Made-in-India technologies to identify sea-borne threats to national security

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In August, three months before the 11th anniversary of the coordinated shooting and bombing in Mumbaiby terrorists from across the border, Gujarat police chanced upon two abandoned boats in the Sir Creek area. The ominous message that bobbed in the shallow waters was that the seas that sheath the peninsula continueto be avulnerablespace and continue to compromise the nation's security.

India's vulnerabilities

India has been at the receiving end of terror from across the LoC and across its territorial waters since decades now. Illegal docking of vessels carrying arms and explosives at isolated spots on the coast, and the Indian Ocean littorals, infiltration and ex-filtration of anti-national elements, use of the sea and off shore islands for human trafficking and smuggling of drugs, gold, consumer and intermediate goods through sea routes only escalate India's innumerable security challenges.

Although the United Nations Convention on the Law of the Sea (UNCLOS) set a legal framework of maritime zones and jurisdiction, it does not specify a clear cut globally acceptable action for countering several challenges faced by the maritime industry. With coastal jurisdiction being a loosely defined area, surveillance continues to be a huge task.

Coastal security around the world

In most advanced nations havinga lengthy coastline, the Navyis supported by Coast Guardsand several agencies combined. Theywork together to secure the nations' territorial waters.In best case examples, in addition to human intervention, technology plays a key role toensurecoastal security.

Australia follows a Maritime Identification system which mandates that all vessels entering a 500 nautical mile zone of the Australian coastline must share all details required before venturing further. In the United States, the US Coast Guards use coastal defence equipmentincluding patrol boats, miniature submarines, remotely piloted, unmanned, untethered, underwater vehicles, drones, sensors, high resolution imaging sonar for underwater inspections, etc.Israel's Multi-Function Digital Radars installed on Sa'ar 6-class corvette warships protect Israel's maritime domain and critical assets such as its natural gas platforms.

The India perspective

India's challenges are unique. The Indian peninsula has a coastline that is 7516.6 kms long. The nation is strategically located at the crossroads of trans-Indian Ocean routes. Almost all the cargo ships that sail between East Asia, America, Europe and Africa pass through India's territorial waters.

This has been both, a boon and a bane. While the access offered by India's long coastline plays a huge role in making India one of the fastest growing economies in the world - around 95% of India's trade by volume and 70% by value is carried out through maritime transport. Thissimultaneously leaves the peninsula open and defenceless.
More stringent patrolling of the high-seas is one solution, but the extensive resources and man power required to monitor the 2.75 lakh plus fishing boats and trawlers, in addition to all the other maritime traffic in the region, makes it unfeasible.

Jurisdiction and coordination

At present, part of the responsibility for ensuring maritime securitylies with Coast Guards and Coastal police in India's coastal states. Thestate fisheries department has jurisdiction over the vessels sailing within the territorial boundaries of that state.

After the 2008 sea-borne attack, the Indian Navy, was given "overall in-charge" of maritime security. It coordinates with the Home Ministry, Indian Coast Guard and various state governments' agencies, including the Marine police. As a result of combined efforts, a slew of radars and various auto-identification systemswere installed andoperation centres were set up across coastal areas, with a command, control and coordination centre in Delhi to monitor all the operation centres.Today, there is coordination between the Indian Navy, the Coast Guard, the Marine Police, Customs Department, Fisheries Department, Special Economic Zones, Lighthouses, personnel of Critical Infrastructure on the coast, fishermen and coastal residents.

At a press debrief held after Exercise Sea Vigil, in April 2019, Chairperson Vice Admiral MS Pawar, recognised the progress made over last decade in the realm of Coastal Defence and Security and reiterated the need for further agility and innovative systems to deal with security challenges.

In addition to domestic coastline security initiatives, India has partnership agreements with several countries, where India will provide the infrastructure and equipment for maritime surveillance and security. India has provided coastal surveillance systems to Mauritius, Seychelles, Maldives and in October,hasinked an MoU in Bangladesh post discussions between Prime Minister Modi and Prime Minister Sheik Hasina.

An eye on the seas

Several effective surveillance systems are currently in the market or are on the verge of being commercialised. Drones, VIDAR, tethered aerostats and deep learning artificial intelligence are some that are in use currently. NAVDOOT, a two-way MSS terminal designed and developed by Indian company Saankhya Labs has been deployed on several hundreds of deep sea fishing trawler boats in collaboration with ISRO. The real time vessel tracking and monitoring system, operates on ISRO's satellite specially launched for strategic purposes, providing two-way communication facility to fishermen in high sea. The fishermen get weather alerts and can seek help during SoS situations. The pilot project is successfully completed and a report has been submitted to MHA for further action.

While it is true there has been marked improvement in coastal surveillance, it is also true that incidents like Sir Creek continue to plague India. To its credit, Indian intelligence reports have alerted the Government of India about the likelihood of a sea borne terror attack in the near future. It is imperative that the Government of India must recognise the threat and take pre-emptive action at the earliest.

To secure our coasts, the Government of India must mandate a policy to deploy field proven indigenous transponders operating on ISRO's satellite bandwidth reserved for security purposes. Cutting edge indigenous technology will be at the service of the nation waiting for an approval from the government of India.