

Maritime Domain Awareness in the Indian Ocean Region: Cooperation for a Free and Open Indo-Pacific²

Abstract

Maritime blindness is a persistent issue for many Indian Ocean nations. The ability of even large vessels to effectively disappear in the vastness of the Indian Ocean puts maritime domain awareness (MDA) at a premium. If you can find a naval adversary and they can't find your ships, the odds are definitely in your favour. However, nations can attain and maintain a far more nuanced and accurate picture of the maritime domain by working in partnerships than by toiling in isolation. As experts at the 2020 Pathfinder Indian Ocean Security Conference Phase I argued, maritime blindness can be overcome by effective MDA. But specifically, collaborative and inclusive MDA mechanisms among Indian Ocean nations can ensure that MDA intelligence is shareable, and benefits like-minded nations. In this position paper I outline the state of MDA in the Indian Ocean Region (IOR), analyse the Australia-supported Sri Lanka Border Risk Assessment Centre, before making recommendations. I recommend three collaborative steps Indian Ocean nations can undertake to improve collective and inclusive MDA, including increasing bilateral capacity building partnerships, expanding AIS transponder programs and shared access to maritime patrol air staging facilities.

Introduction

The Indian Ocean Region (IOR) is an increasingly contested strategic environment. The ability of even large vessels to effectively disappear in the vastness of the Indian Ocean puts maritime domain awareness (MDA) at a premium. If you can find a naval adversary and they can't find your ships, the odds are definitely in your favour. However, MDA in 2022 is not limited to naval intelligence. MDA encompasses a far wider variety of sea-borne threats, beyond the military domain. Threats now include issues as diverse as piracy, smuggling (drugs, humans, arms, etc), terrorism, search and rescue, Illegal, Unreported and Unregulated (IUU) fishing, amongst others. MDA is now both a military and a civil issue. In response, MDA is not the responsibility only of a nation's navy, but is often managed by coast guards or local law enforcement agencies.

MDA is simple in theory but complex in practice. One major barrier facing nations seeking to attain and maintain an encompassing and accurate picture of its maritime domain is the varied

¹ Samuel Bashfield is research officer and PhD candidate at the ANU National Security College in Canberra, Australia. His research engages with Indian Ocean security issues, with a particular focus on the past, present and future of the British Indian Ocean Territory (Chagos Archipelago). He contributes to the NSC's Indo-Pacific Strategy: Undersea Deterrence Project and the Indo-Pacific Strategy: Indian Ocean Project. Sam completed his Master of National Security Policy degree in July 2020, during which time he received an ANU Professional Staff Scholarship and the National Security College Award. Sam publishes academic articles and op-eds in a variety of outlets on Indian Ocean and Australian security. He tweets @SamuelBashfield.

² This position paper is an updated and much expanded version of David Brewster and Samuel Bashfield, 'Building a New Maritime Surveillance Network Across the Indian Ocean', Australian Strategic Policy Institute, *The Strategist*, Australian Strategic Policy Institute (blog), 3 August 2021, <https://www.aspistrategist.org.au/building-a-new-maritime-surveillance-network-across-the-indian-ocean/>.

and expensive resources needed to create said picture. The sea, land, air and space-based assets needed to monitor and surveil the maritime domain are often prohibitively costly, and available to only the most sophisticated state actors. Further, the analyst training and IT infrastructure procurement needed to turn raw intelligence into a digestible product for decisionmakers is onerous. Thus, for many Indian Ocean nations, the maritime domain remains a blind spot, and an entry point for threats endangering national security.

As experts at the 2020 Pathfinder Indian Ocean Security Conference Phase I argued, maritime blindness can be overcome by effective MDA. But specifically, collaborative and inclusive MDA mechanisms among Indian Ocean nations can ensure that MDA intelligence is shareable, and benefits like-minded nations. Put simply, nations working together can attain and maintain a far more nuanced and accurate picture of the maritime domain by working in partnerships than by toiling in isolation. However, even like-minded nations possess divergent national interests, and sharing (often sensitive) intelligence is not always possible. As many modern threats are sea-borne, breaking down such barriers and establishing deeper bilateral and multilateral MDA cooperative mechanisms in the IOR is key to the national security of the region's myriad players.

In this position paper I examine MDA from the strategic, rather than tactical or operation levels. I examine the current state of MDA in the IOR, including the various actors and threats. I describe and assess collaborative mechanisms that are already operational. Then, the paper turns to a case study of the Australia-supported Sri Lanka Border Risk Assessment Centre, which demonstrates a collaborative MDA initiative at the bilateral level. I recommend three actions Indian Ocean players and regional organisations can take to improve collective MDA in this vast region. These recommendations are:

1. Capacity building partnerships;
2. Expanded AIS (automatic identification systems) transponder programs;
3. Shared access to air staging facilities.

Part I: Maritime Domain Awareness and the Indian Ocean Region

The International Maritime Organization defines Maritime Domain Awareness as “the effective understanding of any activity associated with the maritime environment that could impact upon the security, safety, economy or environment.”³ This encompassing definition is narrowed in the defence and security fields, where MDA is defined far more precisely. Specifically, the US Navy articulates MDA as “what is observable and known (Situational Awareness), as well as what is anticipated or suspected (Threat Awareness). It occurs when these two components are brought together to provide a decision-maker with an amalgamation of operational, intelligence and environmental information.”⁴ According to Indian Ocean security analyst David Brewster, “since the turn of this century there has been a growing realization among security practitioners of the importance of MDA as an essential enabler of maritime security,” and that “only with recent advances in sensor and computing technology has it become possible, at least in theory, to create a networked real time picture that allows for a shared understanding of threats and developments

³ ‘International Aeronautical and Maritime Search and Rescue Manual (IAMSAR Manual): Volume III’, Report (London: International Maritime Organization & International Civil Aviation Organization, 2016), xvi, <http://www.icssc.org.cn/upload/file/20190102/Doc.9731-EN%20IAMSAR%20Manual%20-%20International%20Aeronautical%20and%20Maritime%20Search%20and%20Rescue%20Manual%20Volume%20III%20-%20Mobile%20Facilities.pdf>.

⁴ ‘Navy Maritime Domain Awareness Concept 2007’, Military (Washington DC: United States Navy, 2017), 6, <file:///Users/samuelbashfield/Downloads/719590.pdf>.

in the maritime domain.”⁵ Thus, MDA is a relatively new concept which is enabled by modern sensor technology.

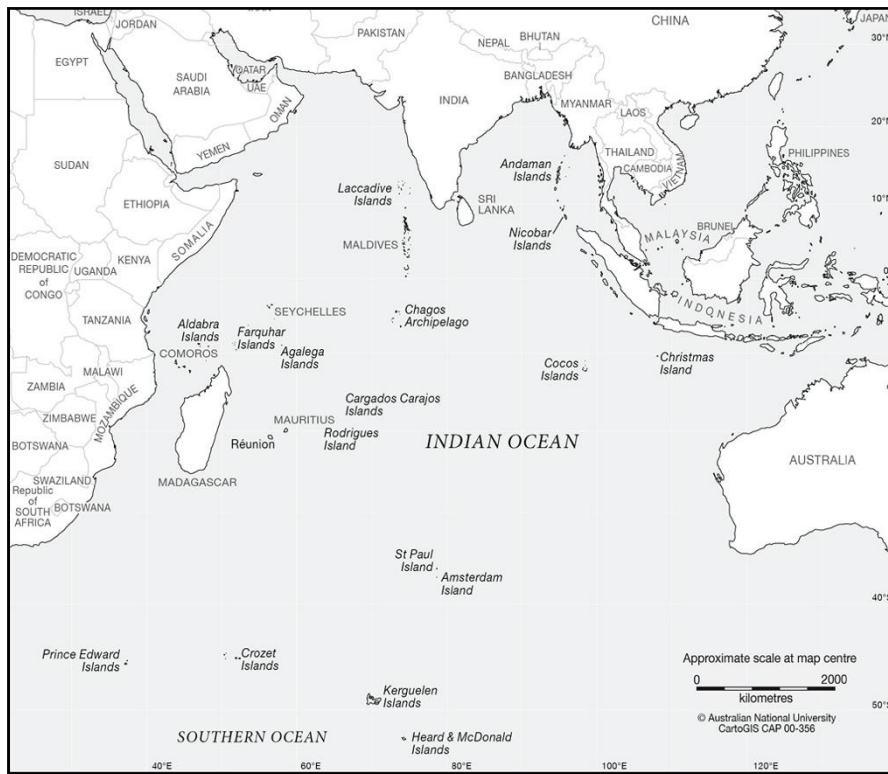


Figure 1: The Indian Ocean Region.⁶

MDA is complicated by various factors less prominent in land, air and space surveillance. The maritime domain is firstly further complicated by the requirement to monitor not just the water’s surface, but also relevant activity subsea and in the air.⁷ Secondly, MDA is further problematic due to the various actors with interests in the (high) seas, including commercial and nation-state interests, overlaid with the complexities of international law, which rarely factors into land domain surveillance.⁸ The combination of these two factors means effective MDA requires highly sophisticated sensors, capable military or law enforcement platforms, and an ability to work within legal regimes and alongside other nations to effectively surveil the sea-scape.

Importantly, a nation cannot achieve *total* MDA, but rather can only seek to enhance its own MDA (either by its own means or in collaboration with others), in an effort to better respond to threats and opportunities. Likewise, a nation’s level of MDA, or MDA proficiency, does not necessarily correlate with it having the corresponding resources to respond to a threat. In this sense, MDA is a sliding scale, in which the aim is to inform military, law enforcement, bureaucratic and political leaders of impending sea-borne threats. Being aware and cognisant of an incoming maritime threat, and a nation’s ability to mount a response, are two interrelated but distinct concepts. Accordingly, I limit this paper’s analysis and recommendations to MDA in the sense of

⁵ David Brewster, ‘Give Light, and the Darkness Will Disappear: Australia’s Quest for Maritime Domain Awareness in the Indian Ocean’, *Journal of the Indian Ocean Region* 14, no. 3 (2 September 2018): 297, <https://doi.org/10.1080/19480881.2018.1517437>.

⁶ *Islands of the Indian Ocean* (CartoGIS), accessed 27 April 2021, <http://asiapacific.anu.edu.au/mapsonline/base-maps/islands-indian-ocean>.

⁷ Brewster, ‘Give Light, and the Darkness Will Disappear: Australia’s Quest for Maritime Domain Awareness in the Indian Ocean’, 298.

⁸ Brewster, 298.

understanding a potential threat, rather than mounting a response, all the while acknowledging that MDA can never be absolute – but rather is relative.

MDA in the IOR is complicated by the IOR's great size. As Robert D. Kaplan wrote on the Indian Ocean, “no one nation dominates”⁹ and the same can be said for regional MDA. The Ocean's size and complexity limits the effectiveness of even the most robust MDA assets, as the MH370 incident attests. Attaining and maintaining MDA is also complicated by the divergent national interests of players – whether a nation is interested in threats within its territorial waters, its exclusive economic zone, or the wider Indian Ocean sea-scape. While larger players usually seek an encompassing picture of the Ocean, smaller nations often only require a narrow view of activity within its littoral waters, in line with response capacities.

Interrelatedly, rationales for MDA differ among Indian Ocean nations. According to Darshana M. Baruah, as “India has accepted the Chinese presence in the Indian Ocean as part of Beijing's great power ambitions while simultaneously acknowledging the need to change its own maritime outlook,” it has adopted a determined focus on strengthening its regional MDA.¹⁰ Likewise, Australia's MDA efforts are in part a response to China's increased forays into the Indian Ocean, as well as to counter threats including people smuggling. However, smaller nations are not usually seeking MDA in response to great power competition. Other, more civil and law enforcement-related issues, including people smuggling (drugs, humans, arms, etc), transshipments, IUU fishing and search and rescue usually motivate smaller nations to develop MDA capabilities. In short, the impetus for MDA can differ greatly, from hunting nuclear ballistic missile submarines to intercepting illegal fishing vessels.

Various arrangements already exist in the Indian Ocean to cooperate on MDA. Most notably, three information fusion centre nodes operate in Singapore, India and Madagascar. India's Information Fusion Centre - Indian Ocean Region (IFC-IOR), hosted by the Indian Navy in Gurugram, aims at “strengthening maritime security in the region and beyond, by building a common coherent maritime situation picture and acting as a maritime security information sharing hub for the region.”¹¹ IFC-IOR has working level relationships with 50 nations and organisations, and hosts International Liaison Officers from partner nations. As well as monitoring Indian Ocean maritime activity, the IFC-IOR reports on maritime incidents and weather. As mentioned, similar centres are located in Singapore and Madagascar, providing coverage of much of the Indian Ocean.

A large amount of multilateral effort is also directed at combatting piracy around the Horn of Africa, in part by improving MDA. These efforts include the European Union Naval Force (EU NAVFOR) Somalia – Operation Atalanta, which protects vulnerable shipping, deters and disrupts piracy, monitors fishing off Somalia, and supports other EU missions and international organisations working to strengthen maritime security and capacity in that part of the Indian Ocean.¹² EU NAVFOR also operates the Maritime Security Centre – Horn of Africa (MSCHOA), located in Brest, which coordinates EU NAVFOR's voluntary vessel registration scheme (VRS), and also coordinates interactive anti-piracy advice to the shipping industry. The EU also coordinates CRIMARIO II, which pursues two main objectives: enhancing information exchange

⁹ Robert D. Kaplan, *Monsoon: The Indian Ocean & the Battle for Supremacy in the 21st Century* (Melbourne: Black Inc., 2010), 16.

¹⁰ Darshana M. Baruah, ‘India's Evolving Maritime Domain Awareness Strategy in the Indian Ocean’, in *India & China at Sea: Competition for Naval Dominance in the Indian Ocean*, 1st ed. (New Delhi: Oxford University Press, 2018), 165.

¹¹ ‘IFC-IOR’, Government, Information Fusion Centre - Indian Ocean Region, 2021, <https://www.indiannavy.nic.in/ifc-ior/about-us.html>.

¹² ‘About Us | EUNAVFOR’, European Union Naval Force (Op Atalanta) Somalia – Operation Atalanta, 2022, <https://eunavfor.eu/about-us>.

and analysis, and incident management, as well as strengthening inter-agency cooperation in maritime surveillance, policing, investigation and judicial matters.¹³ CRIMARIO II operates in both South and Southeast Asia. It cooperates and complements existing regional Information Fusion Centres, national maritime operations centres, national maritime information sharing centres, regional actors, international fora and extra-regional countries active in the Indo-Pacific.

Under the Djibouti Code of Conduct (DCoC), its signatories declared their intention to cooperate to repress piracy and armed robbery against ships.¹⁴ DCoC member nations are located in the western Indian Ocean region. DCoC operates three information sharing centres in Dar es Salaam, Mombasa and Sana'a,¹⁵ which now report not just on piracy, but also wider maritime crime. Under the DCoC information sharing centre initiative, each member has agreed to establish a National Maritime Information Sharing Centre and work to establish such centres is ongoing. However, Christian Bueger noted in 2017 that, as rates of piracy have declined in recent years, anti-piracy efforts transitioned to building regional MDA capabilities.¹⁶ Bueger notes that “the [recent] absence of an immediate piracy threat led to the declining interest of international actors in maintaining their levels of engagement, instead considering long-term objectives in the region,” including developing regional MDA capacity.¹⁷

Additionally, bilateral and trilateral level white shipping agreements exist between Indian Ocean nations, which allow for commercial shipping information sharing. Further cooperation includes mutual logistics agreements (e.g. 2016 India/US Logistics Exchange Memorandum of Agreement (LEMOA)),¹⁸ military-to-military agreements (e.g. India's international coastal radar network)¹⁹ and other cooperative agreements (e.g. Sri Lanka, India and Maldives' 2013 maritime security cooperation pact).²⁰ Furthermore, presumably other intelligence sharing agreements exist between nations which remain secretive. In sum, cooperative mechanisms do exist between Indian Ocean nations to further regional MDA, but there remains more that can be done.

MDA and the Free and Open Indo-Pacific Concept

Effective MDA is consistent with the Free and Open Indo-Pacific Concept. Specifically, as per Japan's Indo-Pacific concept, “securing peace and stability” requires “capacity-building assistance to coastal countries of the Indo-Pacific (strengthening maritime law enforcement capacity and Maritime Domain Awareness capacity, human resource development, etc.).”²¹ By enabling nations to surveil and police their own immediate region, peace and stability can be promoted throughout

¹³ ‘EU CRIMARIO | Rationale & Objectives’, The EU CRIMARIO Project, accessed 18 February 2022, <https://www.crimario.eu/en/the-project/rationale-objectives/>.

¹⁴ ‘About Us – DCoC’, Djibouti Code of Conduct, 2022, <https://dcoc.org/about-us/>.

¹⁵ The information sharing centre in Sana'a is currently not operational due to ongoing conflict in Yemen.

¹⁶ Christian Bueger, ‘Effective Maritime Domain Awareness in the Western Indian Ocean’, Policy Brief (Pretoria, South Africa: Institute for Security Studies, 2017), 4, <https://issafrica.s3.amazonaws.com/site/uploads/policy-brief104.pdf>.

¹⁷ Bueger, 4.

¹⁸ Sushant Singh, ‘India-US Joint Statement- Defence: Sorting a Few Legacy Issues, Framing a New Agenda’, *The Indian Express* (blog), 9 June 2016, <https://indianexpress.com/article/explained/prime-minister-narendra-modi-us-visit-president-barack-obama-nsg-nuclear-reactor-lemoa-white-shipping-agreement-2842064/>.

¹⁹ Dinakar Peri, ‘India Looks at Integrating More Countries into Coastal Radar Network’, *The Hindu*, 20 December 2020, sec. National, <https://www.thehindu.com/news/national/india-looks-at-integrating-more-countries-into-coastal-radar-network/article33379243.ece>.

²⁰ ‘India, Sri Lanka, Maldives Enter Maritime Security Cooperation Pact’, *Hindustan Times*, 9 July 2013, <https://www.hindustantimes.com/world/india-sri-lanka-maldives-enter-maritime-security-cooperation-pact/story-6IXkEhgXp8srBnCE0zOMkK.html>.

²¹ ‘Free and Open Indo-Pacific’, Government, Ministry of Foreign Affairs, Japan, 2019, <https://www.mofa.go.jp/files/000430632.pdf>.

the IOR, and the wider Indo-Pacific. Sea blindness hampers economic and national security, leading to regional instability.

As Part I of this paper has demonstrated, MDA is a relatively new and complex concept, which most Indian Ocean nations pursue, but often for divergent reasons. Part II will outline a new case study, illuminating how Indian Ocean nations can collaborate, at the bilateral level, to improve collective MDA.

Part II: Cooperative Mechanism Case Study: The Sri Lanka Border Risk Assessment Centre

Sri Lanka's Border Risk Assessment Centre (BRAC) is a new Sri Lankan initiative, supported by Australia, and was formally opened in December 2021. The centre, located in Suhurupaya building complex in Battaramulla, Colombo, is under Sri Lanka's Ministry of Defence. BRAC is an initiative under the nation's 2018 Sri Lanka Integrated Border Management Strategy.²² The Strategy was developed with the technical assistance of the International Organization for Migration (IOM) and the financial assistance of the Government of Australia, through its Department of Home Affairs. The Strategy called for a 'Multi-Agency' centre which would "comprise representatives from key border agencies, including intelligence and risk analysts, to detect potential threats and risks from people or goods before entry, at the border or post-arrival." By pooling representatives from key Sri Lankan border agencies, it was hoped the "BRAC will foster and support the sharing of data and information and subsequently assessing and detecting potential risks for interception before entry into Sri Lanka." Lastly, the BRAC was designed to be the central contact and focal point for collaboration with international intelligence agencies.

According to Australia's Minister for Home Affairs Karen Andrews, at the BRAC's December 2021 formal launch "The BRAC will significantly strengthen Sri Lanka's border to criminals, smugglers, and terrorists, while also streamlining the entry and exit of traders, travellers, and tourists – all of whom will be vital to regional economic recovery as we emerge from the pandemic."²³ Australia has contributed US\$3.6 million to the BRAC. As Minister Andrews noted, BRAC is not just an MDA initiative, but will assist Sri Lanka to attain a degree of not just MDA, but also awareness of its border more generally, including air immigration and imports. BRAC will assist Sri Lanka to process international arrivals, including businesspeople, travellers and tourists. By sharing intelligence, systems, resources, and real-time data among relevant Sri Lankan agencies, the country can collectively protect its borders more efficiently and effectively.

For Australia's part, its involvement in BRAC is spurred in part by a degree of self-interest. Sri Lanka is a significant departure point (in addition to Indonesia) for people smuggling operations en route to Australia. Since Australia established Operation Sovereign Borders in September 2013, its navy and border force has returned 204 Sri Lankan nationals to Sri Lanka, from 12 boats. In October 2021, more than 70 people were apprehended by the Sri Lanka Navy in Chilaw, in addition to another group of 65 people arrested by Sri Lanka Police in Trincomalee. In November 2021, the Sri Lanka Navy disrupted an attempt by 19 more people to migrate illegally

²² 'Sri Lanka Integrated Border Management Strategy', International Organisation, Sri Lanka International Organization for Migration, 2018, <https://srilanka.iom.int/sites/g/files/tmzbd1356/files/documents/Sri%20Lanka%20Integrated%20Border%20Management%20Strategy.pdf>.

²³ Karen Andrews, 'Remarks at the Launch of the Sri Lankan Border Risk Assessment Centre – Colombo, Sri Lanka', Government, Minister for Home Affairs, 20 December 2021, <https://minister.homeaffairs.gov.au/KarenAndrews/Pages/launch-of-sri-lankan-border-risk-assessment-centre.aspx>.

by sea in Chilaw. Due in part to Australia's massive public and bipartisan political aversion towards people smuggling, the country invests significant funds in its border security. By assisting Sri Lanka to stop people smuggling operations at the source, Australia is able to avoid intercepting the vessels and subsequent refugee processing. Besides people smuggling, assisting Sri Lanka in this regard benefits Australia by enabling Sri Lanka to govern its maritime domain and address threats including IUU fishing, piracy, plus drug and arms smuggling. Additionally, enhanced Sri Lankan search and rescue capabilities is a positive development for Australia. The better managed Sri Lanka's surrounding waters are, the better for Australia's maritime security.

Furthermore, Australia's assistance to Sri Lanka is justified by its significant experience in combining national agencies and assets to protect its borders. Australia's Maritime Border Command (MBC) was established in 2005 (initially named Joint Offshore Protection Command, then Border Protection Command) and is now enabled by both the Australian Border Force and the Australian Defence Force. Led by a Royal Australian Navy Rear Admiral, MBC detects, deters, responds to and prevent civil maritime security threats, contributes to Operation Sovereign Borders and works with Australian Federal, State and Territory government partner agencies and international stakeholders. Importantly, while led by the Australian Border Force and the Australian Defence Force, MBC is a collaboration between a variety of Federal, State and Territory agencies, and combines an arsenal of air and sea-based assets. Thus, Australian officials possess a wealth of knowledge and experience which can be shared with Sri Lanka's officials to further its combined BRAC model for MDA.

In summary, the BRAC is a new and innovative capacity building project, designed to not only enable Sri Lanka to monitor its borders and safeguard its security, but also to secure Australia's borders from people smuggling and a host of other transnational maritime threats. Part III of this paper will make recommendations building on the BRAC example.

Part III: Recommendations for Building an Inclusive MDA Network in the Indian Ocean

Capacity Building Partnerships

Bilateral capacity building partnerships are an important and powerful way of improving MDA capabilities for Indian Ocean littoral nations. As the BRAC example demonstrates, there exists great potential for capacity building partnerships at the bilateral level to improve regional MDA. Australia's experience, which is being imparted on BRAC, demonstrates that collaboration between government agencies can be a potent tool in creating a more comprehensive MDA picture, compared with agencies going it alone. Such MDA centres would not just be an effective strategy for Sri Lanka to advance its MDA capabilities, but could also be useful for other regional nations, such as Maldives, Mauritius, Seychelles, Comoros and Bangladesh. By combining the national agencies of these nations in a centre, a more comprehensive MDA picture can be attained, furthering national security. While Australia has experience working with fellow littoral nations, other sophisticated naval players including France, the United States, China and India could partner with nations to create such centres. Even the United Kingdom could partner with an IOR nation to further its MDA capabilities. In addition to Sri Lanka, Australia could develop similar partnerships with nations including Bangladesh and Indonesia.

Beyond establishing MDA centres, such bilateral partnerships could incorporate assistance to junior partners to acquire platforms (ships, aircraft, etc), sensors and MDA systems. For example, Australia provided Sri Lanka two Bay-class patrol boats in 2014. These boats, now SLNS *Rathnadeepa* and SLNS *Mihikatha*, assist Sri Lanka to patrol its maritime interests, including

preventing people smuggling, which benefits Australia. There exists great potential for bilateral capacity building partnerships, which could involve gifting assets, sensors and MDA systems. Again, middle and superpowers can work together with smaller regional powers to improve MDA capacities.

Cooperative AIS Transponder Programs

Automatic identification systems (AIS) transponders are capable of providing position, identification and other information about a ship to other ships and to authorities automatically. All ships of 300 gross tonnage and upwards conducting international voyages, cargo ships not on international voyages but of 500 gross tonnage and upwards, in addition to all passenger ships are required to be fitted with an AIS transponder. AIS transponders provide information – including the ship's identity, type, position, course, speed, navigational status and other safety-related information – automatically to appropriately equipped shore stations plus other ships and aircraft. Transponders also receive automatically such information from similarly fitted ships, monitor and track ships, and exchange data with shore-based facilities.²⁴ These transponders are critical to maritime safety and security, and should not be limited to larger vessels. Indeed, various countries in the IOR are insisting transponders be fitted to all fishing vessels. There exists potential for international collaboration in expanding transponder programs.

As part of Australia's cooperation with Sri Lanka, Australia has assisted the island nation to install 4,500 transponders on multi-day fishing vessels, as well as establishing the required land-based monitoring centre.²⁵ This monitoring system is an important step to combat IUU fishing, promote Sri Lanka's border security, prevent people and drug smuggling and expedite assistance to vessels in distress.²⁶ The transponders are monitored by Sri Lanka's Department of Fisheries and Aquatic Resources, and also bring Sri Lanka's fisheries export industry in line with international standards. This cooperation can be a model for further bilateral collaboration between Indian Ocean players. For instance, the benefits for regional MDA in working towards equipping Bangladesh's large fishing fleet with transponders would be considerable. According to the Bay of Bengal Programme, Bangladesh's fishing fleet comprises some 243 industrial trawlers and some 67,669 artisanal fishing vessels.²⁷

In 2009 India also attempted to fit all its fishing vessels (20 metres in length and longer) with AIS transponders in response to the 26/11 Mumbai terror attack.²⁸ The 26/11 attack was perpetrated by Pakistani terrorists who hijacked an Indian boat to enter India undetected. In 2015 India amended its requirements, expanding AIS transponder mandates to fishing vessels under 20 metres.²⁹ However, it was reported in 2020 that only around half of fishing vessels in Indian waters were fitted with AIS transponders. India's fishing fleet size and vast 7,516 kilometre coastline

²⁴ 'AIS Transponders', International Maritime Organization, 2019, <https://www.imo.org/en/OurWork/Safety/Pages/AIS.aspx>.

²⁵ 'Australia and Sri Lanka Partner to Boost Border Security', *Karen Andrews MP* (blog), 21 December 2021, <https://www.karenandrewsmp.com.au/portfolio/australia-and-sri-lanka-partner-to-boost-border-security/>.

²⁶ 'A Multi-Day Fishing Vessel Monitoring System from Australia to Sri Lanka – Presidential Secretariat of Sri Lanka', Sri Lanka Presidential Secretariat, 16 July 2021, <https://www.presidentsoffice.gov.lk/index.php/2021/07/16/a-multi-day-fishing-vessel-monitoring-system-from-australia-to-sri-lanka/>.

²⁷ 'Bangladesh', Bay of Bengal Programme, 2022, <https://www.bobpigo.org/bobpcms>.

²⁸ Vishwa Mohan, 'AIS Transponders Now Made Must for All Fishing Vessels', *The Times of India*, 12 July 2009, <https://timesofindia.indiatimes.com/india/ais-transponders-now-made-must-for-all-fishing-vessels/articleshow/4767112.cms>.

²⁹ '6 Years after Mumbai Attacks, Fishing Boats to Have Tracking Device', *The Economic Times*, 8 February 2015, <https://economictimes.indiatimes.com/news/politics-and-nation/6-years-after-mumbai-attacks-fishing-boats-to-have-tracking-device/articleshow/46161688.cms?from=mdr>.

means enforcing its AIS transponder mandate is difficult. There exists great potential for partnerships to extend India's AIS transponder coverage, which would greatly improve that nation's MDA abilities.

Expanding AIS transponder coverage of fishing vessels in Indian Ocean nations, particularly those in the Bay of Bengal region, is a potent method of improving regional MDA. Transponders are a relatively cost effective way to monitor the sea-scape, as costs per unit decrease and the transponders become more widely available. As the above outlined Sri Lanka/Australia cooperation demonstrates, Indian Ocean powers can work together bilaterally to install more transponders, for mutual security benefit.

Collaborative IOR P-8 Network

In the military domain, there exists great potential for a collaborative network of bases and facilities to support P-8 maritime patrol aircraft operations across the vastness of the IOR. Individually, Australia and partners such as the United States, India and France already have significant capabilities, including maritime patrol aircraft and uncrewed aerial vehicles, and facilities that, if combined in a collaborative network, would allow comprehensive maritime surveillance of much of the Indian Ocean.

Such a collaborative network would require information sharing, as well as collaborative use of facilities to support maritime air surveillance. Crucially, adequate surveillance coverage of the Indian Ocean by maritime patrol aircraft would depend on access to air staging points and facilities across the region. The US and its allies already have arrangements to provide access and logistical support in each other's facilities, including the US bases at Diego Garcia and in the Persian Gulf. But India, with its growing fleet of Boeing P-8I maritime patrol aircraft and staging points around the region, is an essential partner in building a comprehensive regional network.

Over the past several years, India has reached mutual logistics support agreements with the US and France. The signing of an Australia–India Mutual Logistics Support Arrangement³⁰ in 2020 represented a big step in building a web of agreements, opening the possibility of mutual use of facilities throughout the region. India undertakes surveillance of much of the northern Indian Ocean with P-8Is based at INS Rajali, near Chennai, and INS Hansa in Goa, as well as airfields in the Andaman and Nicobar Islands. Indian P-8s are increasingly also using facilities of regional partners such as Seychelles,³¹ Mauritius³² and French Reunion³³ in the western Indian Ocean. It is anticipated that Indian P-8s will soon also be able to operate from the new Indian-built airfield on Mauritius's Agalega island³⁴ near the northern end of the Mozambique Channel.

³⁰ Linda Reynolds, 'Australia and India Sign Defence Arrangement', Text, Australian Department of Defence (Department of Defence Ministers, 4 June 2020), <https://www.minister.defence.gov.au/minister/lreynolds/media-releases/australia-and-india-sign-defence-arrangement>.

³¹ 'Geo-Strategic Boost: Indian Navy Deploys P 8I Aircraft to Seychelles for Surveillance', *The Economic Times*, 12 July 2018, <https://economictimes.indiatimes.com/news/defence/geo-strategic-boost-indian-navy-deploys-p-8i-aircraft-to-seychelles-for-surveillance/articleshow/51495899.cms?from=mdr>.

³² Ajay Banerjee, 'Indian Navy Sailor Rescued 3 Days after His Boat Was Damaged in Storm', *Tribuneindia News Service*, 25 September 2018, <https://www.tribuneindia.com/news/archive/nation/australian-french-ships-close-to-indian-navy-commander-s-location-official-658099>.

³³ Xavier Vavasseur, 'Indian Navy P-8I MPA in Reunion Island for Combined Training with French Forces', *Naval News* (blog), 5 March 2020, <https://www.navalnews.com/naval-news/2020/03/indian-navy-p-8i-mpa-in-reunion-island-for-combined-training-with-french-forces/>.

³⁴ Samuel Bashfield, 'Why Is India Building a Military Base on Agaléga Island?', *Al Jazeera*, 5 August 2021, sec. Opinion, <https://www.aljazeera.com/opinions/2021/8/5/why-is-india-building-a-military-base-on-agalega-island>.

Australia has its own strengths in the eastern Indian Ocean. Since at least the 1980s, the Royal Australian Air Force (RAAF) has undertaken aerial surveillance of the country's northwest approaches and the Malacca Strait/Bay of Bengal as part of Operation Gateway.³⁵ The RAAF's use of P-8A maritime patrol aircraft now provides an opportunity for collaboration with India in sharing facilities and logistics across the region. Both countries are becoming more confident working together following Exercise AUSINDEX 2019,³⁶ which saw RAAF and Indian Navy P-8s cooperating in anti-submarine warfare exercises in the Bay of Bengal, as well as the Quad exercises off Guam³⁷ earlier in 2021.

Australia has several facilities in the eastern Indian Ocean that could substantially extend the range of India's operations. There is an existing offer by Australia for Indian P-8s to use Australian facilities at Darwin and potentially also the Learmonth and Curtin air bases in Western Australia. There has been discussion of the potential for India to use of the airfield on Australia's Cocos Islands, and an agreement was reached in February for India to place a temporary satellite tracking station there.³⁸ But until the runway on Cocos is strengthened and widened (currently scheduled to be completed by 2023), it won't be suitable for P-8 operations.³⁹

If Indian Navy operations from Australian facilities were normalised, there might also be opportunities for the RAAF to extend the area of cooperation throughout the Bay of Bengal and further afield into the western Indian Ocean. In particular, the ability for the RAAF to stage out of Indian bases in Tamil Nadu and/or Goa would help extend Australia's reach in the central and western Indian Ocean. US Navy P-8s have already conducted operations from these Indian bases, providing opportunities for combined cooperation among the three countries. Port Blair in India's Andaman Islands is another potential staging point. Foreign militaries in the past were rarely given approval to use those facilities, but in October 2020 a US Navy P-8 aircraft was permitted to refuel in Port Blair for the first time.⁴⁰ While the facility could deliver additional operational flexibility for Australian P-8s, given Australia's access to Butterworth in Malaysia, the use of facilities on the Indian mainland would be more advantageous. Sri Lanka's Mattala Rajapaksa International Airport in Hambantota could also be used for P-8 operations in exchange for relevant MDA intelligence. For example, by facilitating such operations at Sri Lankan airports, the nation could be briefed and provided sensitive information to improve its MDA picture. In 2016 a US Navy P-8 visited Mattala Rajapaksa International Airport in Hambantota.⁴¹

All these facilities could be considered as part of a new network of air staging points and facilities around the Indian Ocean potentially available to Australia, India, the US and other

³⁵ 'Operation Gateway', Government, Australian Department of Defence, accessed 20 December 2021, <https://www.defence.gov.au/operations/gateway-south-china-sea-and-indian-ocean>.

³⁶ Amruta Karambelkar, 'Exercise AUSINDEX-2019: A New High in India Australia Defence Cooperation', Academic, 2 May 2019, <https://www.vifindia.org/article/2019/may/02/exercise-ausindex-2019-a-new-high-in-india-australia-defence-cooperation>.

³⁷ Amrita Nayak Dutta, 'With P8I Aircraft, Navy Takes Part in Quad Anti-Submarine Warfare Exercise in Guam', *The Print*, 22 January 2021, sec. Defence, <https://theprint.in/defence/navy-takes-part-in-quad-anti-submarine-warfare-exercise-with-p8i-aircraft/590430/>.

³⁸ Sidhant Sibal, 'India's Gaganyaan Mission Gets Support of Australia, Tracking Facility in Cocos Island', Zee News, 20 February 2021, <https://zeenews.india.com/india/india-s-gaganyaan-mission-gets-support-of-australia-tracking-facility-in-cocos-island-2343255.html>.

³⁹ Ewen Levick, 'Cocos Runway to Be Widened as Defence Looks North', *Australian Defence Magazine* (blog), 18 April 2019, <https://www.australiandefence.com.au/defence/air/cocos-runway-to-be-widened-as-defence-looks-north>.

⁴⁰ Dinakar Peri, 'U.S. Navy Aircraft Refuels at Port Blair', *The Hindu*, 3 October 2020, sec. National, <https://www.thehindu.com/news/national/us-navy-aircraft-refuels-at-port-blair/article32760946.ece>.

⁴¹ 'Advanced U.S. Maritime Patrol Aircraft Visits Sri Lanka', U.S. Embassy in Sri Lanka, 13 December 2016, <https://lk.usembassy.gov/advanced-u-s-maritime-patrol-aircraft-visits-sri-lanka/>.

partners. Other nations providing facilities (e.g. Sri Lanka and Malaysia) could be provided intelligence in exchange for use of facilities. This would support a collaborative maritime surveillance system that, potentially, could produce useful intelligence for not only P-8 operators, but intelligence that could be shared with other like-minded regional nations without such sophisticated capabilities.

Coda: Promoting a Free and Open Indo-Pacific via MDA

Achieving absolute MDA is an elusive aim for even sophisticated and advanced militaries. However, as I have argued in this paper, various practical collaborative steps can be taken in the IOR to enhance MDA, to benefit both powerful players and smaller island nations. From hunting nuclear ballistic missile submarines to halting IUU fishing, MDA is an effective tool to combat a myriad of traditional and non-traditional threats. I anticipate that adopting the targeted and concrete recommendations made in this position paper will enhance the MDA abilities of all Indian Ocean nations, thereby furthering national security and the Free and Open Indo-Pacific concept.