its infirmities, exemplifies a whole-of-government approach to maritime biodiversity conservation, which needs to be strengthened and could progressively be suitably adapted in other MPAs.

In short, the coastal security construct facilitates conservation, and likewise, robust measures for conservation, such as by strengthening surveillance and patrol efforts in and off MPAs, can also support maritime and coastal security. Leveraging limited resources for maximising mutually beneficial outcomes may well be the mantra for the future.

<div align="right">07 March 2022</div>

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Acknowledgement

Strengthening Nearcoast Search and Rescue: A Whole-of-Society Approach

The International Convention of Maritime Search and Rescue Convention, 1979 (SAR 1979) defines 'search' as an "an operation, normally coordinated by a rescue co-ordination centre or rescue sub-centre, using available personnel and facilities to locate persons in distress."[1] Distress at sea, could be the result of medical emergencies, bad weather, equipment failure, material damage, sabotage, criminal activities, etc.[2] Importantly, the notion of 'distress at sea' also includes persons in need of assistance who have found refuge on a coast in a remote location.[3] The convention also defines 'rescue' as an "operation to retrieve persons in distress, provide for their initial medical or other needs, and deliver them to a place of safety."[4] SAR, therefore, includes both, locating persons in distress and bringing them to safety once located, including in coastal areas.

SAR missions, depending on the location of the distress, could need to be undertaken on the coast, nearshore, offshore, or in distant waters. The search to locate the missing Malaysian Airlines MH 370 (2014) in the vast oceanic spaces in the South China Sea/ Indian Ocean, the search for a missing Indian Air Force AN 32 transport aircraft over the Bay of Bengal (2016), SAR efforts for the rescue of an Indian sailor in the Southern Indian Ocean at a distance of over 2,500 nm (2018), search for missing Indonesian submarine KRI *Nanggala* in the Bali Sea (2021), and SAR efforts off the western coast and in the western Offshore Development Area (ODA) consequent to Cyclone *Tauktae* (2021), are notable examples of complexity of certain SAR missions, including in bad weather, and the need for specialised capabilities, including military capabilities, which may be required for SAR missions.[5] This article will however focus on nearshore, or coastal missions.

An analysis of the Information Fusion Centre-Indian Ocean Region (IFC-IOR) monthly reports — *Monthly Maritime Security Update* (MMSU) — from 2020

onwards shows that other than the Indian Navy and the Coast Guard, the principal maritime agencies, a host of government agencies, private players, and individual citizens have contributed to SAR efforts as 'first responders,' especially nearshore.[6] These, amongst others, include the National Disaster Response Force (NDRF), the State Marine Police (SMP), merchant ships, offshore vessels, port authorities, fire services, forest department, several unnamed 'coastal/ national authorities,' fishers, lifeguards, social clubs, and locals. In particular, the IFC-IOR reports also bring out that in 2020 and 2021 the SMPs of the States of Andhra Pradesh, Maharashtra, Karnataka, and West Bengal were engaged in such missions.

Overall, the evidence clearly points to the SMP and the 'wider maritime community' having contributed robustly to the nearshore SAR activities, particularly those relating to boats and craft. The institution of a SAR award for 'ashore unit' category, in addition to the government-owned unit, merchant vessel, and fisher's categories of SAR awards, ostensibly since 2018-19 is also reflective of the greater engagement of coastal agencies in nearshore SAR. [7] The national SAR awards under the 'ashore unit' in the last three years have been awarded to the Tamil Nadu Coastal Security Group (CSG), Marine Police (Mandva, Maharashtra), and the Forest Department(Andaman & Nicobar).[8] A press release of the Ministry of Defence (MoD) in December 2021 highlighted the SAR award to a fisher and the Forest Department from Andaman and Nicobar validated 'the collaborative structures of SAR in the islands.'[9] It is these very 'collaborative structures' that need to be replicated across the country.

Broadly, maritime security and maritime safety are concerned with the prevention of, and response to, intentional damage and accidental damage respectively.[10] While 'safety,' in a maritime context, is a broad term encompassing specific issues in maritime sectors aimed at preventing accidental damage, the SAR organisation focuses on the safety of lives at sea.[11] The concept of maritime security has linkages with multiple concepts and dimensions, including those of marine safety and human security.[12] The desired ends of both safety and security at sea include the protection of lives, and operationally both concepts employ the same (or similar) agents, and similar approaches. The concept of coastal security, which is considered as a sub-set of the wider concept of maritime security, therefore, also gets linked to the concept of maritime safety, especially in nearshore waters.

The chapeau to SAR 1979 notes the importance attached to establishment of adequate and effective arrangements for 'coast watching' and for SAR services by coastal States in several conventions.[13] The 1982 UNCLOS in particular requires that "coastal state shall promote the establishment, operation and maintenance of an adequate and effective search and rescue service regarding safety on and over the sea."[14] This article focuses on the dynamics of coastal or nearshore SAR and endeavours to explore measures at further strengthening existing mechanisms. [15]

Maritime SAR in India: History, Overview, and Plans

India is a contracting state to SAR 1979, and deposited its instrument of accession on 17 May 2001.[16] SAR 1979 was subsequently revised in 1988 and 2004.[17] The Coast Guard was raised in 1977, and the Coast Guard Act, 1978 lists "measures for the safety of life and property at sea" as one of the duties and functions of the Coast Guard.[18] However, pending the 'buildup' of the Coast Guard, SAR was the responsibility of the Indian Navy till 1998 when the MoD transferred the responsibility for SAR coordination to the Coast Guard.[19] However, SAR continues to be a mission under the benign role of the Indian Navy, and is undertaken so long as it does not interfere with military missions.[20] The nature of certain events also necessitate the deployment of specific military capabilities available with defence forces.

In 1987 a joint working group was constituted under the Nautical Adviser in the Directorate General of Shipping (DG Shipping) to give impetus to a dedicated maritime SAR organisation in India.[21] The group recommended the setting-up of a national board, and subsequently, in 2002, a government resolution established the National Search and Rescue Board (NSARB), with the Director General Coast Guard as the chairperson.[22] The National SAR Contingency Plan was also formulated the same year.[23] In 2003, the Indian Search and Rescue (INDSAR) reporting system was also established and the National Maritime SAR Manual (NMSAR) formulated.[24]

India is responsible for executing /coordinating SAR missions in the Indian Search and Rescue Region (ISRR).[25] The ISRR encompasses a 4.6 million square km area in the Indian Ocean, an area that is more than double the Indian Exclusive Economic Zone. The ISRR is divided into three areas, and Maritime Rescue

Coordination Centres (MRCCs) located in Mumbai, Chennai and Port Blair oversee SAR coordination in allocated areas.[26] Notably, the MRCC at Mumbai is also a focal point for piracy and armed robbery. The MRCCs are supported by13 Maritime Rescue Sub-Centres (MRSCs) that are collocated with District Headquarters of the Coast Guard.[27] Currently, the NMSAR-2020 and the National Maritime SAR Plan (2013) are the guiding documents for maritime SAR in India.[28] In June 2021, the Government of India, accorded approval-in-principle for setting up 29 MRSCs to augment SAR services in India.[29]

The Director General Coast Guard is the National Maritime Search and Rescue Coordinating Authority (NMSARCA) and is also the chairperson of the NSARB.[30] The board meets annually to discuss policies, formulate guidelines and to assess the efficiency of the national maritime SAR plan.[31] The Board has progressively been expanded and now comprises 31 members, representing the principal maritime stakeholders.[32] Four States/ Union Territories viz. Daman, Goa, Lakshadweep and Minicoy, and West Bengal are represented in the board by the police/ police department.[33] In addition to meetings of the NSARB, the Coast Guard also conducts beacon exercises, a biennial national exercises, and annual 'regional' exercises, workshops, and other training activities.[34] SAR Communication Exercises (SARCOMEX) are also conducted with neighbouring MRCCs. Towards fostering international cooperation, the Coast Guard has been designated as the Indian implementing agency for SAR in Indian Ocean Rim Ocean Association (IORA).[35] For the promotion of safety and security awareness, including SAR, the Indian Naval Hydrographic Office (INHO) has also published a free downloadable *Indian Maritime Safety and Security Chart* which depicts the ISRR and all adjoining SRRs across the Indian Ocean.[36]

As the MRCCs and MRSCs are also offices of the Coast Guard, these centres are also interfaced with over 200 coastal police stations manned by the SMP under the 'hub-and-spoke' model for coastal security, and with 20 naval stations of the Indian Navy through the National Command Control Communication and Intelligence (NC3I) network for information sharing.[37] In effect, the coastal security construct has helped in furthering inter-agency coordination, and there can be little doubt that the construct has also contributed to strengthening the underlying measures for SAR in India.

Strengthening Nearshore/ Coastal SAR

Having discussed the unique dynamics of nearshore SAR as has emerged from reports over the past two years, and the contours of the development of the SAR organisation in India, this section discusses possible ways to further strengthen existing mechanisms nearshore/ coastal SAR.

Strengthening Local Capacities

The SMP was raised on the recommendation of the Report of the Group of Ministers on National Security (2001) for security of coastal borders and is present in more locations than other maritime security agencies combined. About the same time, Indian acceded to the SAR 1979 and the national SAR organisation began taking shape. Accordingly, the National Maritime SAR Plan (2003) did not specifically reflect the SMP as a 'participating agency.'[38] Subsequently, the first phase of the Ministry of Home Affairs Coastal Security Scheme (CSS) — which led to the creation of the SMP — commenced in 2005 and was completed in 2011. While the duties of the SMP remain largely remained focused on security and law and order, the 2013 revision of the National Maritime SAR Plan included the SMP as a 'participating agency,' with the role of providing assistance when requested by the coordinating agency.[39] Progressively, the engagement of SMP in SAR efforts has expanded. As brought out earlier, the SMP in some coastal States have also coordinated local SAR efforts with partner agencies and local communities. In addition to their operational roles in SAR, some States are now represented by the SMP in the national SAR board, and the SMP has also been integrated into SAR exercises.[40] The recognition of the Maharashtra and Tamil Nadu SMP for their contribution to SAR as the best 'ashore unit' is a testament to the contribution of the SMP in SAR.

A capable SMP is essential not just for security, but as trends indicate, also for safety at sea. However, concerns have been raised about the overall effectiveness of the SMP as a seagoing force.[41] Further, while the present capacity of the SMP is limited to surface assets, maritime capacities also include aerial surveillance, and the ability to operate effectively by night. Therefore, capability building and capacity enhancement of the SMP are essential prerequisites. As the model for development of

coastal policing entails support from the MHA to coastal States, both the Centre and States have to partner towards ensuring that the several gains from coastal policing, such as strengthening SAR response mechanisms, are progressively consolidated. This is even more so as maritime activities in India are poised to grow substantially considering the increasing focus on the blue economy and maritime connectivity. The wide presence of the SMP in over 200 locations makes it also well suited to coordinate nearshore SAR efforts in areas where the Coast Guard may not be present.

Former DG Coast Guard, Prabhakaran Paleri, noting the need for precision and speed in coordination in SAR missions, highlighted the need for "contingency plans at various levels with the national plan at the apex, and resource agency plans subordinate to it."[42] NMSAR-2020 also focuses on the need for local contingency plans for mass rescue operations.[43] Consequently, the role of the SMP, and other agencies that may be involved in coastal SAR such as the NDRF/ State Disaster Response Force (SDRF), fire services, forest department, lifeguards, etc could be reflected/ expanded in local SAR plans (and other documentation across levels of governance). Further, in addition to national-level meetings, regular institutional meetings between stakeholders at the state/ district levels, like in other areas of coordination, such as intelligence sharing, countering drug trafficking, coastal security, etc, could also contribute to strengthening overall SAR effort. Regular training, exercises, workshops, including at the local levels, are also continuing imperatives. Public awareness could also be enhanced through contemporary approaches such as through the use of social media, and the internet.[44]

Technology Infusion-Maritime Domain Awareness

Some incidents in 2020 and 2021 reflect the increasing relevance of technology for SAR, including coastal SAR. On 26 November 2020, seven fishers on board a sinking boat were rescued off the Maharashtra coast after fishers from a nearby boat alerted the owner as well as the Maharashtra SMP through a satellite-based communication system.[45] Reportedly, in 2020, this was the third rescue effort at sea using the proprietary technology.[46] On 05 January 2021, in a mission coordinated by the Kerala SMP, a student helped rescue officials in locating four fishers marooned at sea off the coast of Thrissur using a drone.[47] Based on the rescue, the Kerala Fishing Boat Operator's Association was planning to submit a proposal to the State fisheries

department for deploying drones for SAR.[48] Increasing use of technologies for SAR is therefore imperative, including for coastal SAR.

In addition to international systems for SAR, such as the COSPAS-SARSAT satellite system and the Global Maritime Distress and Safety System (GMDSS), multiple Indian agencies have developed several indigenous solutions for promoting safety and security at sea for fishers. These include the Indian Space and Research Organisation (ISRO) satellite-based systems, such as the Distress Alert Transponder (DAT) designed specifically for providing SAR assistance at sea for smaller vessels; a transponder system for tracking fishing vessels; and, the NavIC Messaging Receiver (NMR) which facilitates one-way alerts to fishers at sea through a mobile phone.[49] These devices are progressively being fitted on fishing vessels.[50] Earlier in 2016, Indian National Centre for Ocean Information Services (INCOIS) had developed a Search and Rescue Tool (SARAT) a software tool for identifying the most probable area for search operations at sea.[51]

The PRADHAN MANTRI MATSYA SAMPADA YOJANA, a flagship programme of the Department of Fisheries (DoF), launched in 2020, caters for the provisioning of safety kits, including Global Positioning System (GPS) and Navigation with Indian Constellation (NAVIC) receivers, SAR beacons, Distress Alert Transmitters (DATs), Automatic Identification System (AIS), and other lifesaving equipment, such as lifejackets, to fishers.[52] As of February 2022, Rs 5899.36 lakh had been sanctioned for providing 14,120 communication/ tracking devices and 1351 safety kits to fishers.[53] Considering the number of registered fishing vessels is around 2.5 lakh, there could be a need for encouraging fishers to benefit from the scheme. In 2018, a parliamentary committee recommended the use of satellite-based technologies, as well as voice communication systems, for improving safety of fishers at sea.[54] The PMMSY *inter alia* aims to establish linkages and convergence with other schemes, including for satellite-based communication/ tracking devices such as transponders for the fisheries sector.[55] Considering the availability of diverse technologies for improving safety of fishers (and small vessel operators) overall there is a need for harmonisation (and integration) of effort for optimal utilisation of the systems. Notably, regarding fishing vessels, NMSAR-2020, highlights that 'quick and concerted efforts' are needed to address the specific challenges and to minimise delay for SAR operations.[56]

Maritime Domain Awareness

INDSAR is a reporting system for coordinating SAR in the ISRR. The system is voluntary for foreign vessels, and mandatory for certain classes of Indian-flagged vessel.[57] At the time of institution, in 2003, INDSAR was the only solution to enhance domain awareness. In addition to INDSAR, the Indian Navy, along with DG Shipping, operates the Indian Ship Position and Information Reporting System (INSPIRES) and International Maritime Organisation-mandated Pre-Arrival Notification for Security (PANS) is mandatory for ships calling on Indian ports.[58] With the rise of piracy, merchantmen are also required to voluntary report their position to other international centres as well. To reduce the reporting burden on seafarers, there is perhaps a need to harmonise these systems.

Since 2003 when the INDSAR system was developed, the concept of Maritime Domain Awareness (MDA), driven by technology, such as Long-Range Identification and Tracking (LRIT) and AIS, has gained considerable traction; however, voluntary reporting still remains as one of the time-tested systems for developing MDA. The *Indian Maritime Doctrine* highlights that MDA enables more efficient coordination of maritime SAR.[59] While the NMSAR-2020 includes the multiple reporting and vessel identification system, a common operational picture developed by integrating all sources of information, such as through the NC3I Network is a *sine qua non* for operations at sea, including for SAR. Consequently, embracing MDA as an integrated concept, could further the aims of an effective national SAR organisation. The proposed National Maritime Domain Awareness (NMDA) is particularly important as it aims at developing a common picture across all maritime stakeholders using fused multiple-sensor information. Till the NMDA project fructifies, all efforts to integrate available sensors, databases, and agencies with the NC3I network must continue.

Information Dissemination

In 2017, Indian National for Ocean Information Services (INCOIS) with a private firm had developed an integrated message distribution system SAGAR VANI for dissemination of alerts to fishers using multiple channels of communication, including

mobile telephony for nearshore fishers (SMS alerts).[60] In addition, the Coast Guard extensively employs multiple methods to warn fishers at sea of developing extreme weather events. This includes deployment of ships and aircraft, warnings through shore-based communication, and systems such as the International Safety Net (ISN) and NAVTEX (Navigation Telex).[61] An integrated approach to information dissemination, including through the NMR and other indigenously developed satellite-based systems, could facilitate the widest distribution of alerts and maximise penetration of the message to the recipients. The Information Fusion Centre- Indian Ocean Region (IFC-IOR) could also be integrated with the overall information dissemination mechanism, especially for international information sharing.

Conclusion

The IFC-IOR monthly reports over the period 2020-2022 are indicative of the active involvement of the SMP, along with other agencies, and the community, in nearshore SAR. The progressive involvement of the SMP, and other shore-based agencies, in maritime SAR augurs well for overall safety at sea, and the institution of an award for the best 'ashore unit' for SAR by the NSARB is a testament to the increasing role of 'ashore units.' The national capacities for SAR were strengthened in the early 2000s with the establishment of the NSARB, the formulation of national plan and manual, the establishment of the INDSAR, etc. Progressively, the plan and manual have also been revised and a range of activities instituted to develop capacities for SAR. After the November 2008 Mumbai attacks, the coastal security construct in India also began taking shape with the setting-up of mechanisms for improved inter-agency coordination, development of MDA, and community participation. The raising of the SMP, and further capacity buildup of maritime security agencies after the attacks, have surely also contributed to strengthening national SAR capacities. Some areas which could contribute to improve safety at sea, especially in coastal areas, include: renewed focus on capacity-building and capability-enhancement of the SMP; strengthening local-level coordination; maximizing engagement with the community and other stakeholders, such as lifeguards and lighthouse keepers, including through social media; adopting technological solutions and harmonizing/ integrating them; and, bolstering efforts at developing comprehensive national-

level MDA for a common operational picture across stakeholders, etc. In short, the community has emerged as a significant contributor to nearshore SAR, and national SAR mechanisms could benefit from a 'whole-of-society' approach.

19 April 2022

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Maritime Crime

Armed Robbery at Sea in India:
Trends and Imperatives

'Armed robbery against ships' [hereinafter referred to as 'armed robbery'] has been defined by the International Maritime Organisation (IMO) as *"any illegal act of violence or detention, or any act of depredation, or threat thereof, other than an act of "piracy", committed for private ends and directed against a ship, or against persons or property on board such ship, within a State's internal waters, archipelagic waters and Territorial Sea."*[1] Armed robbery also includes inciting or facilitating an act of armed robbery. Unlike piracy, only coastal States have jurisdiction over acts of armed robbery.[2]

On 15 January 2020, ReCAAP ISC [Regional Cooperation Agreement on Combating Piracy and Armed Robbery against Ships in Asia — Information Sharing Centre] released its annual report for 2020.[3] The report highlighted an increase in incidents of armed robbery and piracy in Asia from 83 in 2019 to 97 in 2020. Incidents of armed robbery in India rose from five in 2019 to nine in 2020. The report also highlighted the arrest of the perpetrators, including by Indian agencies. At the release ceremony of the report, the Executive Director, ReCAAP ISC urged littoral States "to take seriously petty theft and sea robbery because leaving criminals to continue their crime with impunity will only embolden them to escalate their acts."[4]

ReCAAP is a regional government-to-government agreement to promote and enhance cooperation against piracy and armed robbery.[5] The ReCAAP agreement was launched in November 2006 with 14 contracting parties. India is a contracting party to ReCAAP and the Maritime Rescue Coordination Centre (MRCC) in Mumbai is the designated Indian Focal Point. The IMO guidance of 2009 for the shipping

industry on measures for reporting incidents of piracy and armed robbery included ReCAAP Focal Points in the reporting chain for incidents in Asia.[6]

This paper investigates the trends in armed robbery in India, primarily based on the analytical work done by the ReCAAP ISC, and will attempt to suggest measures to address armed robbery.

Armed Robbery in India: Trends

In 2018, ReCAAP ISC started using data analytical tools to analyse incidents, and in 2019, ReCAAP ISC published the results for the period 2007-2019 for the Straits of Malacca and Singapore, India, and the Philippines.[7] The analysis focuses on the number of perpetrators, weapons carried by *perpetrators*, treatment of crew, items stolen, type of ships boarded, and the time of incidents.

The report on India revealed that the trends were broadly consistent, albeit with some variations in the time of incidents.[8] The 13-year data on India revealed that on an average about six cases were reported annually; the highest was reported in 2014 (14 incidents) and the lowest in 2017 and 2018 (four incidents). To put things in perspective, in 2019, when five incidents of armed robbery were reported, a total 8,54,618 cases crimes related to property (including theft and burglaries) were registered in India.[9] Generally, these armed robberies were committed by a small unarmed (or lightly armed) group during dark hours on board tankers.[10] In majority of the cases only loss of stores was reported, and the crew was unharmed.

The broad trends of 2007-2019 continued in 2020. As per the French Navy's Maritime Information Cooperation & Awareness Center (MICA), the increase in incidents in 2020 is attributed to "the increase in the number of vessels in anchorage areas, which encourages robbers to take action."[11] Notwithstanding the similarity in the broad trends, unlike previous years when most attacks were directed at tankers, about half the attacks in 2020 were directed at offshore supply vessels, and unlike in 2019, when 60 per cent of the incidents were reported during daylight hours, the majority of the incidents in 2020 were under the cover of darkness. Two of the incidents related to vessels that were under tow.

During the period 2007-2020, the highest incidents of armed robbery were reported from Kandla (37), followed by Kakinada (21), Kochi (18), Vishakhapatnam (15), Haldia/ Sagar (14), and Alang.[12] The reported incidents are, therefore, spread across only four of the 13 coastal States/ Union Territories: Gujarat (Kandla and Alang), Kerala (Kochi), Andhra Pradesh (Kakinada and Visakhapatnam), and West Bengal (Sagar/ Haldia). In 2020, nine cases were reported from only two Indian States: five were from Andhra Pradesh (Kakinada) and the balance four from Gujarat (including three at Alang). However, towards the end of the period, the number of incidents at/off major ports witnessed a decline. Between 2019-20, only one incident was reported from Kandla, and none from the other 'hotspots' viz. Kochi, Haldia, and Visakhapatnam. The decline continued into 2020 when no case was reported from any major port. However, in 2020, Alang emerged as a new hotspot.

Out of the four cases reported off Gujarat, in three cases (including two off Alang), a total of 17 perpetrators were arrested, and in one case stolen property was also recovered.[13] While the Coast Guard apprehended the perpetrators at sea in one incident, in the other two incidents, investigations by the State Marine Police (SMP) led to the arrests. In one of the incidents off Gujarat, the perpetrators boarded a tanker under tow from an Indian fishing vessel. In its report ReCAAP ISC commended the action by concerned agencies, and also highlighted the fact that in the period April to December 2020 there were no reports of armed robbery from Gujarat.[14]

It is clear that armed robbery has a correlation with the monsoons, possibly due to the effect on boat operations. There was just one incident reported in the monsoon months in Kakinada. The maximum incidents were reported in February 2020 (five), and one incident each was reported in the months of March, April, June, and October, respectively. The COVID-related lockdown in India, including seaward enforcement, which continued from March till May 2020 could have also contributed to the reduction of incidents.

While the report by ReCAAP is considered an authoritative report, it is possible that some incidents, particularly petty theft, remained unreported to preclude time and financial penalties associated with longer stay in ports for investigations.

Port Security in India: An Overview

India has a coastline of over 7, 500 km with 12 major ports and over 200 non-major ports. While the Ministry of Ports, Shipping and Waterways (MoPSW) is responsible for major ports, non-major ports are governed by respective State governments, and are administrated through State Maritime Boards (*SMB*). To cater for the projected increase in traffic and cargo-handling requirements, port-modernisation, and development of new ports is being progressed as part of the SAGARMALA port-led development project.[15] This includes initiatives to improve efficiency and expand capacity in existing ports, and development of six new ports.

In 2001, a Group of Ministers (GoM) report on national security had recommended setting up of State Marine Police (SMP) for coastal policing. Specifically, for port security, the report had recommended installation of Vessel Traffic Management System (VTMS)[16] in major ports, Andaman and Nicobar Islands, and in the Gulf of Kutch, and also, representation of security agencies in port-related bodies.[17] With the assistance of the Ministry of Home Affairs (MHA), SMP were raised in coastal States between 2005 and 2011 under the Coastal Security Scheme (CSS). As evidenced in the cases in Gujarat, the SMP has emerged as a key stakeholder in the response to incidents of armed robbery. Progressively, VTMSs have also been installed at all major ports, and in the Gulf of Kutch; a radar chain has also been established along the Indian coast, including the island territories. Cases of armed robbery are being also reported through the VTMS.

The International Ship and Port Security Code (ISPS) entered into force on 01 July 1994 and is applicable to certain classes of ships engaged in international voyages, and also to all ports servicing such ships. The code, developed after the September 2001 attacks on the US ('9/11'), is a mandatory security-focused regime for international shipping and for ports engaged in international trade. In 2007, the provisions of the code were statutorily implemented in India through amendments to the Merchant Shipping Act, 1958 and the Indian Ports Act, 1908.[18]

Subsequent to the terror attacks on Mumbai on 26 November 2008 ('26/11'), the overall construct for coastal and maritime security in India was revamped. Key focus areas of the revamp were designation of responsibilities; institutionalisation of

interagency coordination mechanisms; and, a focus on electronic surveillance and development of Maritime Domain Awareness (MDA). The mandate of the Central Industrial Security Force (CISF) was also expanded to include security in the private sector. This enables the CISF to provide security to privately-owned ports which are growing in India.

In 2014, the Department-related Parliamentary Standing Committee on Home Affairs examined coastal security in India and recommended the need for effective utilisation of VTMS to meet coastal security requirements, and for strengthening port security in non-major ports.[19] In 2015, the committee, after reviewing an audit report on the security of non-major ports, took serious note of the deficiencies in port security and recommended the implementation of the audit recommendations.[20] Subsequently, in 2016, the Ministry of Home Affairs (MHA) circulated a 'Compendium of Guidelines' on security of non-major ports to all stakeholders.[21] Separately, guidelines have been promulgated for security of 26 Single Point Moorings (SPM) some of which are located within port areas.[22]

In the last two decades the security of ports and port facilities has progressively been augmented. Presently, security in Indian ports is based on either the ISPS Code or MHA Guidelines on security for non-major ports. The Central Industrial Security Force (CISF) is responsible for security in all major ports and in select non-major ports, such as Port Blair.[23] In Indian Custom Ports, port security is also augmented by the Customs which has a marine wing for patrolling and other equipment, such as X-Ray machines and scanners, for inspection of goods and containers transiting ports.

Security in the Ship-Recycling Industry

The Indian ship-recycling industry accounts for over a quarter of the global industry. India's ship-recycling industry is centred along a 10 km coastline at Alang, Gujarat which is considered amongst the world's largest ship-recycling facilities.[24] Alang, which accounts for 98 per cent of ships recycled in India has 153 plots for ship-breaking with plans for further expansion.[25] One of the highlights of Budget 2021 is the proposal to double the ship-recycling capacity of around 4.5 Million Light *Displacement* Tonne (LDT) by 2024, and to generate an additional 1.5 lakh jobs.[26]

In November 2019, India deposited its instrument of accession to the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009. The Ship Recycling of Ships Act, 2019 and the Shipbreaking Code (Revised), 2013, govern ship recycling in India. In October 2020, the Directorate General of Shipping was notified as the National Authority for Recycling of Ships.[27] As an apex national authority for ship recycling, DG Shipping is authorised to administer, supervise, and monitor all activities relating to ship-recycling.

Security aspects related to ship-recycling yards are covered in Shipbreaking Code (Revised), 2013.[28] These relate to consultation with security agencies; record-keeping, including photographic; information-sharing of vessel movements and crew details with security agencies; regular meetings amongst stakeholders; and measures for physical security, including audits. The Recycling of Ships Act, 2019 provides a statutory requirement for the owner of the ship planned for recycling to report the date of arrival of the ship for recycling to MRCC.[29]

Imperatives

In the context of coastal security, coastal waters include the waters seaward of the Indian coast up to the limit of India's contiguous zone (24 nm), or the International Maritime Boundary Line (IMBL), in case the latter is nearer. [30] While spatial scope of armed robbery includes the internal waters and territorial seas, a *zone* within the coastal waters, an analysis of the ReCAAP ISC report clearly indicates that an overwhelming majority of incidents in India were localised around ports and at Alang. Suppression of localised armed robbery therefore is an enabler for wider coastal security.

In 2015, the IMO in its recommendations for prevention and suppression of piracy and armed robbery, on the issue of interagency coordination and swift operational response, had emphasised the need for developing institutional measures for incident response; integration of existing mechanisms dealing with other maritime security threats to allow for the most efficient utilisation of limited resources; and, development of procedures for rapid information-sharing.[31] More recently, ReCAAP ISC has highlighted the importance of enhanced surveillance and patrol, quick responses, and the need for a legal finish through arrest and prosecution to curb armed robbery and piracy.[32]

The coastal security construct in India, developed after the Mumbai attacks in 2008, is premised on the fundamentals espoused by the IMO and the ReCAAP, albeit in a different context. An analysis indicates that response to reports of armed robbery have been coordinated amongst the Coast Guard, SMP, Customs, Port Authorities, and other agencies, with successful apprehensions in a third of the nine reported cases in 2020. The success in apprehending the criminals is a possible indicator of the effectiveness of the overall security construct. With increasing focus on the port-development, continued efforts at capacity-building and capacity enhancement of the forces and agencies responsible for security in ports and adjoining areas, such as the CISF, SMP, Customs, etc. are essential. A dedicated marine wing of the CISF, on the lines of the Border Security Force (BSF) water wing and the marine wing of the Customs, could also bolster port security.

While in the past decade a major share of incidents was reported from major ports, the absence of any incident in major ports in 2020 is a notable development. Strengthening patrolling of port areas and implementation of port security measures (ISPS Code and MHA guidelines for non-major ports and SPMs) are fundamental prerequisites for port security. Stringent implementation of Port State Control (PSC) measures in Indian ports can also contribute to strengthening security in ports.

Installation and effective use of electronic sensors can effectively complement surveillance and patrol efforts by ships, craft, and aircraft. Such systems also contribute to developing MDA in a wider area. For example, the VTMS in the Gulf of Kutch and Gulf of Khambhat (where Alang is located), are planned to be integrated into the Phase II of the Coastal Surveillance Network (CSN) which is a chain of coastal radars. In addition to sensors, port-related information from the Indian Port Authority (IPA) is also available with the Information Management and Analysis Centre (IMAC), Gurugram.[33] Fused and correlated information, such as from the proposed National Maritime Domain Awareness (NMDA) project, can contribute towards developing a Common Operational Picture (COP) of a wider geographical area amongst all stakeholders, including in adjoining areas which are not covered by local sensors.

Periodic drills and exercises are mandated in all ISPS-compliant ports.[34] These exercises and drills are also complemented by periodic exercises at the state- and

national-level. As armed robbery in India are largely localised, streamlining of local measures through regular exercises and drills are necessary. Likewise, such drills could also be exercised in state-level exercises to cater for the rare contingencies which may be beyond local capacities to handle. Periodic drills and exercises also need to be carried out in non-ISPS compliant ports.

ReCAAP ISC has advised the shipping industry viz. masters and crew to maintain vigil, report incidents to the nearest coastal State, and also to implement recommended preventive measures.[35] The experience of addressing piracy off the coast of Somalia, and elsewhere, highlights the need for a multi-pronged approach to prevent incidents of piracy (or armed robbery), including by adoption of best practices by the shipping industry (including self-protection measures). Position and incident reporting by ships, in accordance with established procedures, are key for monitoring and swift response by security agencies. Such information also needs to be shared mutually amongst all domestic stakeholders for developing a COP.

The Shipbreaking Code (Revised), 2013 caters for formulation of local security orders in consultation with security agencies.[36] In light of incidents at Alang, there may be a need to revisit local security orders, including in the approaches and anchorage area. These could also be reviewed during the periodic audits. Further, there is also a need for compliance with the provisions of the Recycling of Ships Act, 2019 regarding information-sharing with MRCC regarding the ship's movement. This information also needs to be widely shared amongst the security community, and also with other information gateways/ hubs such as the Information Fusion Centre-Indian Ocean Region (IFC-IOR) and the Information Management and Analysis Centre (IMAC).

There are no indicators so far to indicate the involvement of any organised criminal syndicate in India, and the perpetrators are likely to be petty criminals associated with the maritime sector. Addressing armed robbery will therefore need greater engagement with the maritime community, such as through community programmes. Greater oversight of activities in maritime hubs, such as ports, recycling yards, fish landing centres, etc. is also an imperative.

Conclusion

In the past decade, incidents of armed robbery have largely been limited to a small number of ports. In 2020, incidents of armed robbery were reported from just one port, with the balance being reported from Alang. While overall there has been an uptick in the past three years, it has not exceeded the 14-year average. However, as highlighted by the RecAAP ISC, incidents of armed robbery, no matter how petty, have significant connotations from the maritime security perspective.

The successful apprehension of criminals, as also the subsequent suppression in Gujarat, has rightfully drawn the praise of the ReCAAP ISC. The suppression of armed robbery in other major ports across India is also noteworthy. However, incidents of armed robbery are indicative of the presence of local criminal elements, and there always remains the possibility of such criminals colluding with anti-national elements. The 1993 Mumbai attack is a grim reminder of this possibility.

Preventing, and responding to, armed robbery necessitates a multi-pronged approach by all stakeholders such as those involved in port security, police, the shipping industry, ports, and now, also the ship-recycling industry. Therefore, consolidating on the gains, and strengthening security measures across ports and ship-breaking yards is an imperative, not only for suppressing armed robbery, but also for strengthening overall coastal security.

<div align="right">26 February 2021</div>

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Drug Trafficking in India: Maritime Dimensions

Earlier this month, on 04 December 2021, at an event to commemorate the 64th foundation day of the Department of Revenue Intelligence (DRI), the Honourable Minister for Finance and Corporate Affairs, Shrimati Nirmala Seetharaman, released the *Smuggling in India Report 2020-21*.[1] The report brings out that with a long coastline and numerous ports, India is "sensitive to drug trafficking through maritime routes."[2] As per the report, there has been a significant increase in the seizure of heroin in the Arabian Sea in 2020-21 with major seizures in India from containerised cargo originating from Afghanistan.[3] Drawing a link with national security, the report highlights that illicit trafficking in Narcotic Drugs and Psychotropic Substances (NDPS) could finance anti-national activities (narcoterrorism).[4] Based on previous seizures from boats/ ships emanating from the Gulf Region, and continuing restrictions for travel by air and land routes — now exacerbated with the Omicron variant of the SARS-CoV-2 Virus — the report predicts that the sea route will continue to be exploited in the future as well.[5] The report highlighted the need for "monitoring the territorial waters and import consignments arriving through the sea route."[6]

Literally, the term 'drug' is an "illegal substance that some people smoke, inject, etc. for the physical and mental effects it has."[7] The NDPS Act, 1985 defines "narcotic drugs" as "coca leaf, cannabis (hemp), opium, poppy straw and includes all manufactured drugs" and "psychotropic substance" as any "substance, natural or synthetic, or any natural material or any salt or preparation of such substance or material included in the list of psychotropic substances specified in the Schedule [to the Act]."[8] For example, cocaine (coca derivative) and heroin (opium derivative) are narcotic drugs, and methamphetamine is a psychotropic substance.[9]

The United Nations (UN) Secretary-General's 2008 report identifies illicit trafficking in NDPS as one of the seven threats to maritime security.[10] More recently,

the presidential statement of the UN Security Council on maritime security, under the item "maintenance of international peace and security," has noted the problem of transnational organised crimes committed at sea, including illicit trafficking in NDPS.[11] The Security Council has also called upon member States to consider ratifying or acceding to international conventions in this regard.

The *Indian Maritime Doctrine* (updated version 2015) recognises the Indian Ocean Region (IOR) as a "hotbed of narco-terrorism, smuggling, gun running and associated crimes," and the need to counter such threats in conjunction with the coast guard, navies and law enforcement agencies.[12] Likewise, the *Indian Maritime Security Strategy* (2015) also recognises trafficking in drugs as a non-traditional threat to maritime security.[13] The "Colombo Declaration," at a meeting of interior ministers of the IOR to counter drug trafficking in 2016, determined that "narcotic drug trafficking in the Indian Ocean poses a threat to peace and security in the region and its possible link to organized crime and funding of terrorism."[14]

It has been assessed that the trafficking of heroin and other drugs from the Makran coast to countries in South Asia and Southeast Asia has been on the rise in the last few years.[15] In this light, the article attempts to explore the maritime dimensions of drug trafficking in India and the changing contours over the past decade. It also makes some recommendations for strengthening drug law enforcement from a maritime perspective.

Major Seizures in India: 2021

There have been a number of drug seizures this year. In January and February this year, the Information Fusion Centre-Indian Ocean Region (IFC-IOR) reported four cases of seizures of cannabis from Tamil Nadu: three in January and one in February.[16] On 18 March 2021, the Coast Guard apprehended three foreign boats carrying heroin, AK-47 assault rifles and 1,000 rounds of ammunition off Lakshadweep.[17] Based on a statement by the Narcotics Control Bureau (NCB) — subsequently corroborated by the DRI in its annual report — the IFC-IOR highlighted the incident as an example of possible linkages between illegal narcotics trade and terrorism, and the possibility of smuggling routes being exploited for more sinister purposes.[18] On 07 March 2021,

based on specific intelligence, the Coast Guard and the NCB seized a Sri Lankan fishing vessel off the Vizhinjam coast in Kerala.[19] The investigations revealed that the crew had procured 100 kilogram (kg) of hashish and 150 kg of methamphetamine from a Pakistani boat in the high seas and were on the way back to Sri Lanka, but had dumped the contraband on sighting the coast guard ship.[20]

On 15 April 2021, in a joint operation with Gujarat Anti-Terrorism Squad (ATS), the Coast Guard seized 30 kg of heroin off Jakhau, Gujarat, from a Pakistani boat. Later in the same month, the Indian Navy seized 337 kg of heroin in the Arabian Sea in a joint operation with the NCB.[21] As per the press release, the drug smuggling routes emanating from the Makran coast were flowing towards destinations in India, Maldives and Sri Lanka and the "spoils of narcotics trade feed syndicates involved in terrorism, radicalisation and criminal activities."[22] Almost two months later, on 06 July 2021, the Coast Guard also seized 19 packets of drugs, suspected to be *charas*,[23] that had been dumped at sea off Kutch, Gujarat.[24] On the east coast too, on 21 April 2021, the DRI seized 300 kg of cocaine at Tuticorin Port.[25]

The second half of 2021 however exposed a new dimension of drug trafficking into India. In July 2021 and October 2021, the Indian authorities seized 294 kg and 25 kg of heroin from Mumbai/Nhava Sheva Port in goods declared as talcum powder and vegetable oils respectively.[26] On 13 September 2021 — in reportedly the largest drug haul in India — the DRI detained two containers that had arrived at Mundra Port, Gujarat, from Kandahar, Afghanistan, via Bandar Abbas, Iran.[27] Subsequent examination led to the seizure of 3,004 kg of heroin from lower layers of jumbo-sized bags containing unprocessed talc powder. Follow-up operations led to additional seizures in Delhi and Noida, and arrest of eight persons, including foreign nationals. These incidents, point to a similar *modus operandi* being adopted by the traffickers: concealing drugs in containerised consignments originating in Iranian ports of Chabahar/ Bandar Abbas to the west coast of India for trafficking.[28] Subsequently, on 02 October 2021, the NCB, in an undercover operation, seized drugs from a cruise ship off the west coast between Mumbai and Goa.[29] On the east coast, on 26 September 2021, Indian Customs seized 150 kg of ganja from a fishing boat at Nagapattinam harbour, Tamil Nadu and on 09 October 2021, Indian authorities apprehended four suspects and seized 530 kg of cannabis from Tharuvaikulam, Tamil Nadu.[30]

International Trafficking Routes

In 2015, a United Nations Office on Drug and Crime (UNODC) study brought out that while the traditional route of opiates from Afghanistan was through land routes (Balkan Route), a changing trend was the development of the "Southern Route."[31] This Southern Route — essentially a collection of routes (and organised groups) — was facilitating a southerly flow of heroin out of Afghanistan to diverse locations in Africa, Asia, Central and Western Europe and Oceania. Trafficking undertaken using sea routes involved sending larger consignments by boats (vis-à-vis air and mail routes) . The report assessed India as the main destination market in South Asia and China as the largest potential revenue source in Southeast/East Asia.[32]

Based on seizures between 2014–16 in Maldives, Sri Lanka and the Seychelles, it emerged that one of the maritime routes from the Makran coast was focused on the eastern Indian Ocean (Sri Lanka and Maldives), with the route perhaps curving further west to the Seychelles.[33] The Southern Sea Route on the western Indian Ocean, focused on Yemen and East African coast, is also widely known as the "hash highway" and the "smack track."[34] As per the 2019 annual report of International Narcotics Control Bureau (INCB):[35]

South Asia, in particular Sri Lanka, has experienced an increase in seizures of heroin due to the growing use of the southern route by drug traffickers. Most of the heroin that is smuggled through the so-called "southern route" to reach South Asia (from Afghanistan to Pakistan and then to South Asia) is of Afghan origin and has the final destination of North America.

The 2020 *World Drug Report* by the UNODC identifies the world's main drug trafficking routes based on reported seizures for the period 2014–18.[36] This includes three relatively low-volume heroin routes from the Makran coast to East Africa, Southern Africa and Southeast Asia [Southern Route], and a low-volume cocaine route from South America to South Asia.[37] The *2021 World Drug Report* has *inter alia* found that the COVID-19 pandemic has accelerated the use of waterways routes by traffickers, and has also increased shipment size, a fact that has also been substantiated domestically by the DRI.[38] Reportedly, in 12 ports in Europe witnessed an18 per cent increase in seizure of cocaine.[39]

An overview of the maritime security situation for the year 2020 by the Information Fusion Centre (IFC), Singapore in their area of interest, assessed four *modus operandi* for contraband smuggling (including drugs): the use of small vessels, including for transhipment at sea; use of fishing vessels, many without any tracking system ("dark" fishing); setting contraband adrift, especially for low-value contraband (including to avoid apprehension); and smuggling in containers.[40] Notably, similar trends have been observed in India as well. The report also highlighted that high density of fishing vessels operating in narrow waters, such as between India and Sri Lanka, facilitated concealment of illegal activities, with some incidents pointing to historical patterns.[41]

Specifically, with regard to drug smuggling, the report highlighted that the region of Myanmar, bordering Thailand, continued to manufacture psychotropic substances (methamphetamines) and that Thailand remained the hub of transfer of methamphetamines to countries in the region and beyond (notably including in containerised cargo).[42] This included smuggling of yaba tablets from Myanmar to Bangladesh.[43] A spike in cannabis seizures was reported in 2020 which was attributable to seizures of adrift cannabis in South Asia, particularly near the India — Pakistan maritime boundary and in the waters between India and Sri Lanka.[44] The report further noted that the majority of heroin smuggled from the Makran coast via sea (Southern Route) was actually destined for Europe via the "hash highway" and "smack track," with a lesser portion to countries in South Asia (India, Sri Lanka, Maldives), the latter being the easternmost track of the Southern Route (designated as "Eastern Southern Route" for the purposes of this article).[45] While other types of drugs were also seized in the IOR, the number of such seizures was relatively less.

Trends in India

India's location between two of the largest opium producing (and trafficking) areas in the world — the "Golden Crescent" in the west and "Golden Triangle" in the east — and adjoining the Southern Route makes it particularly vulnerable to illicit trafficking of drugs.[46] India is, in fact, seen as both a destination and a transit route for opiates produced in the region.[47] There is limited open source data on drug trafficking India using the maritime route. Some of these are described in subsequent paragraphs.

A study, in the early 2010s, had highlighted that traffickers from the Afghanistan–Pakistan region were looking at the sea as an alternative route for trafficking in view of increased vigil along the land borders.[48] Consequently, drugs were being smuggled into India through the Rann of Kutch in country-made boats.[49] In addition, *dhows* operating between Gujarat/Maharashtra and the Arabian Peninsula were also engaged in drug trafficking.[50] In the southern coast, the Tamil Nadu–Sri Lanka sector was identified as an exit route for heroin smuggled in from Afghanistan and Pakistan; and the Tamil Nadu coast was also a transit point for indigenously produced "brown sugar" which was further transhipped to European and American markets.[51] Further, the study identified the use of small fishing boats in southern India to ship drugs to Maldives and Sri Lanka.[52] It highlighted that ports, such as Kochi, Kolkata, Mumbai and Chennai, were transit ports for drug trafficking, with Mumbai also being a destination port of drugs from Pakistan and West Africa.[53] Overall, the study identified Maldives, Pakistan, Sri Lanka, along with East Asia (China), Southeast Asia, Europe and America, as some of the destinations of drug trafficking using the sea routes.

Another *modus operandi*, unveiled in 2018, involved drug transfers along the Southern Route from dhows to smaller boats about 150 nm from the Gujarat coast, followed by landing at Mandvi (Gujarat). The drugs were then taken to one of Asia's largest spice market at Unjha (Gujarat), and from there to Punjab by road, hidden under spice bags and "camouflaged" as cumin seeds.[54] It does bear note that between 2019–21, Indian agencies, in joint operations, have apprehended Pakistani boats engaged in drug trafficking off the Gujarat coast.[55] In August 2020, the National Investigation Agency (NIA) also launched an investigation on heroin smuggling through the sea route, based on a drug seizure in Salaya (Gujarat).[56] In November 2021, investigations by the Gujarat Anti-Terrorist Squad (ATS) into a heroin seizure made inland in Gujarat revealed that a conspiracy launched in UAE involved delivery of the drugs from the Makran coast to Africa via India using the sea route; however, the drugs in this case had been diverted into India instead.[57]

As per an investigation by the NCB earlier this year, the *modus operandi* for the "Eastern Southern Route" encompassed mid-sea transfer of drugs between Iranian and Pakistani fishing vessels with Sri Lankan and Maldivian fishing vessels.[58] These

transfers reportedly took place "in the territorial waters of India or very near to its territorial waters."[59] The apprehension of a Sri Lankan boat in November 2020 south of Tuticorin, with drugs, arms and a satellite phone, also pointed to drug transfer from a Pakistani *dhow*.[60] The NCB investigation further revealed that the international drug racket is spread across Afghanistan, Pakistan, Iran, Sri Lanka, Maldives, Australia and India, with Sri Lanka and Maldives being important "transit points." The racket was purportedly being operated by Pakistani drug traffickers lodged in Sri Lankan jails, and two other Sri Lankan nationals who had fled to India.[61] The two important points that emerged from the NCB investigation are: first, coastal waters off the west coast of India are possible areas of transhipment; and second, there is involvement of transnational organised criminal syndicates in illicit trafficking of drugs.

In addition to narcotic drugs, South Asia is also emerging as a new destination for methamphetamine.[62] In September and December 2019, the Coast Guard apprehended two Myanmarese boats with ketamine and methaqualone in the Andaman Sea.[63] In the former case, the contraband was reportedly destined for a Southeast Asian country.[64]

From the above, and some of the important cases of drug seizures in 2021 that have been discussed earlier in the article, and inputs from the monthly updates of IFC-IOR in 2020-21, some of the salient points that emerge are as follows:[65]

- In the past decade, as is evinced from increased drug seizures at sea and in ports, there appears to be an increase in the use of sea routes for trafficking of NDPS. An overview of previous reports and other inputs indicate that traffickers adapt quickly to the changing environment and circumstances.[66]

- While the primary method for drug trafficking in the region traditionally has been through small boats/fishing boats and *dhows*, more recently, drugs are being illegally shipped through shipping containers.

- The Southern Route — a collection of maritime routes — has emerged as one of the major drug trafficking routes by sea in the Indian Ocean (Figure 1). One of the routes in the Arabian Sea, from the Makran coast towards Sri Lanka and Maldives, is of particular concern to India as it transits through the

Indian maritime zones, including the territorial seas (the "Eastern Southern Route").[67]

- Seizures in the Andaman Seas are indicative of the existence of a route off Andaman and Nicobar.

- Adrift drugs/drugs washed ashore have been discovered in several instances, particularly off Jakhau (Gujarat).

- While the majority of the seizures in India were reported from Gujarat, Tamil Nadu, and off Lakshadweep and Kerala, in the second half of 2021, there has been an increase in reports of apprehensions from Mumbai (Maharashtra).

- Significant seizures were made in the ports on the west coast (Mumbai and Mundra) from containerised cargo.

- While cannabis, and its derivatives, were the most common seizures made by Indian agencies, in the second half there were significant seizures of heroin (Mumbai and Mundra). In the past, methamphetamine has also been seized by Indian authorities.

- Considering the location of the routes and modes of trafficking, effective coastal (and port) security is a facilitator to counter drug trafficking.

- As highlighted in the DRI annual report, the sheer volumes of trade make it impractical to check all consignments, necessitating newer approaches, such as data analytics. Likewise, the presence of large number of fishing boats and the absence of tracking devices on smaller vessels facilitates concealment of illicit activities at sea by smaller vessels.

- A number of seizures were undertaken by a host of agencies, including the Border Security Force, Coast Guard, Customs, DRI, Port Authorities, police (including State Marine Police, ATS, marine task force, special branch), NCB, etc. Some of these seizures were undertaken through coordinated operations.

- Drug seizures were also made in neighbouring countries in South Asia, namely, Bangladesh, Pakistan, and Sri Lanka. This included seizure by Sri Lankan authorities in the northern areas and in the south, a ranges of up to 600 nautical miles (nm) from Sri Lanka.
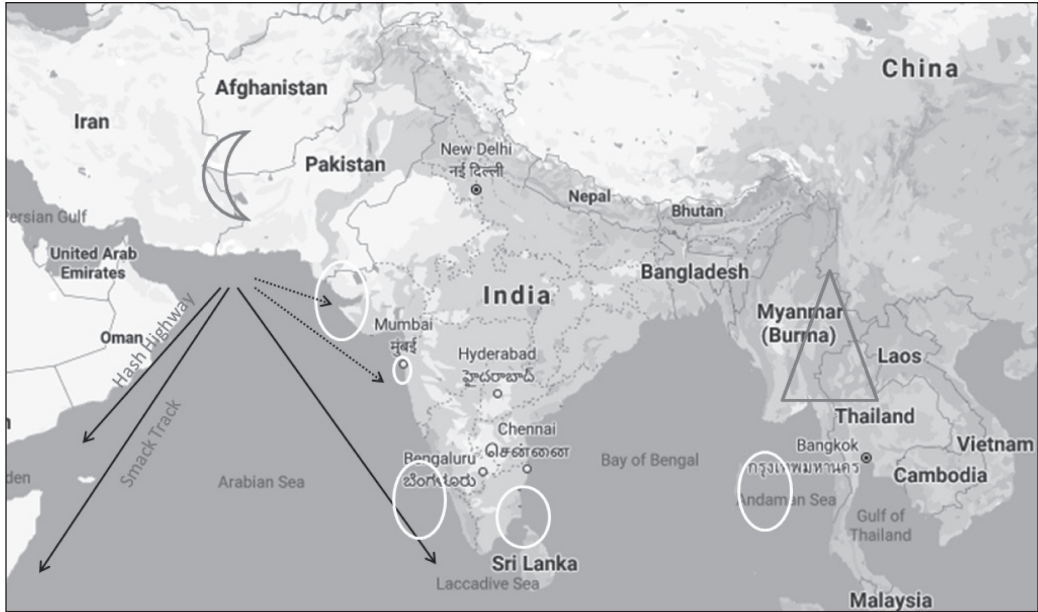
Figure 1: Southern Route (including '*Eastern*' Southern Route off the Indian coast) and Trafficking Areas [for representational purposes only]. Figure collated by the author; Map underlay courtesy Google Maps.

Having discussed the routes and trends, in the next section, the overall construct for drug law enforcement in India will be discussed.

Drug Law Enforcement in India

In India, the NCB is the nodal agency for preventing and combating drug abuse and illicit trafficking in NDPS.[68] The NCB is also responsible for coordination with all national and international agencies, as also for fulfilling India's international obligations under international conventions. It operates through three regions, 13 zonal units, and 12 sub-zones. Since 2004, the NCB has been providing financial assistance to States and Union Territories for strengthening drug enforcement measures; and it also undertakes training programmes for agencies of the Centre and State in drug enforcement. Notwithstanding the nodal role of the NCB, multiple agencies are engaged in drug law enforcement, such as the Central Bureau of Investigation (CBI), Coast Guard, Customs, DRI, police, etc.[69]

Some of the major initiatives taken by the Government of India to stop drug trafficking in India include: a four-layer coordinating mechanism up to the level of districts in the form a Narco Coordination Centre (NCORD) to coordinate between agencies of the Central and State governments;[70] a Joint Coordination Committee (JIC) under the chairpersonship of Director General, NCB, to coordinate investigation of major cases;[71] legal empowerment of 'border guarding forces,' for drug enforcement functions (Coast Guard from a maritime perspective); intelligence sharing across drug law enforcement agencies; digitisation of seizure data through the Seizure Information Management System (SIMS); and, surveillance and enforcement at import and export points at land and maritime borders; and interdiction efforts along known drug routes.[72]

As a part of the international cooperation charter, the NCB has 27 bilateral agreements and 16 Memoranda of Understanding (MoUs) with other countries/organisations. Director General-level talks are also held with several countries, including Myanmar, Afghanistan, Sri Lanka and Bangladesh.[73] Further, the NCB coordinates with various regional organisations for information and intelligence sharing to combat transnational drug trafficking.[74] Likewise, other drug law enforcement agencies also have established mechanisms for international coordination. Specifically, India is also a member of the Southern Route Partnership (SRP) framework under the Indian Ocean Forum on Maritime Crime (IOFMC).[75]

From a maritime perspective, the Coast Guard has been empowered under the NDPS Act, 1985. It has several MoUs on combating transnational crime and illegal activities at sea with foreign coast guards/equivalent, and also shares intelligence/information on drug trafficking with countries such as Sri Lanka.[76] In addition, Section 56 of the NDPS Act, 1985 mandates that "all officers of the several departments mentioned in Section 42 shall, upon notice given or request made, be legally bound to assist each other in carrying out the provisions of this Act." [77] The list also includes the armed forces (thereby the Indian Navy from a maritime perspective), customs and police organisations.

In addition to the DRI, drug interdiction operations undertaken by Indian agencies have also been based on intelligence provided by other intelligence

agencies, such as technical intelligence provided by the National Technical Research Organisation (NTRO). In 2017, inputs from the NTRO led to a record haul of 1,500 kg of heroin valued at over Rs 3,500 crore by the Coast Guard in the Arabian Sea.[78] Another example is in May 2019, when the DRI, in coordination with the NTRO and the coast guard, apprehended 218 kg of heroin off the Gujarat coast.[79]

Broadly, the following points are relevant to drug law enforcement in India: *first*, drug law enforcement, especially maritime drug law enforcement, is essentially a multi-stakeholder activity involving Central and State agencies, and therefore, countering trafficking in NDPS will need to be based on strong inter-agency linkages; *second*, intelligence inputs, particularly technical intelligence, have proved to be essential for effective drug law enforcement; *third,* while anti-trafficking operations at sea are targeted at 'field operatives,' effectively countering drug trafficking will also entail acting against transnational organised crime syndicates necessitating greater international cooperation, including for information and intelligence sharing.

Strengthening Maritime Drug Law Enforcement: Imperatives

Having discussed the trends in NDPS trafficking through the sea routes and organisation for drug law enforcement in India, some of the imperatives for strengthening maritime drug law enforcement in India are discussed in this section.

Inter-agency Coordination. Anti-trafficking operations in the maritime domain typically involve synergised efforts between multiple Central and State agencies, supported by intelligence agencies. Contemporary challenges necessitate an integrated approach to maritime drug law enforcement. In a little over the past decade, multiple forums for coordination specific measures—such as for maritime security, intelligence sharing and for drug law enforcement— have been set up which facilitate interaction between multiple stakeholders across levels of governance. These include: the National Committee for Strengthening Maritime and Coastal Security (NCSMCS) against threats from the sea and subordinate bodies for maritime security; the NCORD and subordinate bodies for coordination in drug enforcement; and the Multi-Agency Centre (MAC)/Subsidiary MAC (SMAC) for intelligence sharing. At an operational level, the Joint Operations Centre (JOC) and the "hub-and spoke"

model of coordination between the Coast Guard and the Marine Police facilitate operational coordination between agencies involved in coastal security. Progressively, these bodies need to be further cross-pollinated, and linkages strengthened, to ensure the swiftest possible action at sea.

Capacity Enhancement. A large number of Central and State agencies are involved in anti-drug trafficking operations both at sea and on the coast, including ports. Undertaking such activities requires specialised skills and equipment, such as drug detection kits.[80] Likewise, criminal justice practitioners dealing with maritime crime also need requisite maritime orientation for prosecuting maritime crime. Consequently, capability enhancement of all Central and State agencies that are envisaged to participate, or assist, in drug law enforcement operations in the maritime domain, or in the criminal justice process, would need to be an area of focus, including international exposure, where necessary.

Maritime Domain Awareness (MDA)-Data Analytics. The challenge of tracking and identifying smaller vessels, which are one of major modes of transhipment of drugs, is one of the greatest challenges in achieving transparency at sea. This can be mitigated to a great extent if own vessels can be positively identified without recourse to physical boarding. Therefore, the need for a tracking system for smaller vessels in India remains an imperative from multiple perspectives, including safety, security and law enforcement. However, just identification and generation of a common plot alone is not enough. Improved understanding of the maritime domain, or MDA, also entails increasing integration and correlation of vessel movement data, largely available with maritime security agencies, with intelligence inputs as well as vessel-specific information, such as cargo and crew, which are available with specific stakeholders, such as intelligence agencies, DRI, NCB, Customs, fisheries department(s), port authorities, etc. This alone can facilitate a more holistic assessment of higher risks. Instructively, DRI has already highlighted the importance of analytics for interdiction; however, analytics will need an integrated approach to be successful. Developing and strengthening linkages between operation centres across maritime security agencies, intelligence agencies, as also information centres such as the Information Management and Analysis Centre (IMAC), would contribute to strengthening inter-agency coordination and facilitate informed decision making.

Notably, the 2021 *World Drug Report* recommends the improvement of surveillance and targeting capabilities and effective sharing of intelligence between national authorities and the private sector, such as shipping companies.[81]

Area and Point Security. Drug smuggling is not only a crime by itself, but is also a potential source of funding for terror groups and a possible threat to national security. The seizure of arms in some cases points to the possibility of drug dealers also being involved with arms trafficking, and possibly with maritime terrorism as well. The Mumbai blasts of 1993 is a poignant a reminder of this possibility. Smuggling of drugs into or out of the country through the sea route entails transit through the coast, including ports, fish landing centres, beaches, etc. Accordingly, DRI has highlighted the need for greater surveillance of coastal areas and monitoring of import consignments.[82] Strengthening area security (coastal security) and point security measures—particularly surveillance, fisheries Monitoring, Control And Surveillance (MCS), improved risk assessment of shipments, and community participation—is a deterrent for maritime crime. The UNODC has highlighted that tracking suspicious shipments, by development of international accountability mechanisms, would increase interception capability. The principles are equally applicable to shipping, fishing and other maritime sectors.

International Cooperation. The need to enhance international cooperation to counter drug trafficking has been highlighted at both bilateral forums, such as with Sri Lanka, and multilateral forums, such as trilateral with Sri Lanka and Maldives, the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) and SRP. The UNODC itself, in its 2021 report, has stated that "fostering international cooperation remains a key objective for fighting the enduring problem of drug trafficking."[83] India has multiple agreements with foreign countries/agencies for cooperation in drug enforcement and transnational organised crime. Operationally, these have also translated into information and intelligence sharing for drug interdiction operations at sea. These linkages need to be widened and further strengthened. In addition to agency-specific agreements, the IFC-IOR is particularly suited for information exchanges with international agencies, for making assessments, and for undertaking analysis of the wider contiguous maritime spaces. Indian Navy ships which are mission-deployed in

multiple areas of the IOR can, like other navies, also contribute to international efforts, in accordance with international law, at suppression of illicit trafficking in the high seas, particularly along the "hash highway" and the "smack track."

Legal Regime. Unlike piracy, which provides for universal jurisdiction, one of the unique challenges of drug enforcement at sea is that "no existing treaty expressly grants the authority to board a foreign-flagged vessel suspected of illicit trafficking of NDPS on waters seaward of the territorial sea of any State without flag State consent."[84] This is however without prejudice to the inherent right of visit when there are reasonable grounds to suspect that a vessel is without nationality. For example, an overwhelmingly large number of drug interdictions undertaken by the Combined Maritime Force (CMF) along the "hash highway" and the "smack track" were initially undertaken for flag verification.[85] International cooperation mechanisms therefore will also need to consider bilateral agreements to facilitate boarding of vessels (ship-boarding agreements) by national agencies outside territorial seas, as has been done by some countries under the Convention for the Suppression of Unlawful Acts against the Safety of Maritime Navigation (SUA, 2005).

Conclusion

Drug addiction, in addition to health risks to individuals, has a negative effect on families in particular, and societies at large. In addition, illegal trade in drugs finances other crimes, including terrorism, and threatens national security. Trafficking of drugs is recognised as a maritime security threat which needs to be countered. Accordingly, India has a vision for a drug-free India, and the Colombo Declaration called on littoral nations towards making the IOR a "Drug Free Zone."[86] Notably, the Home Minister, in his address at a BIMSTEC conference on combating drug trafficking in 2020, highlighted that "coastal States are sensitive and may become a gateway for illicit drugs entering India, which needs to be prevented."[87]

In the past decade, the Southern Route emanating from Afghanistan has emerged as an alternative to the traditional land-based drug trafficking routes. The maritime element of the Southern Route is a collection of routes that emerge from the Makran coast and lead to Yemen, East Africa and South Asia with the routes moving thereon

to other parts of the world. In particular, the "Eastern Southern Route" that transits off the west coast of India, and as reports suggest, perhaps through the territorial seas as well, is of concern to India. Some seizures in the past have also been undertaken in the Andaman Sea. The increasing use of containerised shipments for trafficking of narcotic drugs, and the high volumes involved, is of particular concern. A number of cases of drugs adrift at sea/ being washed ashore have also been reported.

Drug law enforcement in India is a multi-stakeholder activity. The NCB is the nodal agency in the country; the DRI is the apex intelligence and investigative agency for matters relating to violation of the Customs Act (smuggling); and the coast guard is the primary maritime law enforcement agency. In addition, a number of Central and State agencies, including the Indian Navy and intelligence agencies, have been involved in anti-drug trafficking operations. Several initiatives have been taken to suppress drug trafficking, including improving coordination amongst multiple agencies and strengthening State capacity. Along with this, there has been increased engagement with international partners.

The imperatives for strengthening maritime drug enforcement in India are not particularly different from those for other maritime security threats. Some of the measures include capacity building of all stakeholders; strengthening institutions for inter-agency coordination; strengthening MDA, including small boat tracking; continued strengthening of mechanisms for coastal and port security, particularly risk assessments for cargo; and finally, strengthening international cooperation, including intelligence and information sharing. The presence of Indian naval ships in multiple locations across the IOR also facilitates the possibility of contributing to international efforts at suppressing drug trafficking in the high seas, in accordance with international law.

In sum, the development of a drug trafficking route along the west coast of India in the past decade or so, and more recently, the increasing use of containers for drug trafficking into India have emerged as relatively new threats. There are also indicators of the presence of drug routes in the Andaman Sea. The possible nexus with other maritime crimes, particularly terrorism, further exacerbates the problem. While the recent successful operations point to a whole-of-government approach to deal with

the menace of drug trafficking at sea, and also the effectiveness of the approach, there remain several challenges which will need to be collectively handled. Finally, like for other maritime crimes—such as piracy—maritime drug law enforcement can only suppress the threat, not eradicate it. While DRI has emphasised the need for a continuous vigil by drug law enforcement agencies, in the maritime domain, it will need a broader vigil, beyond just the drug law enforcement agencies.[88] To deal with future challenges of the maritime dimensions of drug trafficking, the need is for a comprehensive multi-agency approach.

<div align="right">31 December 2021</div>

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Maritime Dimensions of Smuggling in India:
An Assessment

In a series of articles published since 2020, assessments on non-traditional maritime security threats to India, such as armed robbery, climate change, drug trafficking have been made. This article explores the maritime dimensions of smuggling in India and is a follow-on to an earlier article of December 2021 that focused on the maritime dimensions of drug trafficking.

The World Customs Organisation has defined smuggling [*contrebande* in French] as "Customs offence consisting in the movement of goods across a Customs frontier in any clandestine manner, thereby evading Customs control."[1] The Customs Act, 1962 defines smuggling in relation to both exported and imported goods as "any act or omission which will render such goods liable to confiscation under section 111or section 113."[2] Smuggling typically comprises 'outright' smuggling and 'technical' smuggling. 'Outright' smuggling is the "secret movement of goods across national borders to avoid customs duties or import or export restrictions."[3] 'Technical' smuggling — essentially commercial fraud — refers to the adoption of methods to evade customs duties and other taxes, such as undervaluation and mis-declaration, while using legal channels of trade.[4] In a maritime context, technical smuggling is restricted to notified Indian customs ports, while outright smuggling can take place at any location along the Indian coast, or at ports other than notified customs ports. Another typology is based on the categorisation of the goods being smuggled, such as drugs, natural resources, domestic goods etc., and typically is not standardised.

It has been assessed that smuggling directly affects the economy and government revenues and reduces employment avenues.[5] While the essential motive for smuggling is profiteering, but as the Mumbai blasts of 1993 exemplify, it could also have national security ramifications. In addition to economic and security implications, smuggling

can also have a deleterious effect on society, social wellbeing, and employment. Smuggling essentially exploits gaps in border management and security, and in border controls.[6] Consequently, smuggling in a maritime context needs to be viewed from multiple perspectives of coastal border management, coastal security, and customs enforcement.

With the emergence of the wider concept of maritime security in the 1990s, smuggling is considered to be one of the non-traditional threats to maritime security. The *Indian Maritime* Security *Strategy* (2015) specifically recognises smuggling, along with trafficking, as one of the non-traditional threats to maritime security.[7] It also highlights that the use of the sea routes by smugglers places a constant demand on maritime security agencies, and prophetically warns of the possibility of smuggling of nuclear material. Smuggling of strategic licensed dual-use items could have serious implications for national and international security.

Historical Perspective

In independent India, prior to the emergence of terrorism, smuggling was the dominant non-traditional maritime security threat. The Central Revenue Intelligence Bureau was raised in 1957 for the collection and analysis of intelligence relating to smuggling and for the investigation of important cases.[8] By the 1960s, smuggling by sea was 'rampant' and threatened the economy of the country.[9] The 1971 India-Pakistan war also resulted in a rise in smuggling with a detrimental impact on the Indian economy.[10] The problems identified at that time *inter alia* included the long coastline without any effective surveillance; extensive fishing which complicated identification at sea and the absence of registration for fishing vessels; gaps in intelligence and 'dislocated' flow of intelligence; inadequate resources; and, the changing dynamics of smuggling itself.[11] Some of the problems identified at that time were acted upon in a holistic manner almost four decades later — in response to the Mumbai attacks of 2008 — with the setting up of electronic surveillance systems (radars and AIS chain), centralised portal for registration of fishing vessels [ReALCraft], revamp of the intelligence set-up, and the strengthening of maritime security agencies.[12]

The scourge of smuggling contributed to the raising of three maritime security agencies, the Customs Marine Organisation (CMO) in 1974, the Coast Guard in

1977, and the Coastal Security Group (CSG) in the Tamil Nadu Police in 1994. The CMO was however subsequently merged into the Coast Guard on 21 January 1982.[13] The CSG, although a precursor to the present-day State Marine Police (SMP), was not the first marine unit to be raised by a coastal State; Andaman and Nicobar had raised a marine unit in the 1950s.

By the1990s, with the liberalisation of the economy, and the emergence of maritime terrorism, maritime terrorism replaced smuggling to become the principal non-traditional maritime security threat in the country. In the 1990s, three operations were instituted *inter alia* to prevent the smuggling of weapons and explosives into the country: Operation TASHA (Tamil Nadu/ 1990), Operation SWAN (Maharashtra-Gujarat/ 1993), and Operation LEECH (Andaman and Nicobar/ 1998).[14] The Mumbai attacks on 26 November 2008 led to far-reaching changes in the management of maritime security in India, which while focused on preventing infiltration of terrorists through the sea routes, also provided the means to counter other maritime crimes.

Regional and Domestic Trends

This section attempts to explore the regional and domestic smuggling trends over the past decade, primarily drawing on the collective insights from reports published by the Directorate of Revenue Intelligence (DRI), the Federation of Indian Chambers of Commerce and Industries (FICCI), the Information Fusion Centre-Indian Ocean Region (IFC-IOR), and the Information Fusion Centre, Singapore (IFC, Singapore).[15] The publication of annual reports from the DRI and IFCs towards the end of the 2010-20 decade has facilitated a better understanding of the overall situation; however, the focus areas of each report are different.

The maiden Annual Report of the IFC-IOR for the year 2020, highlighted that the largest incidents of maritime crime in its area of interest — which extends beyond the IOR — related to 'contraband smuggling.'[16] This was followed by Illegal, Unregulated and Unreported (IUU) fishing, irregular migration, and piracy/ armed robbery. 'Contraband smuggling' includes smuggling in alcohol, drugs, domestic products, fuel, natural resources, tobacco, weapons, and wildlife; more recently a 'miscellaneous' category has also been added to the list of contraband by the Centre.[17]

After drugs, tobacco and domestic products were observed to be the most commonly smuggled contraband both in 2020 and 2021.[18] The Centre has also observed that the use of small vessels/ fishing craft and concealment of cargo in containerised cargo remain the preferred modes of contraband smuggling.[19]

In a study on coastal security published in 2013, the Gujarat-Maharashtra coast, the Tamil Nadu coast, the Sunderbans in West Bengal, and the Andaman and Nicobar were identified as areas which were historically prone to smuggling[20] This included the smuggling of gold into India and drug transshipment along the Gujarat-Maharashtra coast; smuggling of gold, electronics, spices into India, and textiles to Sri Lanka (this subsequently expanded to include movement of arms and ammunition and also drugs during the civil war in Sri Lanka); smuggling of essential items and wildlife in the Sunderbans area; and, poaching in Andaman and Nicobar.[21] In addition, ports have also emerged as hubs for smuggling. A 2020 response to a parliamentary question revealed seizures of gold at Hazira, Mumbai, Mundra, Nhava Sheva and Surat in 2017-18 (239.6 kilograms) and Chennai, Mumbai and Nhava Sheva in 2018-19 (39 kilograms).[22] Other than gold, seizures of other contraband have also been made. These include black pepper mis-declared as plywood transiting to Nepal under the Indo-Nepal Treaty on Trade and Transit (1960) at Kolkata; silver and electronic waste (e-waste) at Nhava Sheva; Red sanders at Krishnapatnam and Mundra; and cigarettes at Kattupalli.[23]

IFC, Singapore published its first annual report for the year 2017 and has been publishing annual reports ever since and provides a five-year overview. With regard to India, in 2017, the IFC reported seizures of domestic products (food/ electronic items), natural products (gold and wood), and wildlife (sea cucumbers) by Indian agencies.[24] In 2018, the Centre reported three incidents of fuel smuggling, continuing smuggling of gold into southern India, and the possibility of a maritime route for hardwood smuggling, such as rosewood and sandalwood, from India/ Sri Lanka to China/ Vietnam.[25] Smuggling of sea cucumbers was also reported by the IFC. In 2019, the IFC reported a new trend of tobacco smuggling (*beedi* leaves)[26] by small boats, including by mid-sea transhipment in the waters between India and Sri Lanka.[27] The detection of packages of *beedi* leaf — ashore and adrift — indicated possible jettisoning of the packages by smugglers fearing apprehension. In 2020, the IFC reported a trend of increased smuggling of turmeric to Sri Lanka which was

attributed to the import ban on turmeric in Sri Lanka; this has continued into 2021.[28] The report also highlighted that 'traditional smugglers' who were earlier involved in smuggling of *beedi* leaves had switched to turmeric smuggling.[29] With regard to wildlife smuggling, the report assessed the possibility of a route for smuggling of Sea cucumbers from India to China/southeast Asia via Sri Lanka.[30] In the period 2017-2020, there were no reports of seizures of weapons; however, in 2020, in one case weapons were seized from a vessel engaged in drug smuggling.[31] This year, IFC, Singapore predicts that overall there is unlikely to be any significant change in contraband smuggling trends in its area of interest in 2022.[32]

A granular analysis from the Monthly Maritime Security Updates (MMSUs) published by the center for the years 2020 and 2021, with a focus on smuggling in India, reveals the following:

First, a multitude of agencies were involved in maritime anti-smuggling efforts (jointly and independently), including the Indian Navy, Coast Guard, Customs, DRI, and the police.

Second, smuggling was reported in about half of the coastal States/ UTs (Andhra Pradesh, Gujarat, Kerala, Maharashtra, Tamil Nadu, West Bengal) and in a few ports, such as Hazira, Kakinada, Kandla, Mundra, Mumbai;[33]

Third, the presence of both outright and technical smuggling, and smuggling in both imported and exported goods.

Fourth, the smuggling of goods through maritime routes, other than drugs, included smuggling alcohol; domestic products (cardamom, dates, textiles, turmeric); tobacco products (cigarettes and *tendu* leaves), natural resources (gold, Red Sanders); wildlife (Sea cucumbers).

Fifth, likely smuggling routes exist between (1) India and the Middle East; (2) India and its maritime neighbours, primarily Sri Lanka, but also Bangladesh; and (3) India and southeast Asia.

Sixth, the presence of multiple non-traditional threats in some states/ areas; [34] and,

Finally, the changing dynamics of smuggling in India.

Smuggling in India: Maritime Perspectives

The annual *Smuggling in India Report*, prepared by the DRI is the official account of smuggling in India. Overall, India's long coastline and numerous ports, make India sensitive to smuggling through maritime routes.[35] Based on the seizures of drugs (and other contraband) it has been predicted that the sea route will continue to be exploited in the future, as in the past.[36] Smuggling is a transnational economic crime and is driven by multiple factors, such as geography, local taxes (or bans), consumer demand, the effectiveness of local law enforcement, etc. With respect to Sri Lanka, the DRI annual report for 2019-20 highlights that the "proximity to the north-western tip of Sri Lanka, presence of fishing communities of same ethnic linkages in both countries and cessation of internal war and return of peace in Sri Lanka" are contributing factors for smuggling across the India-Sri Lanka maritime boundaries.[37] As per the report, small motorised country boats are used for transhipment at predestined locations at sea, which involves an "intricate network of handlers and carriers," indicating the possibility of a transnational organised crime network.[38]

As per the report in 2019-20, in terms of the number of seizures and value of seizures by the DRI, gold is the most smuggled commodity followed by narcotics and psychotropic substances, cigarettes, foreign currency, agricultural produce, and wildlife.[39] Gold is smuggled into India primarily because of the duties and other levies on imported gold. In 2021, it was estimated that about one-sixth of the total gold entering India is smuggled (150-200 tonnes), of which about three-quarters is smuggled from the UAE.[40] While the air route has been the traditional route accounting for about 65 per cent of all seizures, increasingly, the use of land routes through neighbouring countries has been on the rise, and in 2020-21, Myanmar emerged as the major source of smuggled gold, driven by the disruption of air travel on account of COVID-19 pandemic.[41] In 2019-20, the DRI reported three cases of seizures through the sea route; one each in the Gulf of Mannar (23 kilograms) and the Palk Bay (14.5 kilograms), and in one case, 110 kilograms of gold was seized by the Mumbai unit of the DRI in a containerised cargo from UAE that was declared as brass scrap.[42] The 2020-21 report highlights that the COVID-2019 pandemic has thrown up new challenges, and exhorted officers of the DRI to remain alert to

innovative *modus operandi* that were being adopted by gold smugglers.[43] It also called upon newer techniques in data analytics to counter the scourge.

As per a World Customs Organisation(WCO) assessment of 2019, as cited by the DRI, India is the fourth largest market for illegal cigarettes, with smuggled cigarettes accounting for a quarter of the domestic market.[44] Cigarette smuggling into India is attributed to punitive taxation on tobacco products, and the most commonly used method is by mis-declaration of imported air/sea cargo.[45] Majority of the cigarettes are routed to India from Dubai (via sea routes), Malaysia (through the sea, via Dubai), and from Myanmar and Nepal (over land).[46] The profit margins from cigarette smuggling are reportedly more than for gold.[47] Overall, close to Rs 5 crore worth cigarettes were apprehended by the DRI in 2019-20.[48]

Red sanders or Red sandalwood (*Pterocarpus santalinus*) is listed in Schedule II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora, 1973 (CITES).[49] As per the DRI, an organised cartel is involved in the smuggling of Red sanders from Andhra Pradesh to southeast Asia and east Asia through major ports.[50] In 2019-20, the DRI seized over 150 tonnes of Red sanders valued at about Rs 7 crore.[51]

The DRI also reported seizures of sea cucumbers.[52] In 2021, a study on sea cucumber poaching and smuggling between 2015-20 observed that smuggling and poaching operations were highly organised, and were spreading from the core areas in the Gulf of Mannar and Palk Bay to Lakshadweep.[53] Since 2015, Indian authorities in 48 incidents arrested 81 criminals and seized six vessels.[54] The total value of sea cucumbers seized is estimated to be about Rs 11 crore.[55] Sea cucumbers, which are banned in India, are reportedly smuggled via Sri Lanka to markets in southeast Asia and east Asia where it is used as luxury food or in Chinese medicine.[56] In addition to the use of small boats, tracked adrift packages were reportedly also used by smugglers.[57]

In addition to the above major contraband, the 2020-21 DRI report also mentions the use of sea routes for trafficking of agricultural products, antiquities, and counterfeit items.[58]

From a national security perspective, in 2019, the DRI made two seizures related to dual-use goods that are subject to licensing regulations under the SCOMET list [Special Chemicals, Organisms, Material, Equipment, and Technology] published by the Directorate General of Foreign Trade (DGFT).[59] This included a chemical that could be used as a missile propellant, and an autoclave that could be associated with a missile programme.[60] In 2020, titanium forgings which could be used in the manufacture of Inter-Continental Ballistic Missiles (ICBMs) while being transported between two forging countries were seized in India.[61] Earlier in March 2016, as per media reports, in a joint operation, Indian agencies had arrested six persons involved in smuggling Beryl, a mineral ore from which beryllium is extracted for use in atomic power plants, to China.[62] It was also reported that previously, in October 2015, a 20 tonne consignment had probably been smuggled to Hong Kong from Kandla port.[63] Considering the national security imperatives of strategic trade control enforcement, the *Smuggling India Report 2020-21* notes the need for technology-driven interventions and the importance of collaborations with stakeholders to prevent exploitation of India's growing trade volumes, the overwhelming majority of which is transported through the sea routes, by inimical forces.[64]

Institutional Framework

The Central Board of Indirect Taxes and Customs (CBIC) under the Department of Revenue in the Ministry of Finance deals with policy formulation concerning levy and collection of customs, central excise duties, Goods and Services Tax (GST), prevention of smuggling, and administration of related matters.[65] The Board is also the administrative authority for Custom Houses in India. The Preventive Wing of the Customs is responsible for the prevention of smuggling, including in ports.[66] The Directorate of Logistics under the CBIC meets the logistical requirements of the field formations in the areas of anti-smuggling, marine preventive role, and communication.[67] Some of the major projects of the directorate to counter smuggling through ports include procurement of container scanners for ports and acquisition of over 100 boats for patrolling off ports and other water bodies.[68]

The Directorate of Revenue Intelligence (DRI), formerly the Central Revenue Intelligence Bureau, under the CBIC is India's apex anti-smuggling agency.[69] The

DRI enforces the provisions of the Customs Act, 1962 and over fifty other acts including those for drugs and arms trafficking. The DRI is responsible for intelligence on smuggling, investigations, adjudication of cases, and prosecution of the arrested persons.

The Directorate General of Analytics and Risk Management (DGARM), set up in 2017, is the apex body for data analytics and risk management for informed decision-making and policy formulation in the CBIC.[70] The DGARM has four verticals under it, including the Risk Management Centre (RMC) for Customs and the National Targeting Centre (NTC). The RMC is responsible for management of the Risk Management System (RMS) and targeting 'risky' cargo crossing national borders whether by air, land, or sea. The NTC provides 'risk interdiction support' to the Customs and is responsible for nationally coordinated approaches to risk analyses and targeting of 'risky' goods.

While national anti-smuggling efforts are led by the DRI, in the maritime domain, the Coast Guard is mandated to "assisting the customs and other authorities in anti-smuggling operations," and officers of the Indian Navy, police, port authorities, and other government officials (as notified) are "empowered and required to assist the Customs" in the execution of the Customs Act, 1962.[71] In a maritime context, border management also includes coastal border management, and therefore the multi-agency coastal security construct developed after the Mumbai blasts in 2008 also provides a mechanism for preventing unauthorised movement of people and goods across coastal/ maritime borders, especially in areas outside notified custom ports. In other words, the overall approach to anti-smuggling is through customs enforcement in notified customs ports, and through the coastal security construct in other areas.

International Cooperation: Transnational Maritime Crime

The DRI is actively engaged in international cooperation, both bilaterally and multilaterally, to address transnational economic crimes. In 2019-20, the DRI participated in ten enforcement operations, including four global operations targeting contraband, under the aegis of the WCO.[72] In addition, the DRI also participated in one bilateral operation with the US. In December 2019, as part of Operation

SESHA III — a global operation proposed by India focused on smuggling of an internationally prohibited timber species — not only did the DRI seize a consignment of Red sanders destined for Malaysia from Krishnapatnam port, but it also alerted the Malaysian Customs who seized another consignment of Red sanders.[73] In addition to enforcement operations, the DRI also has also established channels for information and intelligence sharing mechanisms with partner agencies.[74]

International and regional organisations are also engaged in addressing different forms of transnational crimes, including smuggling. The United Nations Office on Drugs and Crime (UNODC) operates a regional programme for South Asia (2018-21). The thematic pillars of the programme include (1) countering transnational organised crime; (2) the drug problem; (3) corruption; (4) terrorism prevention; and (5) crime prevention and criminal justice.[75] In addition, in South Asia, the UNODC's Global Maritime Crime Programme (GMCP) Indian Ocean East (IOE) Team is supporting Bangladesh, the Maldives, Myanmar and Sri Lanka in building capacities to deal with maritime crimes.[76]

The BIMSTEC[77] Convention on Cooperation in Combating International Terrorism, Transnational Organized Crime and Illicit Drug Trafficking was signed in Nay Pyi Taw in 2009.[78] India leads the counter-terrorism and transnational crime sector of BIMSTEC which comprises six sub-groups focused on related aspects.[79] The national security chiefs of BIMSTEC nations met in 2017 and 2018 and highlighted the need for a common legal and institutional framework, the need for information and data sharing for addressing common security threats, and greater dialogue at the Track 1.5 level amongst think tanks.[80] Likewise, South Asian Association for Regional Cooperation (SAARC) also aims to address security challenges arising from transnational organised crime through monitoring, information exchange, and exchange of technology.[81]

Curbing smuggling or trafficking through the sea routes is integral to the concept of regional cooperation for maritime security. The Indian Ocean Regional Association (IORA) has adopted maritime security and safety as one of its priority areas, and a working group was constituted in 2018. The first meeting of the working group was held in 2019 during which the work plan for 2019-21 was finalised.[82] The ASEAN

Regional Forum (ARF) has identified counter-terrorism and transnational crime, as well as maritime security, as areas of cooperation.[83]

At the operational level, the Indian Navy, through the Indian Ocean Naval Symposium (IONS) is collaborating on issues related to maritime security and information sharing and interoperability.[84] The Heads of Asian Coast Guard Agencies Meeting (HACGM) also discuss issues related to preventing and controlling unlawful acts at sea.[85] The Indian Navy undertakes Coordinated Patrols (CORPAT) with maritime neighbours as part of its wider maritime security cooperation and also undertakes Exclusive Economic Zone (EEZ) surveillance to assist friendly IOR littoral countries in surveillance of their EEZ.[86] The Coast Guard has a Memorandum of Understanding with the Bangladesh Coast Guard in combating illegal activities at sea and has undertaken extended EEZ patrol in the Maldivian EEZ.[87]

Way Forward

In 1975, a committee under the chairpersonship of Shri KF Rustamji, Special Secretary in the MHA, identified four basic requirements for effective anti-smuggling operations: (1) good intelligence and investigative effort; (2) good operational or preventive effort; (3) good legal framework; (4) and a reward policy for information and seizures.[88] These are enduring fundamentals for maritime anti-smuggling operations. In the aftermath of the Kargil War (1999) and the Mumbai attacks (2008) capabilities and structures for security governance have progressively been strengthened. A more recent FICCI study of 2019, that examined the impact of smuggling on the Indian economy and employment, recommended the following as the way forward to tackle the problem of smuggling: (1) strengthening domestic manufacturing to reduce demand-supply gap; (2) strengthening government policy and law enforcement, and improving coordination amongst agencies; (3) leveraging technology for trade facilitation and monitoring; (4) capacity building of human resources with the Customs; (5) strengthening risk management capabilities; and finally, (6) strengthening international cooperation.[89] Several of these recommendations have a bearing from the maritime perspective. More recently, in 2020, the Union Finance Minister also highlighted better coordination among law enforcement and

intelligence gathering agencies and sharing of actionable intelligence as a way forward in protecting the country's economic frontiers.[90]

Some of the areas of strengthening anti-smuggling capacities in India from a maritime perspective are listed in subsequent paragraphs.

Border Management and Coastal Security. The cumulative cases of smuggling recorded from six land borders in the period 2016-2019 were 6429 (2016), 8062 (2017), 7587(2018), and 2925(2019).[91] Based on the reports analysed in this article, the figures for smuggling through sea routes could be considered relatively minuscule. As brought out earlier, smuggling exploits gaps in border management and customs enforcement, and therefore anti-smuggling operations are invariably associated with measures for border security, and in a maritime context, with measures for coastal security. In response to a parliamentary question, the Ministry of Home Affairs (MHA) stated "Border Guarding Forces (BGFs) are working in coordination with Customs department to prevent smuggling of counterfeit and unsafe products."[92] The MHA, has also highlighted the role of coordinating mechanisms at the state and district levels, as also the role of the Lead Intelligence Agency (LIA) to prevent infiltration and smuggling from the border areas.[93] This is equally applicable to coastal States and coastal borders, where all agencies of the coastal security construct need to cooperate and coordinate efforts with the Customs/ DRI.

Localised Responses. The analysis of seizures indicates that over time there have been changes to the geographical disposition, as well as the intensity and nature of contraband, driven by factors such as economic policies, supply-demand, law enforcement, technology, etc. However, it remains largely localised to certain pockets. Smuggling across the Palk Bay/ Gulf of Mannar region remains an intractable problem, despite the several measures which have been taken to strengthen coastal security, particularly in the aftermath of the assassination of Shri Rajiv Gandhi, former Prime Minister of India, in 1991 and the Mumbai attack in 2008. While physical proximity and traditional ties could be reasons for the persistence, there obviously remain that are being exploited by criminal elements. As such, in an asymmetric contest the advantage lies with the criminals rather than with the security/ law enforcement agencies.[94] Localised problems call for localised solutions and therefore local agencies would need to take the lead to address them. For example, increased

arrests and seizures relating to Sea cucumber poaching and smuggling have been attributed to the setting up of the Lakshadweep Sea Cucumber Protection Task Force, the establishment of anti-poaching camps, and the creation of the Dr K.K. Mohammed Koya Sea Cucumber Conservation Reserve, a 239 square kilometre area near Cheriyapani, Lakshadweep.[95]

Inter-agency Coordination. Several anti-smuggling operations have been jointly undertaken by Central and State agencies. There is also evidence of collaboration of the DRI with other intelligence agencies, including for maritime anti-smuggling operations.[96] Inter-agency coordination facilitates complementary expeditious actions by multiple agencies to address a specific threat and is fundamental to maritime security operations; anti-smuggling operations are no exception. Inter-ministerial and centre-state coordination is a facilitator for field-level coordination. A tendency to protect one's turf however one of the impediments to effective coordination.[97] Strengthening domestic inter-agency linkages between Central and State agencies and breaking silos is therefore the way forward.

Customs Enforcement. A CAG report of 2017 highlighted several shortcomings in the preventive functions of the Customs.[98] With regard to the marine wing, this included shortages in personnel, including for manning of boats; lack of marine expertise in view of short tenures; low operational availability of boats for patrolling; lack of dedicated berthing; inadequacy of equipment to screen consignments; and shortcomings in intelligence collection. A Risk Management System (RMS) — an automated electronic assessment system — determines the need for manual appraisal by the assessing officer of the Customs, or examination of goods, or both.[99] In a 2020 report, the CAG has highlighted certain gaps in the RMS and recommended a review and update of the risk parameters.[100] Strengthening the preventive wing of the Customs and RMS, as recommended by the CAG, are therefore imperative for customs enforcement and prevention of smuggling through Indian custom ports, especially as the requirements of trade facilitation and customs enforcement need to be finely balanced.

Maritime Domain Awareness. Data for this article has been aggregated from multiple sources — DRI, IFC-IOR, and IFC, Singapore — to create a comprehensive

narrative of the maritime dimensions of smuggling in India. The mandate of the DRI includes "keeping statistics of seizures and prices/rates etc. for watching trends of smuggling."[101] Likewise, the charter of the IFC-IOR, albeit from a maritime perspective, includes "trend and predictive analysis of historical data" and collation, analysis of data and dissemination of information, including on Vessels of Interest (VOI).[102] In addition, the Information Management and Analysis Centre (IMAC) is the nation's nodal centre for the management and analysis of data from multiple maritime sensors and databases.[103] Port States in the Indian Ocean Region undertake Port State Control (PSC) inspection of ships under the Indian Ocean Memorandum of Understanding on Port State Control for the Indian Ocean Region (IOMOU).[104] The IOMOU maintains a database of risk indicators for various ships primarily with regard to compliance of international shipping standards, and also maintains the Indian Ocean Computerized Information System (IOCIS) that facilitates the identification of 'sub-standard' ships.[105] In general, lower compliance reflects lesser management controls. Consequently, there is a possibility such ships could be more likely to engage in illegal activities, such as smuggling, and need to be watched over from both a safety and a security perspective. In addition to the RMC and the NTC, the DRI also engages in risk management techniques and data analytics in cases involving duty evasion.[106]

Agencies such as DRI, RMC, NTC, and IMAC could establish linkages and complement their respective strengths in data analytics, risk assessments, and Maritime Domain Awareness (MDA) for in-depth analysis of issues related to maritime smuggling in India. Considering the different areas of focus, there will be a need for standardisation of terminology and approaches for effective analysis. Collation of data, and its further analysis, by the concerned agencies would also facilitate more granular trend analysis.

Fisheries MCS. Regional smuggling trends are indicative of the fact that in addition to containerised cargo, small vessels and fishing vessels, are the preferred modes for smuggling.[107] The need for strengthening fisheries Monitoring Control and Surveillance (MCS) has been integrated into the National Policy on Marine Fisheries (2017), and subsequently in 2020, into the PRADHAN MANTRI MATSYA SAMPADA YOJANA (PMMSY).[108] The draft National Fisheries Policy (2020) also re-emphasises the role of MCS.[109] This also includes the need for a suitable tracking

system for fishing boats. However, despite several security-related initiatives in the fisheries sector, a full-fledged MCS system is yet to be established either in States or at the national level. Strengthening MCS is fundamental to addressing illegal activities in the maritime domain, and the question now is essentially that of implementation of policy.

International Cooperation. The analysis of smuggling routes indicates that smuggling routes exist across the Indian Ocean Region (and beyond). In addition to smuggling across maritime borders, the Middle East, southeast Asia, and east Asia are the primary origin/ destination of contraband. As exemplified in the DRI report, actions under a global operation resulted in an apprehension of Red sanders by Malaysian Customs. However, the progress of most of the international/ regional arrangements does not appear to be particularly encouraging. Nevertheless, smuggling is linked to transnational organised crime, and therefore there remains a need to consolidate international linkages whether under the aegis of international organisations (INTERPOL, UNODC and WCO),[110] or regional organisations (BIMSTEC, IORA, SAARC, etc.), or through bilateral/ multilateral arrangements, especially with origin and destination countries of contraband. Operationally, maritime security agencies also need to cooperate with partner agencies to counter smuggling through sea routes. Operational cooperation also entails strengthening information sharing such as through IFCs, as well as intelligence sharing.

Community Engagement. The DRI has a reward scheme for information from conscientious citizens that contribute to the prevention of smuggling.[111] The reward could, in exceptional cases, be as high as 20 per cent of the value of confiscated goods and realised penalty.[112] Such schemes can be popularised through community interaction programmes which are regularly undertaken by maritime security agencies. This is especially true in those areas where the fishers are also possible contraband carriers.

Conclusion

In a series of articles, the NMF has explored non-traditional maritime security threats to India. This article has endeavoured to provide an updated assessment

of the trends in smuggling from a maritime perspective and has also made some recommendations.

In the 1960s and 1970s smuggling threatened the nation's economy, and this contributed to the raising of the CMO followed by the Coast Guard. By the 1990s India's economy had been liberalised, and the smuggling of arms and ammunition into the country through the sea routes now emerged as a threat to India's national security. Localised low-intensity operations were therefore launched to curb such movements in affected areas. Subsequently, the 1999 Kargil War and the Mumbai attacks in 2008 led to substantive changes to the way India managed its coastal and maritime security with a focus on the prevention of infiltration of terrorists through the sea route and the smuggling of arms and ammunition. Overall, as per some estimates, smuggling continues to have a negative effect on the national economy and on domestic employment.

In 1974 the Rustamji Committee found that the smuggling patterns were dynamic, and that observation continues to be an enduring one, barring a few exceptions.[113] Changes are driven by multiple factors, such as supply and demand, economic policies, internal issues, geographical proximity, security measure, law enforcement, etc. Broadly, from a maritime perspective, analysis of reports over the past few years point to the following major routes for contraband other than drugs: smuggling of cigarettes and gold primarily from the Middle East into India through ports; smuggling of Red sanders from India, primarily to southeast Asia and east Asia, again through ports; smuggling of textiles across the Bangladesh-India maritime boundaries; and smuggling of domestic products (turmeric, tendu leaves), wildlife (sea cucumbers), and gold across the India-Sri Lanka maritime boundaries, by small craft.[114] Sea cucumbers are further smuggled to southeast Asia and east Asia.

Based on the trends, preventing smuggling through the sea routes essentially needs to focus on customs enforcement in ports, surveillance of maritime boundaries, and coastal security particularly in coastal States adjoining maritime boundaries. Countering smuggling through the maritime routes involves multiple agencies. All agencies, need to combine their respective strengths for developing robust responses to smuggling through the maritime routes, and dedicated maritime capabilities must

also be developed in those agencies which are not dedicatedly maritime. International cooperation and intelligence/ information sharing, along with international operational coordination, are the cornerstones for effectively countering transnational organised crime in any form, and strengthening international linkages also merits further consolidation.

Smuggling *per se* no longer figures prominently in the discourse on maritime security in India, despite its negative impact on the economy, and possible impact on national security. However, history has shown that smuggling can take sinister forms in insidious ways. Therefore, despite the progressive strengthening of national efforts to counter smuggling and to strengthen maritime security, there is a need to remain watchful.

<div align="right">09 March 2022</div>

ENDNOTES

1   World Customs Organization, *Glossary of International Customs Terms* (2018), 34. http://www.wcoomd.org/-/media/wco/public/global/pdf/topics/facilitation/instruments-and-tools/tools/glossary-of-international-customs-terms/glossary-of-international-customs-terms.pdf?db=web

2.   The Customs Act, 1962 (No. 52 of 1962), Section 2(39). Section 111 pertains to "Confiscation of improperly imported goods, etc." and Section 113 to "Confiscation of goods attempted to be improperly exported, etc." Both the sections can be viewed at: https://www.cbic.gov.in/htdocs-cbec/customs/cs-act/cs-act-ch14-revised

3.   "Outright Smuggling," Directorate of Revenue Intelligence (DRI), http://dri.nic.in/home/outright, accessed 12 April 2021.

4.   Federation of Indian Chambers of Commerce and Industries (FICCI), *Invisible Enemy: A Threat to our National Interests* (2016). http://ficci.in/spdocument/20807/final-Smuggling-report.pdf; "Commercial Fraud," Department of Revenue Intelligence. http://dri.nic.in/home/commercialfruads, accessed 12 April 2021.

5.   Express News Service, "Smuggling takes a toll on economy, leads to job loss, poverty: Federation of Indian Chambers of Commerce and Industries," *The New Indian Express*, 11 February 2021. https://www.newindianexpress.com/states/karnataka/2022/feb/11/smuggling-takes-a-toll-on-economy-leads-to-job-loss-povertyficci-2418019.html

As per the report, based on a study carried out by the Federation of Indian Chambers of Commerce and Industries, it is estimated that smuggling in five5 key industry sectors resulted in a loss of Rs 1,17,253 crore to the Indian economy and the loss of livelihood opportunity economy as about 16.36 lakh in 2017-18.

6. Department of Revenue Intelligence, *Smuggling in India Report 2019-20,* 22. http://dri. nic.in/writereaddata/dri_report_dat_1_12_20.pdf

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9. Prabhakaran Paleri, *Role of the Coast Guard in the Maritime Security of India* (New Delhi: United Services Institute, 2007), 35.

10. Prabhakaran Paleri, *Role of the Coast Guard in the Maritime Security of India*, 35.

11. Prabhakaran Paleri, *Role of the Coast Guard in the Maritime Security of India*, 37-40.

12. See also, National AIS Chain [http://www.dgll.nic.in/content/73_1_NAIS.aspx] and ReALCraft [https://fishcraft.nic.in/web/new/index/].

13. "Anti Smuggling and Narcotics Control (AS&NC)," Indian Coast Guard, accessed 12 April 2021. https://www.indiancoastguard.gov.in/content/1720_3_ASNC.aspx

14. GM Hiranandani, *Transition to Guardianship: The Indian Navy 1991–2000* (IHQ MoD (Navy): New Delhi, 2009), xxix.

15. Reports by the IFCs are not official records, but essentially collation of inputs from multiple sources, primarily open sources.

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Maritime Domain Awareness

Maritime Domain Awareness in India: Shifting Paradigms

Maritime Domain Awareness (MDA) has been defined by the International Maritime Organization (IMO) as "the effective understanding of any activity associated with the maritime environment that could impact upon the security, safety, economy or environment."[1] The Indian Navy has described MDA as "an all-encompassing term that involves being cognisant of the position and intentions of all actors, whether own, hostile, or neutral, in all dimensions of a dynamic maritime environment, across the areas of interest."[2] The *Indian Maritime Security Strategy* (2015) highlights that MDA is central to the Information–Decision–Action (IDA) cycle, and is also a key enabler for maritime security across the conflict spectrum. Amplifying further, the strategy highlights that the development of MDA relies upon multiple sources of information, including space, air, surface, underwater, cyber, human, their correlation, and constant assessment.[3] Broadly, MDA entails the collection, fusion, analysis, display and dissemination of actionable information and intelligence.[4] Dissemination of information is closely related to information sharing, which in turn supports domestic inter-agency and international coordination, as well as the development of MDA itself. A networked architecture is a prerequisite for effective MDA and information sharing.

In India, MDA can be deconstructed broadly into three categories depending on the actors and the nature of the information involved: (1) military MDA, which is restricted to naval operations; (2) non-military MDA, which includes all Indian maritime security agencies and sectors with a focus on security/constabulary functions; and (3) information sharing mechanisms with navies, countries, regional constructs, and other stakeholders. In 1996, the maiden attempt at an innovative solution to a networked naval force was made by a young naval officer, Lieutenant Commander

(later Commodore) B.S. Ahluwalia — a naval pilot commanding a missile boat — who innovatively developed the Sangharsh (conflict/struggle) software as a "sensor grid application."[5] The software transformed the Indian Navy's operational concept and was later developed into the Trigun (three-dimensional) system as a pan-navy application. However, for the next decade or so, the concept of a networked force which also facilitates the development of MDA largely remained a naval operational concept. It was only after the "26/11" incident that the concept was adapted for non-military applications, with a focus on strengthening coastal security in India, especially against the threat of maritime terrorism.

Some of the major decisions taken at that time for developing MDA were the setting up of a coastal radar chain by the Coast Guard, a National Automatic Identification System (NAIS) chain by the Directorate General of Lighthouses and Lightships (DGLL) and an integrated National Command, Control, Communication and Intelligence (NC3I) network by the Indian Navy. Earlier, in 2007, a Vessel and Air Traffic Management System (VATMS) had been operationalised in the western offshore development area by the Oil and Natural Gas Commission (ONGC), and in 2009, the Directorate General of Shipping (DG Shipping) had established Long-Range Identification and Tracking (LRIT) system in India in accordance with IMO requirements. These were subsequently complemented by the online registration and licensing portal for fishing craft, ReALCRaft, by the Department of Fisheries, and other initiatives, such as a tracking system for fishing vessels.[6] Some of the major milestones since "26/11" have been the operationalisation of the Information Management and Analysis Centre (IMAC) — the nodal centre of the NC3I Network — in 2014 and the Information Fusion Centre-Indian Ocean Region (IFC-IOR) in 2018 as MDA hubs for domestic and international information sharing. Earlier this year, DG Shipping announced its intention of establishing an MDA centre: Sagarmanthan or the Mercantile Maritime Domain Awareness Centre (MM-DAC).[7]

The *Indian Maritime Security Strategy* emphasises the pivotal role of the MDA across the Indian Navy's constituent strategies, encompassing deterrence, conflict, shaping a favourable and positive maritime environment, coastal and offshore security, and force and capability development. In addition, the strategy emphasises the need for multi-agency inputs for developing MDA; adoption of diverse approaches,

including tactical, technical and procedural; capability development, including for surveillance, identification, information and communication technologies; development of regional MDA, etc.[8] In 2021, in a talk, the Chief of the Naval Staff (CNS) has also emphasised the need to build not only awareness but also a deeper understanding of the wider oceanic spaces, including through expanding the present domestic construct as part of a national project, and increased collaboration with foreign partners towards pooling information and making the "whole more than the sum of its parts."[9]

Some of the major plans and ongoing activities for further strengthening MDA include: the National Maritime Domain Awareness (NMDA) project; strengthening international information sharing through White Shipping Information Exchange (WSIE) agreements with friendly foreign countries; and establishing a constellation of satellites for MDA in the Indian Ocean Region (IOR) in collaboration with France. The NMDA project is intended to expand the scope of the NC3I network — which is presently limited to the Indian Navy and the Indian Coast Guard — by linking all maritime agencies, coastal States and Union Territories into one network, and also pooling data through interfaces with additional data sources, such as from the shipping and fisheries sectors.[10] Seven ministries, 15 agencies and 13 coastal States/Union Territories are likely to be integrated through the project.[11] India is pursuing WSIE agreements with 36 countries and three multinational constructs; and so far, it has signed agreements with 22 countries and one multinational construct.[12] In 2018, the Indian Space Research Organisation (ISRO) concluded an Implementing Agreement with *Centre Nationale Dètudes Spatiales* (CNES), France, for pre-formulation studies of an MDA mission to provide an end-to-end solution for detection, identification and monitoring of vessels in regions of interest.[13] Subsequent media reports indicate that the joint mission envisages a constellation of satellites with telecommunications, radar and optical remote-sensing payloads.[14] The system is likely to be the first space-based system capable of "tracking ships continuously."[15]

Globally, the ways and means to achieve the ends of MDA are witnessing change, and therefore there is a need for adaptive responses in India as well. This article endeavours to explore the shifting paradigms in MDA and information sharing with a focus on non-military MDA India, and the consequential imperatives.

Shifting Paradigms

From Surface-based Sensors to Space-based Sensors

India's non-military MDA architecture is predominantly based on surface sensors, such as coastal radars, and the NAIS chain, augmented by space-based inputs, such as from the LRIT system. In the past decade naval operations have been supported by satellite-based technologies. RESOURCESAT-2 satellite, which was launched in 2011, carried a commercial Automatic Identification System payload (AIS-SB) that relayed AIS information to the Indian Navy.[16] In 2013, GSAT-7 (Rukmani) was launched to support secure real-time communication between the deployed units of the Indian Navy in distant waters and its shore-based communication system.[17] The Indian space programme has several satellites/payloads/ applications with possible utility in the maritime domain, including for maritime security and safety.[18] These include satellites/ payloads for imaging (CARTOSAT), synthetic aperture radar (SAR) imaging (RISAT), electronic/signal intelligence (EMISAT) and ocean colour monitoring (OCEANSAT), as well as space applications, such as the geospatial portal (Bhuvan).

The European Union's (EU) COPERNICUS space programme provides a number of services, including those focused on blue economy, climate change, security and emergency response.[19] Its maritime security services, using electro-optical (EO) and SAR observations, support border and maritime surveillance, fisheries control, law enforcement, marine environment pollution monitoring, etc.[20] Earlier this year, Canada launched a proof-of-concept international programme to detect and track "dark vessels" using a combination of government-owned and commercial satellites.[21] The system plans to use a mix of SAR imaging, electronic intelligence, ocean colour monitoring and aVisible Infrared Imaging Radiometer Suite (VIIRS).

There is little information about the use of Indian space-based capabilities specifically for developing MDA. However, it appears that the essential capabilities used by COPERNICUS and the Canadian programme are already available with the ISRO. Further, based on media reports, it also appears that similar approaches would be under consideration for the planned India–France MDA mission. In short,

space-based technologies provide exciting opportunities for developing MDA and supporting maritime security, and ISRO's expertise must be leveraged for a holistic space-based MDA solution akin to similar projects elsewhere.

From Single-dimensional to Multidimensional

The traditional approach to MDA in India has largely been focused on understanding the 'surface' dimension of the maritime domain. However, as underscored in the *Indian Maritime Security Strategy*, MDA pertains to "all dimensions of a dynamic maritime environment," and therefore also includes both the sub-surface and the aerial dimensions. From a non-traditional maritime security perspective, semi-submersibles and submersibles have been used by criminal syndicates and terrorist organisations in different parts of the world, and there has also been intelligence in the past that the banned Jaish-e-Mohammad's (JeM) underwater wing was training terrorists for an underwater attack in India.[22] Considering the numerous challenges to develop wide-area Underwater Domain Awareness (UDA), so far, 'point security' measures to protect critical infrastructure through underwater sensors, like in the Integrated Underwater Harbour Defence and Surveillance System (IUHDSS), have been adopted.[23] However, with growing underwater threats to maritime security, both conventional and non-conventional, unquestionably there is a need to consider measures to progressively strengthen UDA. UDA has also been described as a key focus area of the Indian Navy.[24]

The recent attack on the Jammu air base in June 2021 and the attack on the *MT Mercer Street* off Oman in July 2021, using drones, also highlight the threat from the aerial dimension to coastal infrastructure and ships at sea. An Integrated Air Command and Control System (IACCS) of the Indian Air Force (IAF) is planned to integrate all ground and air sensors of the air force, army, naval and civilian agencies, thereby developing a composite understanding of the air situation, including in peninsular India and the Indian maritime zones.[25] Further, reportedly, the capabilities to detect small, slow, low flying drones are also under development.[26] Meanwhile, the Indian Navy has signed a contract with M/s Bharat Electronics Limited (BEL) for a comprehensive Naval Anti-Drone System (NADS).[27] The NADS, which employs

radar, infrared (IR) sensors, and radio frequency (RF) detectors to detect and jam the micro drones, will provide "point security" to naval infrastructure and will also improve localised awareness.[28]

The maritime domain also includes the littoral areas, and therefore the MDA concept also entails understanding of the contiguous coastal areas. The Ministry of Home Affairs is pursuing the development of Comprehensive Integrated Border Management System (CIBMS) in stages. While the pilot project was completed in 2019, Stages II and III are planned to focus on deltaic and creek areas along the India–Bangladesh and India–Pakistan borders which are also contiguous to India's maritime boundaries.[29]

Overall, MDA needs to adopt a multidimensional approach, by integrating, where possible, with other dedicated systems for surveillance and monitoring of the air, underwater and coastal dimensions. The degree and scope of integration with other systems will, however, need to depend on the nature of the MDA required.

From Shipping to Fishing

Subsequent to the "9/11" incident, measures to improve safety and security of merchant shipping included the mandatory implementation of the AIS and LRIT systems by the shipping industry. While compliance by vessels above 300 gross registered tonnage (GRT) engaged in international voyages (and certain other classes of vessels) is mandated by the IMO, such systems are not mandatory for other vessels. This complicates identification at sea, especially near coast where a larger number of smaller vessels also operate. Consequently, for tracking of vessels outside the purview of the international framework, such as coastal, fishing and inland vessels, there is a need to adopt customised local solutions. An indigenous solution for tracking vessels less than 20 m length has been developed by ISRO in association with the Indian Navy, is a possible implementable solution.[30] Towards promoting safety and security of fishers, under a Central scheme, the PRADHAN MANTRI MATSYA SAMPADA YOJANA (PMMSY), assistance in the form of subsidies is being provided to encourage fishers to fit communication and other safety/ tracking devices onboard fishing vessels.[31] Unless suitable measures are implemented for the tracking of vessels of less than 20 m length, there will remain considerable challenges to MDA in India. As one of

the largest exporters of fish and with increasing requirements to meet strict fisheries management standards for export, the need for a tracking system is not just a security imperative but also a developmental one.[32]

From Network-based to Web-based

MDA can be developed through a number of ways, including by participation of the wider maritime community, and is not limited to sensor-based means alone. Therefore, developing MDA capabilities requires the optimal mix of ways and means.[33] A number of Internet-based MDA and information-sharing tools, such as the IORIS, Mercury and SeaVision, have been adopted by several navies/countries/regions.[34] The IFC-IOR itself uses the Merchant Ship Information System (MSIS) portal – again developed by a former naval officer, Commander Chaitanya Chandel – for developing a Common Operational Picture (COP) and for information exchange with partner countries and multinational agencies.[35] The NC3I Network, on the other hand, is an exclusive networked system connecting naval and coast guard nodes built in 2013-14 at a cost of about Rs 450 crore.[36]

Web-based tools offer an alternative and often low-cost approach to MDA and information sharing. Therefore, they do merit due consideration as a complementary measure for wider connectivity and deeper penetration, not just for international information sharing, but also for domestic MDA. Flyaway kits from proven systems abroad, or the indigenously developed MSIS, could potentially provide significant advantages for enhancing domestic inter-agency coordination pending the development of a national system. Further, the use of Web/mobile applications with value-added services to connect with the wider maritime community, as has been done by some navies, is another approach which merits consideration to consolidate further on the "eyes and ears" concept of community participation, and also to increase public awareness on maritime issues.

From Decision Support to Artificial Intelligence (AI)

In the early days of MDA when data was limited, operational teams would make sense of the data. However, with exponential increase in data, it is humanly impossible to fuse and analyse such large volumes of data. In 2019, the Indian Navy deliberated

on the use of Artificial Intelligence (AI) and big data, during the Commanders' Conference.[37] The navy is also integrating AI and big data analytics into the Trigun development programme with full integration planned by 2024.[38] In 2020, to reform defence research and development and boost innovation, the Ministry of Defence launched five labs with young scientists under 35 years of age, including one focused on AI.[39] With increasing volumes of data, decision support systems for MDA would need to be upgraded to comprehensively integrate AI and big data analytics for optimal utilisation, not just for military purposes but also in other categories of MDA.[40] Such systems would possibly also facilitate better anomaly detection and possibly even predictive analysis.

From White Shipping to Dark Shipping

"White shipping" is widely understood to mean identifiable commercial shipping, while "dark ships" refer to ships/vessels that are unidentifiable (particularly those which have deliberately switched off identification systems especially for *mala fide* purposes). White shipping itself, depending on Port State Control (PSC) inspections, such as those by the Indian Ocean Memorandum of Understanding for PSC (IOMOU), can be further profiled and categorised into high, standard, or low-risk ships.[41] The PSC agreements also promulgate lists of underperforming ships, ships on a watchlist, and banned vessels. In addition to PSC, Regional Fisheries Management Organisations (RFMOs) also promulgate lists of fishing vessels presumed to have conducted illegal, unregulated and unreported (IUU) fishing, also known as the IUU list.[42] White shipping information therefore also needs to be correlated with other data sources for better profiling of possible threats to safety and security.

While India's approach to information sharing has been focused on WSIE, India also has an agreement with the US on sharing maritime military intelligence, namely, the Maritime Information Sharing Technical Agreement (MISTA).[43] While sharing information on white shipping is a useful start and is an important tool in developing MDA, there is also a need to facilitate the identification of dark shipping through innovative means, and progressively share such information with partners. Likewise, from a domestic perspective, the integration of intelligence efforts, largely focused on possible threats, is crucial for the success of the overall national MDA effort.

From 'Command and Control' to 'Cooperation and Collaboration'

"Command and Control" is an enduring prerequisite for effective military operations. "Command and Control" has been defined as the exercise of authority and direction by a properly designated commander over assigned and attached forces in the accomplishment of the mission.[44] In a contemporary context, especially in relation to cooperative efforts to counter non-traditional threats in the maritime domain, such as piracy off Somalia, informal coordinating arrangements amongst deployed task forces and independent deployers and other stakeholders, such as through the Mercury Net and Shared Awareness and Deconfliction (SHADE) forum, have proved to be effective. The *Indian Maritime Doctrine* (2015) lists "cooperation and synergy" as one of the principles of war and recognises that the principle is "also relevant in terms of coordination between various agencies of a Government dealing with national security and the conduct of war."[45] It is widely recognised that a whole-of-government approach and robust inter-agency linkages are a *sine qua non* for effective maritime security, and consequently efforts at developing MDA, as a prerequisite and facilitator for maritime security, must be driven by a spirit of cooperation and collaboration to achieve common objectives based on mutual trust and sensitivity. Conversely, mistrust can hamper the development of MDA and the attainment of common objectives. Trust, a human factor, has been identified as both an outcome of and a precondition for successful MDA.[46]

From Disaggregated to Aggregated

As highlighted earlier, MDA in India can be deconstructed into three broad categories which meet specific MDA requirements. A 'system-of-systems,' that aggregates information from multiple systems into one system, could facilitate an integrated approach to MDA. Further, with consideration of a Maritime Theatre Command (MTC), a proposed joint command, there is also a need for all agencies operating at sea, or in support of maritime forces at sea, to operate in a networked common information environment. Customised solutions may need to be developed for both integration of systems and integration of additional stakeholders within a joint operating environment.

From "Make for India" to "Make for the World"

Based on the pioneering work by Indian naval officers, and the active involvement of BEL in MDA projects, the approach to MDA in India has largely followed an indigenous model. The NC3I network and India's coastal radar chain, the Coastal Surveillance Network (CSN), have been implemented by BEL with some foreign assistance.[47] India has also exported coastal radar systems to several countries, with more being planned in accordance with the Security and Growth for all in the Region (SAGAR) vision.[48] The Indian Navy's Trigun system has been designed and developed indigenously by the Centre for Artificial Intelligence and Robotics (CAIR), under the Defence Research and Development Organisation.[49] In October 2020, the Minister of Shipping launched the development of an indigenous software for Vessel Traffic Service (VTS) by the National Technology Centre for Ports, Waterways and Coasts (NTCPWC) at Indian Institute of Technology (IIT) Madras.[50] As VTS systems can contribute to comprehensive MDA, the development of the system also has the potential to augment VTS integration into the NMDA/NC3I network. India, therefore, has developed the capability to not only make MDA systems for India but also develop such systems for friendly foreign countries. Indigenously developed MDA/VTS solutions could also support India's contributions to initiatives such as the Indo-Pacific Oceans' Initiative (IPOI).[51]

From Local to Regional

India formally developed a national system for MDA in 2014 with the inauguration of the IMAC, and swiftly moved up the ladder to establish the IFC-IOR in 2018. Progressively, over the last three years, the IFC-IOR has also inducted International Liaison Officers (ILOs) from several countries, along with establishing linkages with over 50 partners across the world, including industry bodies and non-governmental organisations. As evinced from the monthly updates, the IFC-IOR monitors not just developments in the IOR but also certain areas beyond the IOR. Considering India's widening maritime interests across the globe, and particularly in the Indo-Pacific, the Centre could progressively expand its linkages and coverage to possibly a global scale.

From Informal Mechanisms to Formal Arrangements

De facto, IMAC is the hub for NMDA in India and was established by the Indian Navy based on the Cabinet Committee on Security directives subsequent to the "26/11" incident. As India moves towards achieving NMDA, there is a need to establish the requisite governance structures to provide policy direction and practical guidance for sharing information and intelligence and to align individual efforts with national MDA goals.[52] The governance architecture could include inter-ministerial/ interagency bodies at appropriate levels and necessary directives and guidance could take the forms of plans, strategies, Standard Operating Procedures (SOPs), protocols, MoUs, etc. Perhaps, these could in the long term also lead to the development of statutory provisions. Likewise, progressively, certain informal linkages for international information sharing could also be formalised.

Conclusion

In the 25 years since the concept of MDA was initially operationalised in the Indian Navy, its scope has progressively expanded, largely through indigenous developments, to cover wider geographical areas. In fact, it is now integral to India's maritime security and diplomatic efforts. Specifically, the initiatives taken subsequent to the "26/11" incident to strengthen MDA in India have been transformative. They have not only strengthened coastal and maritime security, their principal objective, but have also contributed to furthering India's foreign policy initiatives. Cooperation in MDA has been identified as a focus area by the Indian Navy, and a number of initiatives are planned to further strengthen MDA and information sharing. By itself, MDA may not prevent breaches of security or violations of law, but along with intelligence, it will remain a critical facilitator for the enduring requirement to understand the environment and for cuing effective operational actions. The ways and means to achieve MDA, driven substantially by technological developments, are evolving and the overarching imperative is to ensure that India's MDA capabilities continue to remain adaptive to emerging technologies and paradigms. India has the necessary capabilities; the need is for a whole-of-government approach based on robust inter-agency linkages and a spirit of cooperation and collaboration.

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Maritime Aids to Navigation in India: Strengthening Maritime Domain Awareness and Security

On 02 March 2021, Prime Minister Narendra Modi, while inaugurating the Maritime India Summit 2021, highlighted the government's plan to develop tourism around lighthouses.[1] Later that month, during his monthly interaction with the nation – "Mann ki Baat" – he spoke about lighthouses and highlighted the government's plan.[2] On 09 April 2021, the Directorate General of Lighthouses and Lightships (DGLL) issued an Expression of Interest (EoI) for the development of 65 lighthouse tourism projects through Public–Private Partnership (PPP).[3] This is in addition to eight lighthouses that were earlier identified for promotion of tourism through the PPP mode in 2018.[4] On 27 July 2021, the Parliament passed the Marine Aids to Navigation Bill, 2021, which repealed the 90-year-old Lighthouse Act, 1927.[5] The Bill *inter alia* provides for the development, maintenance and management of Aids to Navigation (AtoN) in India; training and certification of marine AtoN operators; and fulfilment of India's international obligation.[6]

The International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) has defined AtoN as "a device, system or service, external to vessels, designed and operated to enhance safe and efficient navigation of individual vessels and/or vessel traffic."[7] The Marine Aids to Navigation Act, 2021, while replicating the IALA definition, specifies that the definition in the Act "shall not be construed to include a reference to vessel traffic services, unless otherwise specified."[8] Broadly, AtoN includes visual aids, such as buoys, beacons and lighthouses; audible aids, such as fog signals; radio aids, such as radar beacons; and electronic navigation services, such as Differential Global Positioning System (DGPS), Automatic Identification System (AIS) and Vessel Traffic Service (VTS).[9] AtoN serves a number of important

functions, such as navigational safety, port and coastal traffic management and marine environmental protection, and have increasingly found security applications, especially by contributing to developing Maritime Domain Awareness (MDA). With increasing global maritime traffic and related concerns about shipping safety and security, it has been assessed that the global requirement for AtoN services is likely to increase.[10] From a maritime governance perspective, the development of AtoN infrastructure is considered an essential element of the maritime safety function.[11]

The relationship between the lighthouse administration and the Indian Navy is a long-standing one. In 1956, a contingent from *INS Tir* presented a Guard of Honour at a ceremony marking the transfer of Minicoy Island lighthouse from the British government to the Government of India.[12] In the 1971 India–Pakistan War, *MV Sagardeep,* a lighthouse tender requisitioned by the Indian Navy, was part of the Western Fleet.[13] During this conflict, the War Watching Organisation (WWO) instituted by the Indian Navy for the defence of Mumbai also included watchers at lighthouses.[14] Further, in 1973–74, *Sagardeep* took part in survey operations for delineation of the deep-water channel in the Gulf of Kutch for the movement of very large crude carriers to refineries in Gujarat.[15] Besides this, at other times, the Indian Navy has provided assistance to the DGLL for supporting lighthouse maintenance activities. The DGLL has a particularly enduring relationship with the Naval Hydrographic Office (NHO) for the issuance of information and alerts related to AtoN along the Indian coast. The Chief Hydrographer is also a member of the Central Advisory Committee for Lighthouses (CACL).[16] In 2015, the *Indian Maritime Security Strategy* recognised the DGLL as a key stakeholder in the coastal security construct developed after the November 2008 Mumbai attacks.[17] Progressively, the DGLL has also established linkages with other maritime security agencies as part of the overall coastal security construct. Earlier this year, the Coast Guard evacuated two DGLL personnel from Vengurla Rock lighthouse that had sustained damage during Cyclone Tauktae.[18]

This article aims to examine the contribution of AtoN in strengthening MDA and maritime security in India and possibilities of further consolidation, including at the regional level.

AtoN in India

The DGLL — a subordinate office under the Ministry of Ports, Shipping and Waterways (MoPS&W) — is responsible for the establishment and maintenance of AtoN along the Indian coastline.[19] At the time of independence, India had 17 lighthouses. In the 75 years since independence, there has been a significant expansion of AtoN in India to meet the growing needs of the shipping industry, as well as to keep abreast with technological developments.[20] Presently, the DGLL is responsible for the maintenance of 195 lighthouses, one lightship, 23 DGPS stations, 64 radar beacons, 21 deep-sea lighted buoys, one VTS (Gulf of Kutch), three lighthouse tender vessels, 87 National AIS (NAIS) physical shore stations and 16 Navigational Telex (NAVTEX) chain stations. In 2021–22, DGLL has planned to set up five additional lighthouses, and a VTS at Port Blair.[21]

In October 2020, the Minister of Shipping launched the development of an indigenous software for VTS aligned with the vision of 'Aatmanirbhar Bharat' (self-reliant India).[22] The indigenous software, being developed by National Technology Centre for Ports, Waterways and Coasts (NTCPWC), is envisaged to generate significant financial savings to the exchequer, as well as facilitate export of VTS systems to friendly countries.[23] The software will also potentially contribute to the implementation of the National MDA (NMDA) project of the Indian Navy and the National Coastal VTS (NCVTS) project of the DGLL.[24]

The DGLL is also the designated authority on matters related to training on AtoN and VTS. The Marine Navigation Training Institute (MNTI) at Kolkata is responsible for training of AtoN managers and VTS personnel, not only from India but also from regional countries.[25] IALA has nominated India as the single point of contact for capacity building on AtoN training needs for North Indian Ocean Rim (NIOR) countries, as well as for three countries in Southeast Asia (Indonesia, Singapore and Malaysia).[26] The institute has also entered a memorandum of agreement with IALA World-Wide Academy (IALA WWA) for assistance in the conduct of training courses at the MNTI.[27]

AtoN: Security Dimensions

From a security perspective, one of the transformative initiatives of the DGLL has been the setting up of the NAIS chain. The network of 87 stations has been integrated with the NC3I network. The NAIS, in addition to its primary AtoN function, also facilitates the development of MDA and marine accident/incident investigations by the Directorate General of Shipping (DG Shipping).[28] The DGLL's contribution to the Coastal Surveillance Network (CSN) project has been significant, wherein coastal radars have also been set up within lighthouse premises.[29] Under Phase I of the CSN project, 46 coastal radar stations have been set up; and in Phase II, 38 additional radar stations, along with four mobile surveillance systems, are being set up.[30]

One of the highlights of the Marine Aids to Navigation Act, 2021 is the inclusion of provisions for VTS management.[31] While traditional passive AtoN systems, such as buoys and lighthouses, were focused essentially on safety, contemporary interactive systems, such as the AIS and VTS, have facilitated security uses, particularly in the development of MDA.[32] The VTSs are designed to promote "safety of life at sea, safety, and efficiency of navigation and protection of the marine environment," and are essentially interactive shore-based maritime traffic management systems (akin to air traffic services) within a port, fairway or designated VTS areas.[33] The complexity of such systems can vary significantly from just basic communication systems to complex systems integrating radars, AIS, cameras, communication systems, etc. From a security perspective, VTS, by closely monitoring and controlling shipping traffic, contributes to port security and in the development of MDA at ports, designated VTS areas, as well as adjoining coastal areas. Localised VTS sensor information can be integrated with other MDA systems to facilitate wide area sensor coverage/correlation. In India, VTS information from the Gulf of Khambhat and the Gulf of Kutch is also planned for integration with the chain of coastal radars in India as part of the second phase of the CSN project.[34]

In India, the first VTS was installed in Mormugao Port (Goa) in 2001; and presently, India has VTSs installed in all major ports, and in the Gulf of Khambhat.[35] The Gulf of Kutch VTS was installed by DGLL in 2012. In 2016, DGLL issued an EoI for the preparation of a detailed project report for the establishment of an NCVTS system for seamless VTS coverage along the entire Indian coast. The project,

like any other VTS system, was envisaged with the aim of enhancing safety and security, managing traffic, and contributing to marine environmental protection. However, the project now appears to be linked to the development of indigenous VTS software.[36] Two key criteria for establishing a VTS are the volume of traffic and the degree of risk. Therefore, VTSs are widely considered appropriate in specific areas, such as port approaches, high-density traffic areas, narrow channels, or other special areas associated with navigational difficulties, movements of hazardous cargo and environmentally sensitive areas.[37] Considering the focus on developing ports, port-led development, coastal and inland waterways, multi-modal connectivity, fisheries, coastal tourism, etc., an increase in marine traffic is inevitable, necessitating increased attention to maritime traffic management along the Indian coast. A national VTS system could possibly be progressively developed by linking existing VTS systems, establishing VTS systems in identified high-risk areas, and leveraging the sensor suite available with the CSN. If executed, the project has significant potential to improve safety along the Indian coasts, and strengthen MDA, by facilitating single-point integration of all VTSs with the National Command, Control, Communication and Intelligence (NC3I) Network.[38]

A significant step has been the passing of the Marine Aids to Navigation Act, 2021. An important aspect of this Act is the introduction of provisions for offences and consequential penalties. The offences include intentionally or negligently obstructing, or destroying, AtoN or VTS, causing damage to heritage lighthouses, evading payment of dues, and non-compliance with directions of a VTS provider.[39] The penalties include imprisonment of up to a year and fines up to Rs 5 lakh. These provisions complement the provisions of the Suppression of Unlawful Acts against Safety of Maritime Navigation and Fixed Platforms on Continental Shelf Act, 2002 related to destruction or damage to maritime navigational facilities and wilful communication of false information in relation to a ship.[40]

Strengthening Maritime Security

A report of the Department-related Parliamentary Standing Committee on Transport, Tourism and Culture in March 2021 recognised the "pivotal role played

by the Lighthouses as they meet the country's commercial and security needs" and recommended that the development and maintenance of AtoN must be given top priority.[41] The Committee also desired that an action plan be developed in this regard, and that technologies be adopted to facilitate tracking and surveillance for strengthening search and rescue (SAR) capabilities and coastal security.[42] Some of the possible areas for strengthening the security dimensions of the AtoN resources are enumerated in succeeding paragraphs.

Expanding the NAIS Network. India presently has 195 lighthouses, of which the NAIS chain's physical shore stations are located at less than half of the total number of lighthouses (87 locations). The range of AIS systems depends on several factors, such as the height of the antenna and propagation conditions. Typically, the range is of the order of 20 nautical miles (37 kilometres) but practically, it could be several times higher.[43] While the NAIS has been designed to cover the entire Indian coast, and also caters for redundancies at each station, theoretically increasing the number of NAIS physical shore stations (including at new lighthouses), or installing additional AIS repeaters, could increase the overall area under AIS coverage, enhance redundancy, support the development of NCVTS and reduce gaps in coverage, especially at the extremities of sensor coverage of each station.[44] However, this would need to be examined based on practical performance parameters.

Expanding VTS Coverage and Capacity Building. As new ports are developed, and existing ports progressively expand their operational capacities for traffic/cargo handling, installation of additional VTSs (and the NCVTS) would also merit consideration.[45] The indigenous VTS software under development, which aims to facilitate interoperability with other port-related systems, would also need to be interoperable with security systems, such as the NC3I network. Further, like the indigenous coastal radar system that has been exported to several friendly foreign countries, the indigenous VTS software/system, when developed, could also be exported to friendly countries, and support the Indo-Pacific Oceans Initiative (IPOI).

International Information Sharing. The IALA-NET is an Internet-based near real-time global AIS data exchange service between national competent authorities.[46]

However, India is presently not sourcing data from the system.[47] The Indian Navy already shares white shipping information with over 20 countries on a reciprocal basis and operates the International Fusion Centre-Indian Ocean Region (IFC-IOR) with information-sharing linkages with about 50 partners.[48] Integrating the NAIS with the IALA-NET, and sourcing data from the IALA-NET, could facilitate a better understanding of wider maritime areas and promote regional maritime safety and security in line with the government's wider vision of regional cooperation for maritime security.

Training Collaboration. The MNTI conducts training programmes for AtoN managers and VTS personnel from India and is also a regional focal point for AtoN training. Interactions with maritime security agencies during such programmes could facilitate a better understanding and appreciation of maritime security issues and MDA requirements amongst VTS personnel, as well as foster mutual understanding and cooperation, both nationally and regionally. The Information Management and Analysis Centre (IMAC)/IFC-IOR, Joint Operations Centres (JOCs) and the Maritime Rescue Coordination Centres (MRCCs) are suitably placed for such interactions at the MNTI. Further, personnel manning naval movement control and naval training establishments engaged in AtoN-related training, such as the Navigation and Direction School, could also benefit from the operational/technical expertise available at MNTI on marine traffic management/AtoN. Such engagements could also be institutionalised.

Leveraging Existing Capabilities for Maritime Security and Safety. Despite the increasing focus on technical measures for surveillance, visual means continue to complement technical measures for surveillance. Lighthouse keepers are particularly familiar with the pattern of life around lighthouses and have been an integral element of the Navy's WWO. They have also been integrated into the coastal security construct; this includes participation in exercises, such as Ex SEA VIGIL and Ex SAGAR KAVACH, as well as participation in coastal security training capsules in some States, such as Kerala.[49] Equipping lighthouse keepers with binoculars, night vision devices and communication systems, and periodic institutionalised engagements with maritime security agencies, are key to leveraging the human capital to meet security requirements. Specific lighthouses could also be designated as "Coastal Observation

Posts" and be linked to local coastal police stations.[50] Manning of such posts could be augmented, when required, from voluntary organisations, such as Civil Defence/Home Guards/National Cadet Corps (NCC) and other volunteer organisations in respective States. Considering the presence of lighthouse keepers along the entire Indian coast, integrating DGLL into the SAR organisation/maritime environmental protection organisation also merits consideration. As mentioned earlier, a lighthouse tender vessel, which was government-owned, had participated in the 1971 conflict, and such vessels could be integrated with planned exercises, and could also add to "eyes and ears" at sea.

Cyber Security. One of the key facets of the Maritime Aids to Navigation Bill, 2021 is the provision of offences and penalties. In addition to the possibility of physical damage, systems such as the NAIS/VTS are susceptible to cyber security threats, and consequently there is a need to ensure robust mechanisms for cyber security as well. If considered essential, such systems need to be designated as a "protected system."[51] Likewise, other systems which contribute to developing MDA could also be considered for designation as "protected systems."

Conclusion

The AtoN infrastructure is a key element of maritime governance, particularly from the navigational safety perspective. In addition to improving navigational safety, AtoN in India have progressively contributed to maritime security, and are also envisaged to contribute to coastal community development by developing tourism around lighthouses under the SAGARMALA programme. The NAIS chain, CSN and VTS have emerged as critical building blocks for developing national-level MDA; and specific initiatives, such as the indigenous VTS software and the NCVTS, have the potential to promote MDA and maritime security in India. As a regional contact point for capacity building in AtoN, the DGLL can also expand India's regional maritime outreach in line with foreign policy initiatives, such as SAGAR, Act East and the IPOI. Capacity building, strengthening information sharing, enhancing training and operational exchanges, and developing field-level linkages are also some of the other possible ways to give effect to the Parliamentary Standing Committee

recommendations to the DGLL for strengthening their contribution to safety and security in Indian waters.

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Community Engagement

Expansion of the National Cadet Corps in Coastal Districts: Strengthening Local Capacities for Maritime Security

The genesis of the National Cadet Corps (NCC) is intricately linked to the India-Pakistan War of 1947-48. The war highlighted the need for sufficient strength of reserves who could take up arms when required. This found expression in the legislature (Constituent Assembly) through a demand for military training of the youth of the country. Subsequently, the NCC was raised with the enactment of the National Cadet Corps Act, 1948.[1] The NCC aims at "developing character, comradeship, discipline, a secular outlook, the spirit of adventure and ideals of selfless service amongst young citizens." It further aims at "creating a pool of organised, trained and motivated youth with leadership qualities in all walks of life, who will serve the nation regardless of which career they choose."[2]

The Prime Minister in his Independence Day address to the nation on 15 August 2020 highlighted that the NCC would be extended in 173 border districts, including coastal border districts. He also highlighted that about one lakh (10 million) new NCC cadets will be trained in the border districts, about one-third of whom would be 'our daughters.' The dual aims of the planned expansion are the availability of trained manpower for disaster management and skill training of youth for a career in the armed forces.[3]

Subsequently, a press release by the Ministry of Defence also highlighted that the planned expansion would not only expose youth in coastal areas to military training and disciplined way of life but will also motivate them to join the armed forces.[4] The press release provided the following additional details with respect to the planned expansion:

- The expansion would be undertaken by upgrading 83 NCC units, including 20 Naval NCC units.

- The upgrade of Naval NCC units would be supported by the Indian Navy.

- The plan would be implemented in partnership with states for which more than 1000 schools and colleges had identified.

The Director General NCC was also quoted as having stated that the expansion plan will prepare the youth for unique challenges faced in border and coastal areas and facilitate availability of trained manpower in support of aid towards national calamities and emergencies.[5] He also stressed on social service and community development as important features of the NCC curriculum.

The NCC is funded by both the Central and State Governments, and is administered by the Ministry of Defence at the Centre and the Educational Departments in respective States.[6] As per the MoD *Annual Report 2018-19,* the sanctioned strength of the NCC is to increase progressively in five phases (40,000 per phase) to 15 Lakh (1.5 million) from 13 lakh (1.3 million) in 2010. Up to the third phase of expansion the strength of the NCC stood at 14.2 lakh. This makes the NCC the largest uniformed youth organisation in the country. As on 30 September 2018, 814 NCC units supported 13.29 lakh cadets in 17,374 institutions across the country. The strength of the naval cadets was 73,666 (5.5 per cent of the total strength); however, notably, 14,717 girls already account for approximately 25 per cent of all naval cadets.[7]

Previously, in December 2016, a report by a committee constituted by the Ministry of Defence under the chairmanship of Lt. Gen DB Shekatkar (Retired) while recommending measures to enhance combat capability and rebalance defence expenditure of the armed forces had *inter alia* recommended the need for 'improving the efficiency of the NCC.'[8] Subsequently, Lt Gen Shekatkar, also stressed that increasing the footprint in coastal and border areas would lead to greater interest amongst the youth in joining professions related to the maritime domain, and that trained cadets could play an important role in supporting the Armed Forces in various contingencies.[9]

Mandate and Training

As per the Section 10 of the National Cadet Corps Act, 1948, while persons subject to the Act of the NCC are not liable for military service, they "shall be liable to perform such duties and discharge such obligations as may be prescribed."[10] Accordingly, during the 1965 India-Pakistan War, the Central Government, through a Gazette Notification, prescribed certain duties be performed by NCC officers and cadets of the senior division. *Inter alia* these included passive air defence, rescue, first aid, casualty evacuation, fire-fighting, civil defence patrols, lookouts, maintenance of essential services, traffic control, etc. In the war, one of the cadets was also awarded a gallantry award.[11]

The NCC has also participated in various social service and community development activities such as *Swachh Bharat Abhiyan*, *Beti Bachao Beti Padhao*, cancer/ AIDS awareness, blood donation, traffic control, to name a few.[12] NCC cadets have also been contributing to disaster relief operations. Notably, in the fight against the COVID-19 pandemic, the NCC extended support to civilian authorities under 'Exercise NCC YOGDAN.' The tasks envisaged for Senior Division volunteer cadets included manning of helpline/call centres; distribution of relief materials/medicines/food/essential commodities; community assistance; data management; traffic/ queue management, etc.[13] Some cadets were also involved in making educational videos for social media and in making masks for local communities.[14] However, as per the guidelines, cadets were not to be employed in handling law and order situations, active military duties, or in COVID hotspots.[15]

The training curriculum of NCC is primarily focused on character building, inculcating leadership qualities and skill enhancement through a structured syllabus involving theoretical classes, practical training , and other activities. In addition to certain common subjects, such as weapon training, disaster management , social awareness and community development, the institutional training for naval wing NCC cadets includes navigation, communication, seamanship, rigging, boat-work, fire-fighting, damage control, ship and boat modelling, search and rescue, swimming, etc.[16] Other training initiatives for naval wing cadets include annual Nau Sainik Camp; special yachting camps at the Indian Navy Watermanship Training Centre (INWTC), Goa; attachment with Indian Naval Academy, Ezhimala; annual

Technical Camps at naval technical bases/ dockyards; conduct of sailing expeditions; participation in overseas deployment with the Indian Navy's Training Squadron, etc.[17] Training-related requirements for NCC cadets are actively coordinated between the Command Headquarters (HQs) of the Indian Navy and Regional NCC HQs.[18]

Strengthening Maritime Security Capacity

Security of coastal areas can be viewed from the linked concepts of coastal defence and coastal security. Coastal defence is the military function of defending the nation and its citizens against seaborne threat of conventional and sub-conventional armed attack in coastal areas. Such attacks could include use of missiles, mines, guns and explosives, by ships, submarines, aircraft and marine/ Special Forces, etc.[19] Tasks in support of coastal defence include surveillance, patrols, mine warfare, activation of coastal batteries, port/ harbour defence, Naval Cooperation and Guidance to Shipping (NCAGS), etc.[20] Coastal security, which primarily focuses on prevention of infiltration by non-State actors by sea, encompasses maritime border management, island security, maintenance of peace, stability and good order in coastal areas and enforcement of laws therein, security of ports, coastal installations and other structures, including Vital Areas and Vital Points (VAs/ VPs), vessels and personnel operating in coastal areas.[21]

Since the '26/11' terrorist attack in Mumbai, several measures have been taken to strengthen maritime and coastal security. This includes actively engaging the coastal communities for community policing (eyes and ears concept). However, the coastal security construct developed post '26/11' has faced several challenges on account of manpower shortfalls with various stakeholders such as in the State Marine Police and in the Fisheries Department. Towards addressing shortfalls in human resources for coastal security, utilising the human resource pool comprising Ex-Servicemen (ESM), NCC cadets, and traditional sea faring communities for coastal security has been recommended in the past.[22]

Presently, NCC units are located in 703 out of 716 districts in the country, and this includes all coastal districts.[23] On a *pro rata* basis, as part of the planned expansion, Naval NCC units would be responsible for training about 24,000 cadets. The envisaged expansion of the NCC in coastal areas would facilitate the availability

of additional trained manpower to States, and this can — to some extent — mitigate the manpower challenges being faced by such agencies. In addition to assistance in disaster management, some of the areas that NCC cadets can progressively be employed to support security-related efforts by Central and State agencies in coastal areas, including:

- Participation/ conduct of community interaction programmes.

- Participation in community policing.

- Assistance in pollution control efforts, such as coastal clean-up.

- Manning of control centres, especially to coordinate NCC effort whenever involved.

- Manning of helplines.

- Augmenting manpower for point-security of Vital Areas/ Vital Points, especially in heightened states of readiness.

- Manning of Fish Landing Points to support State agencies in accounting of boat movements.

- Assistance to State police in traffic management and other tasks.

- Augmentation of war-watching organisation.

- Assistance to NCAGS organisation.

To be able to effectively utilise the planned expansion of the NCC in coastal areas to support security-related activities there will be a need for the following:

- Consolidation of inter-agency linkages, especially at the district-level for optimal utilisation of trained manpower;

- Participation of NCC cadets in bi-annual coastal security exercises and periodic defence exercises for training in simulated scenarios;

- Development of Standard Operating Procedures (SOP) for most effective utilisation of trained cadets to support efforts of other agencies;

- Augmentation of local training efforts to meet the specific requirements for which NCC cadets could be employed.

Conclusion

The planned expansion of the NCC in coastal areas, which is essentially a community focused initiative, has the potential to contribute effectively to support both Central and State agencies in addressing challenges like disaster management, and security-related tasks. Therefore, this capability must be effectively leveraged. This however will be contingent of deepening inter-agency linkages with NCC units, especially at the district-level. Considering the social multiplier effect of motivating and training local youth, the overall gains from this initiative are likely to be significant, and the focus on a larger share of girl cadets is also likely to lead to a greater intergenerational impact.[24] Finally, as stressed by the Raksha Mantri, the modernisation of the NCC must be with a view to making it "more relevant to the new and changed times."[25]

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Community Outreach for Maritime Security in India: Need for a Contemporary Approach

On 26 November 2020, seven fishermen on board a sinking boat were rescued off the Maharashtra coast after fishermen from a nearby boat alerted the owner as well as the Maharashtra Coastal Police through a satellite-based communication system.[1] On 05 January 2021, a student helped rescue officials in locating four fishermen marooned at sea off the coast of Thrissur using a drone.[2] Earlier, in 2015, a naval pilot was rescued at sea by fishermen off Goa; the fishermen also alerted the navy through the coastal security toll-free number.[3] In addition, the coastal community has also reported unknown and suspicious objects washed ashore to the coastal police for further investigation.[4] The community — whether on land or at sea — is integral to the wider policing and security framework, and, as the above examples elucidate, could also be the first responders at sea.

Conceptually, the maritime security community comprises *all* users of the sea, whatever be their purpose.[5] In addition, this community also includes the coastal populace. Engagement with the maritime security community not only contributes to enhancing security awareness amongst the community, but also in crime prevention, facilitating quick responses, and in developing Maritime Domain Awareness (MDA).[6]

The *Maritime Security Sector Reform Guide* — an analytical tool designed to map and assess the maritime sector — lists 'maritime agency outreach and stakeholder coordination' as one of the sub-functions of maritime governance.[7] This sub-function includes dissemination of information to those affected by maritime security issues; the capability to communicate with the public is one of the prerequisites required to execute this sub-function.[8]

In India, the need to integrate the community into the maritime security framework was realised in the 1990s and since then the fishing and coastal communities have been progressively integrated. The ways and means for such engagements have evolved and are now institutionalised primarily through regular interaction programmes, toll-free numbers, and by conducting drills and exercises. The scope of interactions has also been progressively expanded beyond security to include issues affecting human security. This paper examines the models for community engagement in India, as also in Malaysia and the US, and suggests measures to strengthen community engagement for maritime security in India.

The Indian Model

The coastal and fishing communities are considered to be amongst the core strengths of the coastal security construct in India.[9] In July 1999, the Indian Navy along with the Maharashtra Police implemented a community initiative, the *Sagar Rakshak Dal,* in 263 villages. This initiative was based on the requirement for greater coastal surveillance, and was perhaps the first major initiative towards integrating the community for maritime and coastal security.

In 2001, a *Report of the Group of Ministers on National Security* underscored the importance of village volunteer forces and recommended measures that could be taken to strengthen vigilance in border areas.[10] Specifically, in the maritime context, the report recommended the setting up of fishermen watch groups in all coastal States.[11] Over the years the fishing community, including their leaders, have also begun to recognise the important role of the community in coastal and maritime security.[12]

Subsequent to the Mumbai attacks on 26 November 2008, two of the major thrust areas for community engagement were the establishment of a dedicated Toll-Free Number 1093 for coastal security (in addition to the Search and Rescue Toll-Free Number 1554) and Community Interaction Programmes (CIPs). In addition, community members have also been engaged in coastal security duties as Special Police Officers or as Marine Home Guards.

As per the Ministry of Home Affairs *Annual Report 2018-19*, CIPs are undertaken to enhance safety awareness, to undertake security sensitisation, and to develop fishers

into 'eyes and ears' for intelligence gathering.[13] These interactions are undertaken by the Indian Navy, Coast Guard, as well as Coastal Police and Fisheries Department of respective States. Depending on the location, the participation varies between about 25-60 fishers.[14]

During CIPs, the community is sensitised about various aspects of safety and security at sea, such as the carriage and use of life-saving equipment, the use of Distress Alert Transponders (DAT), first aid, details of toll-free phone numbers/emergency contact numbers, reporting procedures, and other issues which may be locally relevant.[15] In addition to the safety and security focus, CIPs have also been undertaken to raise awareness about precautions during the COVID-19 pandemic and to sensitise coastal communities on cyclone precautions, environmental protection, etc.[16]

In 2014, a Parliamentary Committee, considering the important role of fishers in coastal security, recommended further evolution of this engagement on the lines of the Civil Defence and the formulation of a national scheme to enhance awareness amongst fishers, along with necessary budgetary support.[17] The committee also highlighted the need for the use of regional languages in interactions as also distribution of relevant literature.[18]

Earlier this year, the Prime Minister launched the PRADHAN MANTRI MATSAYA SAMPADA YOJANA (PMMSY), which is a Rs 20,050 crore programme for sustainable fisheries development. The programme facilitates central funding for activities such as training and awareness of fishers and could possibly be utilised for enhancing safety and security awareness amongst the fishing community.[19]

The US Model

The AMERICA WATERWAY WATCH (AWW)[20] is a national maritime homeland security outreach and awareness programme designed to encourage members of the maritime community — including the maritime and recreational boating industries and the boating public — to report suspicious activity.[21] The programme has its origins in the terrorist attacks on the US on 11 September 2001.[23]

The programme is premised on the fact that community engagement is essential for the prevention of criminal activities at sea, or along the coast, as mariners can easily discern activities which do not conform to the normal pattern-of-life.[22]

The initial outreach efforts — following a similar trajectory as in India — were undertaken at the local level. However, the need for a national programme to provide support and policy direction led to the institutionalisation of the AWW in 2005.[24] The programme, which is locally focused, but nationally connected, aims to help in preventing acts of terrorism and other illegal activities.[25] Essentially, the national programme complements local community outreach initiatives.

The objectives of the programme include: stakeholder education; development and distribution of publicity material; facilitation of information flow; and, establishing partnerships with other governmental agencies and non-governmental organisations.[26] *Inter alia* the programme establishes roles and responsibilities, processes for reporting and processing of information, and also caters for funding, training, and distribution of educational material.[27] The programme has a distinctive logo, and publicity material are appropriately branded with the logo for ease of recognition (and association).

The programme also has a dedicated web page with requisite information (and downloads) for the community. The website includes essential information to guide the community, such as what constitutes 'suspicious activities,' related reporting procedures, emergency contact details, basic security measures, etc.[28] The programme is not based on formal membership, anyone or any agency can partner with the AWW simply by copying and pasting a widget onto their website.[29]

Empirically, a study from 2010-13 found that marinas that adopted the AWW witnessed a decline in crime, and those that did not, witnessed an increase. This pertained to crimes against people, property, and watercraft.[30] In marinas that adopted the AWW programme, crimes against people reduced from five to zero; crimes against property reduced from 80 to three; and crimes against watercraft from 29 to 2. On the other hand, in marinas that did not adopt the programme, crimes against people rose from three to six, against property from 45 to 88, and against

watercraft from 4 to 13. The study concluded that the AWW contributes to the reduction of crime and the prevention of terrorism.[31] The study, albeit with some limitations, validates the concept of community engagement for security.

The Malaysian Model

In Malaysia, the Maritime Community Security and Safety Awareness mobile application [K3M App] conceptualised by the Royal Malaysian Navy (RMN) and developed jointly by the RMN with Telecom Malaysia, facilitates reporting and assistance requests by the community to operations centres ashore. The initiative was perhaps taken to combat increasing maritime crimes in adjoining waters. The mobile app supports multiple languages and includes value-added services such as weather forecast, tide tables, a directory of important contacts, security and safety advisories, and social media connectivity.[32]

Notably, in the States of Karnataka, Kerala, and in Tamil Nadu mobile apps have been developed with the primary objective of monitoring fishing boat movements. Considering the importance of the digital medium, police organisations across the country have developed mobile apps to connect with the community and to disseminate information.[33] The Bureau of Police Research and Development (BPR&D), Ministry of Home Affairs, has also issued guidelines for police mobile apps.

Analysis and Suggestions

While the ends of all the three approaches discussed above are fundamentally similar, the ways and means to achieve the ends have been different. Notably, each of the approaches was developed in response to events in respective countries. From an Indian perspective, some of the key issues are: *first*, current efforts at community-engagement have largely been focused only on the fishing and coastal communities and not so much on the wider security community, which comprises all users of the sea; *second*, the present approach to community-engagement such as through the CIP has limited penetration;[34] *third*, the limited penetration of physical CIPs this year has been further accentuated by the COVID-19 pandemic;[35] *fourth*, there is

scope for leveraging the internet, social media, and mobile telephony for widening community-engagement; and *finally*, a national approach could provide support and direction to this effort.

The *Indian Maritime Security Strategy* (2015) highlights the need for nurturing the community and states that "*measures to involve, sensitise and incentivise the coastal community to contribute to the coastal security construct will remain a* focus *area.*" While the present time-tested efforts need to be strengthened and consolidated, some suggestions for a more contemporary approach include:[36]

- Focused engagements with community leaders — key leader engagements — who can exercise considerable heft over the community.

- Formulation and wide availability of standard documentation including in regional languages and in soft copies.

- Preparation and distribution of publicity material, such as pamphlets, posters, stickers, etc.

- Expanding outreach and establishing partnerships with the wider maritime community, including shipping, ports, offshore sector, leisure and tourism industry, research community, environmental agencies etc., including online partnerships through web-based linkages.

- Expanding outreach to other community-based bodies in coastal areas, such as Civil Defence, Home Guards, National Cadet Corps, *Nehru Yuva Kendra Sangathan*, etc, and convergence with schemes in the maritime sector under the SKILL INDIA programme.[37]

- Leveraging the internet and social media, and development of mobile applications to facilitate wider information dissemination and information exchange between security agencies and the community in line with the DIGITAL INDIA programme.[38]

- Promotion of online engagements as an alternative to physical engagements.

- Since MDA centres also depend on multiple sources for generating MDA and also facilitate information sharing, expanding and strengthening of linkages of such centres — such as the proposed National MDA Centre — with the wider maritime security community.[39]

- Development of a national approach to community engagement with necessary funding.

Conclusion

The important role of the wider maritime security community in maritime security is indisputable. Consequently, the maritime security community is considered an integral component of the maritime security construct.[40] However, there are different approaches to community engagement. In India, over the past twenty years the engagement with the community has been expanded and consolidated, particularly after the Mumbai attacks (26/11). While security was the principal reason for establishing these linkages, the scope of these engagements has progressively been expanded. However, there are certain limitations within the present model.

With the increasing proliferation of the internet and mobile telephony, developments in communication technology (including satellite communication), and with greater comfort levels of the working population with the digital medium, there is a need for more contemporary approaches to community outreach. Consequently, in line with the Government's focus on a digitally empowered society, present efforts could be complemented by initiatives through the digital medium. As such, during the ongoing pandemic there has been an unprecedented rise in the use of online resources to overcome challenges arising from safety-related restrictions (and concerns). While a local approach for engagement is fundamental to the concept, a national programme, as has been recommended by a Parliamentary Committee in 2014, could provide the necessary support and oversight to local efforts.[41] In short, further widening and deepening engagements with the community through contemporary approaches could yield rich dividends.

03 February 2021

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