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The Information Fusion Centre: Challenges and Perspectives

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FOREWORD

The inter-connected world today presents both opportunities and challenges. Consequently, the maritime security challenges faced by our countries are more complex and trans-boundary in nature. The threat is real, and it is no longer an issue of “if” but “when”. There is a need for various stakeholders to come together and collaborate. Maritime agencies are uniquely poised to spearhead national and international maritime security and safety efforts. Cooperation between navies, coast guards, other maritime agencies and the shipping community will be the key to offering a more effective operational response to the challenges we face.

The growing realisation is that collaborative information sharing at the national and international levels provide compelling value propositions for all. However, there are challenges to overcome. One way to forge closer information sharing collaboration is to adopt a willing-partner “building block” approach, with interested stakeholders coming together to forge bilateral and multilateral intra-regional information sharing networks.

In the Asia-Pacific, the Information Fusion Centre (IFC) was established to be the regional maritime information hub, to enhance maritime situation awareness and provide early warning triggers and actionable information to cue timely regional responses. Established in April 2009, the IFC has demonstrated the high utility of information sharing cooperation. The integrated team comprising both International Liaison Officers (ILOs) and RSN personnel has together worked well to facilitate and catalyse maritime information sharing and collective sense-making.

The various articles contributed in this supplement provide valuable perspectives of the individual ILO countries, allowing us to see the commonalities in enforcing maritime security. It also reinforces the fact that all stakeholders have a role to play. Through this edition of the SAF *POINTER* Supplement, I hope that readers will benefit and better understand the nature of maritime security, and the critical and enabling role of information sharing cooperation today.

RADM Chew Men Leong,
Chief of Navy

THE INFORMATION FUSION CENTRE (IFC) - A CASE FOR INFORMATION SHARING TO ENFORCE SECURITY IN THE MARITIME DOMAIN

LTC Nicholas Lim
Head Information Fusion Centre

ABSTRACT: In today's interconnected world, the security issues in one country can potentially affect not only its neighbours but the wider region. No single country or agency alone is able to tackle the full range of maritime security issues. The need for information-sharing is clear. This essay serves to highlight one such modality in the Asia-Pacific: the Information Fusion Centre. The author explores the operations of the IFC and proposes that it can be a viable model to link up regional partners, with a vision to forming a global information sharing grid to ensure safe and secure seas for all.

KEY WORDS: Information Sharing, Maritime Security

The Maritime Environment Today

In today's interconnected world, security issues in one country have the potential to affect not only its neighbours but the wider region. This is especially true in the maritime arena where the porosity and expanse of maritime borders mean that illegal activities can sometimes go undetected, despite the best efforts of national maritime enforcement agencies.¹ A disturbing trend is the increased complexity and trans-border nature of such activities, made evident by incidents such as the Mumbai attacks in November 2008 and the spate of piracy and hijackings in the Gulf of Aden and the Somali Basin in recent years.

¹ In most countries, the number of assets (surveillance equipment, ships and aircraft) of the enforcement agencies is insufficient to cover their waters. In Europe, a common border surveillance system is being evaluated. In Asia, many countries have multiple maritime enforcement agencies looking at various aspects of security. However, Asia continues to have many known 'hotspots' for various illicit activities. See Commission of the European Communities, "Examining the Creation of a European Border Surveillance System", 13 February 2008, <http://www.statewatch.org/news/2008/feb/eu-com-68-08-eurosur.pdf>, accessed 24 November 2010

The key maritime concerns in the Southeast Asia Region are unsurprisingly similar and reflective of global maritime concerns.²

Countries	Key Concerns			
Brunei ³	Maritime Terrorism	Piracy	Maritime Boundaries	Protection of Offshore Industry
Cambodia	Maritime Terrorism	Piracy	Maritime Boundaries	Drug and Human Smuggling
Indonesia	Maritime Boundaries	Illegal Fishing	Smuggling	Marine Pollution
Malaysia	Drug, Human and Cigarette Smuggling	Illegal Fishing		
Myanmar	Maritime Boundaries	Drug and Arms Trafficking	Human Smuggling	Illegal Fishing
Philippines	Oil Smuggling	Human Trafficking	Piracy and Sea Robbery	Marine Pollution
Singapore	Maritime Terrorism	Sea Lanes Security	Piracy and Sea Robbery	Human Smuggling
Thailand ⁴	Human Smuggling	Illegal Fishing	Piracy and Sea Robbery	Maritime Terrorism

Figure 1: Key Maritime Concerns in Southeast Asia

² Much of the information collated was derived from presentations at the RSIS “Maritime Risk Conference” held at the Marina Mandarin Hotel from 20-21 January 2010. This was supplemented by research done by the ILOs and the RSN officers of the IFC. While due diligence has been accorded in summing the threat concerns, these may not necessarily be exactly aligned with promulgated or perceived national positions.

³ “Defending the Nation’s Sovereignty”, *Brunei Darussalam Defence White Paper 2004*, Ministry of Defence, Brunei Darussalam, www.mindef.gov.bn/whitepaper/whitepaper2004.pdf, accessed 14 November 2010

⁴ Based on information provided by the Royal Thai Navy ILO based at IFC.

While not always apparent, all the above concerns do have the potential to morph into transnational security issues. For example, a seemingly innocuous vessel involved in illegal fishing can potentially also be involved in the conduct of other illicit activities such as drug and human smuggling. In the area of piracy, the major security fear has always been a nexus between piracy and maritime terrorism, although this has not been proven.⁵ Even in Somalia, where the risk is possibly highest due to the unstable political situation coupled with the growth of piracy, there has been no concrete evidence to suggest that this has happened.⁶ However, that is not to say that such an alliance will never occur. An emerging issue of concern, for example, is the rising number of attacks in the South China Sea.⁷ The most critical of all threats however, would be maritime terrorism. Truly transnational in nature, such acts of maritime terrorism would pose significant challenges, especially with their potential for causing catastrophic damage.⁸

Towards Information Sharing Collaboration

The recognition that no one country or agency is able to tackle the full range of maritime security issues has compelled various countries to work together, despite differences in political outlook and national interests. By and large, all countries acknowledge the need for collaboration in one way or another. However, the momentum towards information sharing cooperation only gained traction in the last few years. In October 2007, during the eighteenth International Seapower Symposium at Rhodes Island, the issue of collaboration through information sharing was actively discussed by the Chiefs of Navy of the various countries present. It was at this forum that a body of consensus was achieved. Since then, information sharing has become a common thread championed at various security dialogues and forums. Despite this, the reality is that truly multinational and inclusive collaborations are few and far between.

⁵ Adam Young and Mark J. Valencia, "Piracy and terrorism threats overlap", *The Washington Times*, 7 July 2003, quoted in GG Ong, "Ships Can Be Dangerous Too -- Coupling Piracy and Maritime Terrorism in Southeast Asia's Maritime Security Framework", *ISEAS Working Paper 1/2004*

⁶ Eben Kaplan, "Somalia's Terrorist Infestation", 6 June 2006, *Council on Foreign Relations*, http://webcache.googleusercontent.com/search?q=cache:V31vRwsHXGwJ:www.cfr.org/publication/10781/somalias_terrorist_infestation.html+Terror+group+in+Somali&cd=2&hl=en&ct=clnk&gl=sg, 14 November 2010

⁷ "South China Sea Piracy on the Rise – Watchdog", *AFP*, 15 June 2010

⁸ Roger Tombelin, "Terrorism's Effect on Maritime Shipping", 20 May 2008, <http://www.maritimeterrorism.com/wp-content/uploads/2008/07/terrorism-effect-on-maritime-shipping1.pdf>, 14 November 2010

Information Fusion Centre

One such model which has developed in the Asia-Pacific region is the Information Fusion Centre (IFC), an initiative started by the Republic of Singapore Navy (RSN).⁹ Formally launched on 27 April 2009, the IFC was established at Singapore's Changi Command & Control Centre (CC2C) with the vision of strengthening maritime security in the region and beyond, by building a common coherent maritime situation picture and acting as a maritime information hub for the region.¹⁰ The IFC's aim is to ensure that actionable information can be delivered to regional partners for further collaboration or to cue timely operational responses. The unique initiative at IFC is the presence of International Liaison Officers (ILOs), working as an integrated team with the RSN personnel on a daily basis. The ILOs serve as the conduit to their respective countries' various agencies operation centres, facilitating the seamless sharing of information between their parent agencies (customs, defence, immigration, etc.) and the IFC. Collectively, this enables the pooling of resources and expertise, allowing for better shared awareness. Nascent indications of security trends are identified and quickly disseminated to other partners, including the international shipping community.¹¹



Figure 2: One of the regular collaborative discussions.

⁹ The IFC has a public website, www.infofusioncentre.gov.sg.

¹⁰ There is currently no centre of this nature in Asia. Even in North America and Europe, similar centres are focused narrowly on specific threat areas such as curbing narcotic smuggling.

¹¹ For example, the IFC has shared its analyst journals on the situation in the Indian Ocean with the various multinational task forces conducting counter piracy operations. It has also disseminated spot commentaries with the shipping community.

As of April 2011, ten countries (Australia, France, India, Malaysia, Philippines, Thailand, New Zealand, the United Kingdom, the United States and Vietnam) have deployed ILOs to the IFC. Several more countries are expected to deploy ILOs later in 2011.



Figure 3: Some members of the integrated RSN-ILO team.

The other unique feature of the IFC is the extensive links that have been established both nationally and internationally. This is important as a cooperative security approach entails whole-of-government commitment, regional collaboration as well as close links with the global maritime community. For example, the Maritime Security Task Force from the RSN is the link agency to the various other national enforcement agencies under the Singapore Maritime Security Centre.¹² With Singapore's position as a transportation hub straddling the major waterways, the IFC has also taken the opportunity to engage the many shipping companies and associations with a presence in Singapore. For example, the IFC has worked with the Singapore Shipping Association and many shipping companies through a two-monthly Shipping Shared Awareness Meeting (SAM). This platform enables IFC to reach out, explain and gather feedback on key security issues and trends facing the shipping community.

IFC Work Process

As a 24/7 centre, the IFC is well-poised as a maritime information hub to its various regional partners. It has a common maritime situation picture collated from various information sources, both through its partners as well as through new technologies such as the satellite Automatic Identification System (AIS) and Long Range Identification Tracking System (LRIT). This provides early warning to prevent maritime

¹² Namely the Maritime & Port Authority of Singapore, Police Coast Guard, Immigration & Checkpoints Authority and Singapore Customs.

incidents or maritime crime. When the IFC is first alerted to an incident, the Duty Officer follows a dedicated check list and informs key stakeholders of the incident, while simultaneously forwarding the details to one of its information sharing portals such as the Regional Maritime Information Exchange (ReMIX) or the Malacca Straits Patrol Information System (MSP IS).¹³ The integrated RSN-ILO team would then examine the collected data and analyse the incident. This includes both qualitative and quantitative assessments of the information, including the identification of any associated trends and other important enablers to the incident. Derived outcomes would then be transmitted to the relevant information sharing partners to trigger operational responses where applicable.

Utility of Information Sharing

The collaborative approach towards increasing better maritime situational awareness has already brought tangible benefits. In October 2009, a Thailand-flagged fishing vessel, the *Thai Union 3*, was attacked in the Gulf of Aden. The IFC was able to source positional information from international partners in an expeditious manner, providing Thai authorities with the most up-to-date information to deal with the incident. Similarly, there were two Singapore-flagged vessels (the *Kota Wajar* and the *MV Pramoni*) hijacked in October and December 2009 respectively. Again, information was speedily obtained from international information sharing partners, resulting in timely situational updates to facilitate better operational decisions. In March 2010, based on analysis of current trends, IFC promulgated a shipping advisory to increase the situation awareness of commercial ships transiting the Straits of Malacca. Similarly, the IFC also promulgated regular research analysis during the recent spate of piracy in the SCS from June to September 2010.¹⁴ From May to August 2010, the IFC was involved in information sharing regarding the *MV Sun Sea*, which was carrying illegal immigrants associated with a terrorist group. Through its active sharing, regional countries were appraised and ready to conduct the necessary operational responses. The ship eventually left the region and headed towards Canada, where it was stopped by the authorities. The IFC continues to track a spate of human smuggling incidents. Such benefits continue to reinforce the utility and importance of information sharing.

¹³ These include the 37 international operations centres operating in 25 different countries as well as national enforcement agencies and the Maritime Security Task Force.

¹⁴ Following the iterative collaboration, there have been no incidents reported in 'hotspot' areas in the SCS since 3 September 10.



Figure 4: MV Sun Sea carrying illegal immigrants (Photograph courtesy of Thai ILO).

Challenges to Information Sharing

Despite the obvious utility of information sharing, challenges remain. Firstly, a certain level of trust needs to be developed between the various information sharing partners. This willingness to share does not come easy, as most continue to operate on a 'need to share' basis. However, through the various confidence-building activities the IFC has conducted such as visits, information sharing exercises and maritime security workshops, there has been a change towards greater information sharing in the region. For example, the Maritime Information Sharing Exercise (MARISX) in May 2009 involved 44 participants from 18 countries, while the exercise in August the following year involved 69 participants from 19 countries.¹⁵ MARISX 2011 is expected to involve more than 100 participants from up to 24 countries, together with the participation of the shipping community. The exercise provides participants with an understanding of the information sharing processes through a common information portal. In addition, it reinforces collaboration through 'breakout' sessions where participants can share on a variety of information sharing issues. The IFC aims for the region to shift from a 'need to share' to a 'responsibility to share'.

Another issue relates to maintaining a baseline capability. Interoperability between countries can be impeded due to equipment limitations. In such cases, capacity building is key to enable all partners to be able to share on an equal footing. The IFC has been sharing information with the 24 countries in the Western Pacific Naval

¹⁵ "Heightening Our Information Sharing Capability at MARISX II", Ministry of Defence, Singapore, http://www.mindef.gov.sg/imindef/mindef_websites/atozlistings/navy/newsevents/10.html, accessed 14 November 10

Symposium (WPNS) through the ReMIX system, providing an internet-based platform from which members can access maritime information from their home countries easily. Another platform used is the ACCESS 2 system, a commercial-off-the-shelf (COTS) application that operates through a satellite or internet broadband network and is able to provide a common situation picture as well as a real-time secured communications linkage for collaboration. The system has been deployed regionally to help some partner countries build up their maritime domain database, as well as used in the Gulf of Aden during counter-piracy operations conducted by the RSN.

Conclusion

Maritime threats do not respect borders and can only be effectively curtailed through strong partnerships. Thus, international collaboration remains the key to any working solution. A viable model for such collaboration could be the IFC, where cooperation starts from a regional level, with a final goal of linking up to form a global information sharing grid. This will not only enhance all partners with common situational awareness, but promote the recognition that maritime stakeholders have a shared responsibility to ensure safe and secure seas for all.

INFORMATION SHARING: A SINGAPORE PERSPECTIVE

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ABSTRACT: This essay explores the maritime security challenges faced by Singapore, the whole-of-government approach to maritime security adopted by the RSN at the national level, and efforts taken by the RSN to engage like-minded partners at the international level to cooperate in the maritime security domain. The establishment of the Changi Command and Control Centre (CC2C) that houses the Singapore Maritime Security Centre (SMSC), Information Fusion Centre (IFC) and Multinational Operations and Exercises Centre (MOEC) will serve as the platform to foster inter-operability and information sharing between like-minded maritime partners and agencies of user-countries with the vision of strengthening the maritime security in the region and beyond.

KEY WORDS: Maritime Security, Whole-Of-Government, Changi Command And Control Centre, Singapore Maritime Security Centre, Information Fusion Centre.

“As the challenges of maritime security evolve, security practitioners are prompted to examine more closely prevailing operating paradigms within our respective security architectures. To stay ahead of threats that are essentially transnational in nature, collaboration and cooperative action across borders must remain the focus of any maritime security strategy.”¹

Introduction

The produce of world trade is largely transported by sea, with up to 90% of the approximately 6 billion metric tons of cargo traded each year moved by ship.² Any disruption of the sea lanes of communications, and of seaborne commerce in general, would therefore have a serious impact on the international economy.³ Singapore’s economic development is highly dependent on maritime trade, transportation and oil refining. With more than 1,000 vessels transiting daily, the Malacca and Singapore

¹ RADM Chew Men Leong, Chief of RSN, “Realising Safe and Secure Seas for All”, *Pointer: Journal of the Armed Forces of Singapore*, Vol. 35, No. 3 (2009), p. 5.

² *International Maritime Organization (IMO)*, <http://www.imo.org/>

³ Teo Chee Hean, Singapore Minister for Defense, Speech at the opening ceremony of IMDEX Asia 2003.

Straits which link the Indian and Pacific Oceans are communication and shipping lanes of vital importance to the Singapore economy. Maritime security is thus a key national security concern of Singapore. The trans-boundary nature of maritime crime and terrorism, coupled with the limited resources of governments, demands that security and enforcement agencies, port authorities and shipping associations come together to cooperate on maritime security.⁴ No country has the resources to deal unilaterally with all security issues and the full range of maritime threats. Navies, law enforcement agencies and shipping associations must adopt a paradigm shift in their mindset and foster both stronger inter-agency cooperation and international collaboration. Understanding the impetus for greater information sharing among security practitioners, the Republic of Singapore Navy (RSN) has actively engaged like-minded partners globally to share real-time maritime information, with the vision of strengthening the maritime security in the region and beyond.

This paper explores the maritime security challenges faced by Singapore and the maritime information sharing collaboration taken by the RSN globally, highlighting key achievements and milestones to date. This paper is divided into four sections. The first section provides an appreciation of the maritime security challenges and threats. The second section details Singapore's whole-of-government approach at the national level to combat maritime threats. The third section covers the international collaboration taken by the RSN both bilaterally and multilaterally. The last section presents some of the challenges that need to be contended with in order to forge continuous information sharing efforts among like-minded partners in the maritime arena.

Maritime Security Challenges and Threats

The 11 September 2001 attacks on the World Trade Centre and the Pentagon demonstrated the ability of terrorists to exploit security gaps in commercial entities. In today's shipping environment, maritime terrorism and the vulnerability of merchant ships operating around the world remains a real security concern. Examining maritime-related terrorism over the last decade, it can be concluded that terrorists see the potential of using the maritime trading system, and its land link through the cargo container supply chain, to conceal weapons or agents for attacks or to provide funding and support for their operations.⁵ Terrorists understand the vital role of sea transportation and continue to exploit the fundamental weaknesses of the maritime industry. As seaborne commerce is the lifeline of the international economy, terrorist groups can disrupt and affect the entire world by targeting the maritime sector.⁶

⁴ Teo Chee Hean, Singapore Minister for Defence, Speech at the ground breaking ceremony of CC2C, 27 Mar, 2007, http://www.mindef.gov.sg/imindef/resources/speeches/2007/27mar07_speech.html

⁵ Micheal Richardson, "Maritime-related Terrorism: Al-Qaeda, Hezollah, What Next from the International Jihadist Network?", *S. Rajaratnam School of International Studies (RSIS)*, pp. 2-6.

⁶ "Policing The Sea Is A Job For Everyone", *The Straits Times*, 3 June 2003.

Merchant ships that transit through strategic and narrow stretches of water, such as the Malacca and Singapore Straits, are particularly easy targets for terrorists and other maritime threats.⁷

Singapore will also suffer serious economic loss in the event of a terrorist attack on vital infrastructure such as Jurong Island, where the majority of the country's oil and petrochemical refineries are located. Other important industries, such as the container ports located along the southern coast of Singapore, are situated very close to the busy Singapore Straits. Given the close proximity to maritime traffic and lack of strategic depth, these industries are vulnerable to sudden maritime attack. Singapore believes that terrorist groups such as Al Qaeda and Jemaah Islamiyah have targeted the country due to the presence of major Western interests, the country's close defence ties with the United States and her continued support for Washington's war against terrorism.⁸

Type of Ships	Jan-Sep 06	Jan-Sep 07	Jan-Sep 08	Jan-Sep 09	Jan-Sep 10
Bulk Carrier	30	12	10	18	25
Chemical Tanker	8	11	12	11	16
Container Ship	22	13	14	16	19
Fishing Boat/Trawler	12	2	1	1	1
General Cargo Ship	9	9	9	6	18
LNG Tanker		1			1
LPG Tanker		1	4	2	3
Oil Tanker (including VLCC)		4	4	2	9
Passenger Ship			2		
Pipe Carrier					1
Product Tanker	3	7	2	2	8
Research Support Vessel			1		
Ro-Ro Cargo Ship	1				2
Special Purpose Ship	2				
Supply Vessel			1	1	2
Tanker	5	12	3	3	3
Tug Boat	6	5	7	11	10
Vehicle Carrier	1	1	1		
Yacht	6	2		1	
Total	105	80	71	74	118

Figure 1: Types of ships involved in incidents from January 2006 to September 2010.⁹

⁷ Ian Storey, "Securing Southeast Asia's Sea Lanes: A Work in Progress", *Institute of Southeast Asian Studies (ISEAS)*, July 2008, p. 102.

⁸ "Osama Bin Laden Footprints Surround 'Vulnerable' Singapore," *Agence France Presse*, 1 October 2001; "Singapore Says Support for U.S. Makes It Top Terror Target," *Agence France Presse*, 24 May 2003.

⁹ "Report for January to September 2010", *ReCAAP Quarterly Report*, <http://www.recaap.org/incident/pdf/reports/2010/3Q%202010%20Report.pdf>

Although the shipping industry is now better protected by a range of security measures, such as the International Ship and Port Facility Security (ISPS) Code, designation of Company's Security Officers (CSO), the Port Facility Security Assessment and the Automatic Information System (AIS), the maritime industry remains vulnerable to terrorist groups given the lack of proper vetting of crew, inability to track ships in real time, vulnerability of ships on the high seas to piracy and terrorism, and the presence of high value targets such as cruise ships and chemical tankers. Ships, particularly container vessels, could also be used to smuggle terrorists as well as Weapons of Mass Destruction (WMD).

The tragic events of 11 September 2001 demonstrated the need for greater inter-agency cooperation, international collaboration and improved information sharing to better respond to evolving terrorist threats. Improving information sharing will facilitate better analysis and deliver timely, objective and actionable warning to decision makers and law enforcers. Dealing with the evolving threat environment requires synthesising information from an increasing variety of sources and requires a paradigm shift in the intelligence community from a 'need to know' culture to a 'responsibility to provide' mindset.¹⁰ The capability to 'see and sense' the maritime environment, or Comprehensive Maritime Awareness (CMA), is something that requires regional and global cooperation across a maritime security information sharing network that includes vessel movement tracking and vessel-centric risk profiling.

CMA uses information sharing, information fusion and effective information analysis to identify anything within the maritime domain that can potentially affect the safety, security and economy of Singapore.¹¹ In addition, the analysed information is shared with the RSN's maritime security partners so that necessary preventive measures can be taken and freedom of navigation on the high seas preserved. Three broad principles should be adopted to guide information sharing among the RSN and its partners. Firstly, maritime security must be a collective responsibility where no country can afford to stand by and ignore regional and international security issues. Secondly, the security architecture must be inclusive, where all countries involved have a significant role to play. Lastly, inter-agency and international cooperation should be based on mutual respect and be in accordance with international law.¹²

National Level Cooperation

With the maritime security environment changed since 9/11, the spectrum of maritime threats has grown exponentially. To combat maritime threats, Singapore has in place a maritime security framework with a cross-ministry policy-level meeting called the Maritime Security Committee. Operationally, there is also the Maritime and Port

¹⁰ J. M. McConnell, US Director of National Intelligence, "Information Sharing Strategy", *Office of the Director of National Intelligence*, 22 February 2008, pp. 2-5.

¹¹ LTC Irvin Lim, RSN, "Comprehensive Maritime Domain Awareness – An Idea Whose Time Has Come?", *POINTER*, Vol. 33, No. 3 (2007), p. 14.

¹² Teo Chee Hean, Singapore Minister for Defense, "Security Cooperation in Asia: Managing Alliances and Partnerships", *POINTER*, Vol. 33, No. 2 (2007), pp. 10-11.

Security Working Group (MPSWG), established in 2003, that includes representatives from the various government ministries such as Defence, Foreign Affairs, Home Affairs and Transport. This working group is charged with the responsibility to cooperate on increasing port security, routing vessels within Singapore territorial waters, safeguarding key offshore installations and ensuring overall maritime security.¹³ Pooling various domains of expertise, experience and ideas can cover blind spots and help lead to a systematic adoption of risk-reduction strategies. Outcomes of this national level cooperation include the Harbour Craft Transponder System (HARTS), the satellite Automated Identification System (AIS), Class B units to better track small boats below 300 tonnes that are not covered by the AIS, traffic control schemes prescribed by the Maritime Port Authority (MPA) to channel the movement of vessels of concern to prescribed routes and anchorages, and the deployment of gamma-ray scanners at ports to detect hidden compartments and other anomalies within selected shipping containers.

In January 2009, the RSN's Coastal Command (COSCOM) became the Maritime Security Task Force (MSTF). The MSTF fosters a whole-of-government approach by harnessing the best capabilities from all national maritime security agencies in the conduct of maritime security operations. The MSTF is located in the Changi Command and Control Centre (CC2C), which also houses the Singapore Maritime Security Centre (SMSC). The SMSC is a composite platform which allows national enforcement agencies such as the RSN, PCG, ICA, SC and MPA to occupy a central location, share a common situation picture and thus deal with any maritime contingencies quickly. Leveraging on the expertise and capabilities offered by these agencies, the SMSC will be able to maintain a round-the-clock, comprehensive, real-time surveillance of the maritime situation as well as coordinate and direct relevant operational responses to maritime security contingencies.

To promote effective information sharing and dissemination, as well as to exercise ground coordination and responses, a regular multi-agency maritime security exercise, codenamed Exercise APEX, is conducted. The multifaceted nature of ensuring security in the maritime domain necessitates strong inter-agency cooperation among all maritime agencies in Singapore, and thus the exercise contributes to the safety and security of ships, key maritime infrastructure and vital installations in Singapore waters.

Regional and and International Collaboration

Maritime security has to be a transnational and collaborative effort, involving all regional and international resources in the fight against transnational crime and maritime terrorism. Maritime information sharing is a useful means for governments, navies and maritime agencies to collaborate closely since many countries are dependent on maritime trade for their national survival. Countries play an important role in maritime security through the voluntary sharing of information. Initiatives

¹³ Felix Siew, "Task force to strengthen maritime security", *Cyberpioneer*, March 2004, http://www.mindef.gov.sg/imindef/publications/cyberpioneer/news/2004/March/02mar04_news2.html

spearheaded by the RSN in the Asia-Pacific region include the Information Fusion Centre (IFC) and the Multinational Operations and Exercises Centre (MOEC), both located at Singapore's CC2C.

The Information Fusion Centre (IFC) was launched on 27 April 2009 and is envisioned to be an information node to enhance the collective understanding of the maritime domain, facilitating collaboration towards strengthening maritime security in the region and beyond.¹⁴ The IFC houses various information-sharing systems, such as the Western Pacific Naval Symposium's (WPNS) Regional Maritime Information Exchange (ReMIX), the Malacca Straits Patrol's Information System (MSPIS), the satellite Automatic Identification System (AIS) and Long Range Identification Tracking System (LRIT), and systems to combine and analyze maritime information. Apart from bringing these different systems together under the same roof, the IFC works closely with other established information sharing centres for a more comprehensive coverage of the maritime domain. To date, the IFC has established links with 25 countries and the shipping database has grown from an initial 100,000 ships to more than 200,000. By tapping into this wide variety of sources, the IFC combines the information gathered to produce and disseminate a synthesized overview of the maritime situation in the region. This in turn translates into a clearer maritime picture for participating navies and agencies, enabling early detection and identification of potential threats. Another key feature of the IFC is the presence of International Liaison Officers (ILO) from several countries.

Besides advancing inter-agency cooperation with the SMSC and information fusion and sharing with the IFC, the CC2C also serves as a platform to foster inter-operability between various armed forces and agencies of participating countries. The MOEC is designed to support the planning and conduct of bilateral and multilateral operations. It will enhance the conduct of multilateral exercises, such as Five Power Defence Arrangements (FPDA) exercises, function as a Maritime Security Centre for the conduct of regional maritime security operations, and serve as a regional Humanitarian Assistance and Disaster Relief Centre in times of need.

Through the SMSC, IFC and MOEC, the RSN envisaged CC2C becoming an important hub which will help enhance overall maritime domain awareness in the region and contribute to an inclusive security structure that enables practical cooperation.¹⁵ Notwithstanding the efforts mentioned at the regional and international theatre, Singapore and the RSN have also actively participated in several other information sharing initiatives as follows:

1. **MSP.** Initiatives such as Malacca Straits Coordinated Patrol (MSP) and Eyes-in-the-Sky (EiS), involving Indonesia, Malaysia, Singapore and Thailand, have shown that building a culture of maritime security cooperation between states can provide concrete operational results and yield political dividends in enhancing maritime security along the Malacca and Singapore Straits.

¹⁴ RADM Chew Men Leong, Speech during Inauguration of the Information Fusion Centre, 27 Apr 2009.

¹⁵ RADM Chew Men Leong, Chief of Navy RSN, "Building the Third-Generation Navy", *Cyberpioneer*, February 2008, http://www.mindef.gov.sg/imindef/publications/cyberpioneer/people/2008/feb08_people.html blications/cyberpioneer/news/2004/March/02mar04_news2.html

2. **Project SURPIC.** Separately, Singapore and Indonesia have been successfully collaborating on Project SURPIC, a sea surveillance system which allows both navies to share maritime information on the Singapore Straits, since 2005. With the initial launch of Project SURPIC II on 10 August 2010 at Jakarta, this secure, internet-based, enhanced, real-time maritime information sharing system enables both countries to share a common maritime situation picture to enhance surveillance and security of their mutual maritime borders along the Singapore Strait.¹⁶
3. **FPDA Exercise.** Beyond the littoral states, information sharing was demonstrated at Exercise Bersama Lima 2009, a major Five Power Defence Arrangements (FPDA) joint exercise, which was directed from the MOEC in the CC2C.
4. **CTF 151 in the Gulf of Aden.** Similarly, the benefits of information sharing were also apparent when information was shared timely to create awareness among forces at sea, assets in the air, the merchant shipping community and other navies operating in the region when RSN commanded CTF 151 in the Gulf of Aden.¹⁷ Besides CENTRIXS and MERCURY, the RSN also introduced the use of the portable ACCESS 2 system to various navies without CENTRIXS to facilitate greater information sharing and to enhance their situational awareness.
5. **Maritime Information-Sharing Exercise (MARISX).** The inaugural MARISX held from 11 to 15 May 2009 at the IFC also demonstrated the importance of bringing like-minded maritime partners together to practise the information sharing process and to validate the links between the various operation centres. A total of 39 International Liaison Officers from 16 countries and maritime security agencies participated in the exercise.



Figure 2: Inaugural MARISX hosted by the RSN on May 2009.¹⁸

¹⁶ LTC Nicholas Lim, Head IFC, Speech during the initial launch of Project SURPIC II at TNI AL's headquarters in Jakarta, 10 August 2010.

¹⁷ RADM Bernard Miranda, Speech on his experiences in CTF 151 in the Gulf of Aden.

Forging Information Sharing – The Way Ahead

In forging ahead with information sharing among like-minded maritime security partners, there are clearly challenges to be overcome at the strategic, operational and tactical levels. There is need to address the concern that information sharing may reveal sensitive sources and thus compromise individual surveillance capabilities. In addition to this 'dynamic tension' in information sharing, realities faced at both operational and tactical levels, such as connectivity issues between information sharing partners, language barriers, analysis algorithms, differing Standard Operating Procedures, data integrity and data exchange policy need to be resolved as well.

In devising solutions to these challenges, the first step is to address the issue of governance, where the 'environment' must facilitate and encourage sharing by partners. Information sharing can only take place if there are established agreements, standards and guidelines, bilaterally and multilaterally, to ensure a consistent approach in information sharing. One of the key challenges in moving forward with information sharing is managing risks, such as creating a common information classification and information management that does not endanger privacy and jeopardize sources of information. Next is creating information sharing systems and protocols that provide the necessary platform for facilitating interoperability among information-sharing partners while also addressing security and privacy issues. Information sharing systems must also be designed to meet each end user's requirements by addressing potential technical difficulties such as connectivity issues and differences in language and terminology.

There is a need to establish an environment of mutual trust to promote the voluntary sharing of information by willing partners. This can be achieved by conducting confidence building activities and information sharing programs such as visits, information sharing exercises and maritime security workshops to create awareness of a 'responsibility to provide' culture and to promote closer integration among information sharing partners. The fostering of a Community of Practice (CoP) should also include the establishment of an organizational philosophy built around sharing information, with the flexibility to realign and adapt as the maritime environment changes. The presence of ILOs at the IFC, for example, provides avenues for information sharing partners to establish common understanding, engender trust and collectively work toward international collaboration in the maritime arena.

¹⁸ MINDEF, http://www.news.gov.sg/public/sgpc/en/media_releases/agencies/mindef/press_release/P-20090512-2.html

Conclusion

To conclude, the emergence of maritime terrorist threats that are trans-boundary in nature poses a new challenge to navies and maritime security agencies, where no single entity has the necessary resources to deal unilaterally with all maritime threats by itself. The key to dealing with the full range of security challenges in the maritime domain lies in strong inter-agency cooperation and greater international collaboration. Such collaboration includes accurate and timely information sharing among like-minded partners on a multilateral basis for implementing preventive measures or to cue necessary operational responses when required. Singapore and the RSN will continue to play a key role in fostering international collaboration to overcome the full spectrum of maritime threats.

Glossary

AIS	Automatic Information System
CC2C	Changi Command and Control Centre
CMA	Comprehensive Maritime Awareness
CSO	Company's Security Officer
EiS	Eyes-in-the-Sky
FPDA	Five Power Defence Arrangements
HARTS	Harbour Craft Transponder System
IFC	Information Fusion Centre
ILO	International Liaison Officers
ISPS	International Ship and Port Facility Security
LRIT	Long Range Identification Tracking System
MARISX	Maritime Information-Sharing Exercise
MPA	Maritime and Port Authority
MPSWG	Maritime and Port Security Working Group
MOEC	Multinational Operations and Exercises Centre
MSC	Maritime Security Committee
MSPIS	Malacca Straits Patrols' Information System
PCG	Police Coast Guard
ReMIX	Regional Maritime Information Exchange
RSN	Republic of Singapore Navy
SC	Singapore Customs
SMSC	Singapore Maritime Security Centre
WPNS	Western Pacific Naval Symposium
WMD	Weapons of Mass Destruction

National and International Information Sharing: A New Zealand Perspective¹

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Abstract: This paper explores maritime information sharing and associated challenges from a New Zealand perspective. Given New Zealand's geographical circumstances versus available resources it has adopted a whole-of-government approach to maritime domain awareness and maritime security. This has not, however, been without challenges. Although New Zealand has been on this path since 2002 it has not all been plain sailing and is still not yet fully realised. Forming the required structures and modalities for cooperation requires attention and regular revision. Nonetheless, the lessons learned thus far are instructive for the collaborative effort at the Information Fusion Centre (IFC). Although the IFC has an added layer of complication in that it is a multinational centre, it can take heed of these lessons learned as it strives towards its goal of being a regional node for information sharing in order to strengthen maritime security.

KEY WORDS: Maritime Domain Awareness, Collaboration, Whole-Of-Government, Maritime Security Threats

"The confluence of greater dependency on sea lanes for trade flow and the rise in a plethora of non-conventional and terrorist threats pose new contemporary challenges to navies worldwide. The need for a response by navies to these challenges has altered their priorities and capability sets. Yet, navies by themselves are not sufficient. The key to dealing with threats to maritime security lies in strong inter-agency cooperation and enhanced international collaboration. A close working relationship amongst the various inter-government agencies is required to implement a comprehensive and robust risk reduction strategy, while collaboration on a multilateral basis amongst countries and their navies is critical in overcoming the wide-ranging and transnational threats to maritime security." ²

¹ The views and opinions expressed in this paper are the author's own and do not necessarily represent those of the Royal New Zealand Navy, National Maritime Coordination Centre or Information Fusion Centre.

² RADM Chew Men Leong (RSN), "Navies and Maritime Security – A Republic of Singapore Navy Perspective", *POINTER*, Vol. 33, No. 3 (2007), pp. 11-12.

Introduction

New Zealand is a nation with a vast Maritime Area of Interest (MAOI). The security and sovereignty of that area is of paramount concern³. Given New Zealand's relatively limited resource base versus its maritime domain, collaboration between the New Zealand Defence Force (NZDF), and other national agencies is a necessity. Given the transnational nature of the maritime domain and the threats within, international information sharing and collaboration is equally essential, if not plain sailing. However, with effective communication and efforts to understand different perspectives through stakeholder representation, these challenges can be met head on.

The above quotation from Rear Admiral Chew Men Leong, Chief of the Republic of Singapore Navy (RSN), captures the need for both national multi-agency (which should be through a 'whole-of-government' approach) and international multilateral collaboration efforts to combat maritime security threats. This paper explores maritime information sharing collaboration and associated challenges through the tripartite actors of the National Maritime Coordination Centre (NMCC), Royal New Zealand Navy (RNZN) and Information Fusion Centre (IFC). This paper is divided into four sections. The first section provides an examination of the New Zealand maritime context and threat perspectives. In the next section, the national level whole-of-government inter-agency composition of the NMCC will be outlined (including the RNZN contribution), with observations on the national challenges encountered. The third section looks at the RNZN and NMCC view of international collaboration through the IFC. To conclude, observations on the challenges of the multinational composition of the IFC and the critical role of the International Liaison Officer (ILO) in dealing with those challenges will be conveyed.

Section I: New Zealand's Maritime Security Challenge

In order to provide some context to this paper we need to consider the size of the geographic challenge. New Zealand's Exclusive Economic Zone (EEZ) is the fifth largest in the world measuring 4,053,000 sq km with an area of about 15 times that of the land mass.⁴ This is largely due to the relative isolation of the main landmass and the number of offshore islands within the 200 nm limit.

³ Richard Davies, "New Zealand's Maritime Security Challenges", presentation at the Information Fusion Centre Anniversary Workshop, 27 Apr 2010.

⁴ Sources vary on whether the New Zealand EEZ is the fourth or fifth largest in the world: Compare "Improving the Regulation of Environmental Effects in New Zealand's Exclusive Economic Zone", *New Zealand Ministry for the Environment*, Discussion Paper ME824 (2007), p. 1; "Maritime Patrol Review", *Department for Prime Minister and Cabinet* (2001), p. 8.

In 2008 the United Nations (UN) Commission of the Limits of the Continental Shelf agreed to an extension of the maritime domain by an extra 1,700,000 sq km.⁵ Beyond the EEZ and continental shelf there are also rights and responsibilities in the Southern Ocean sector of the Ross Dependency in Antarctica and responsibilities to the Cook Islands, Niue and Tokelau.

New Zealand's search and rescue region is also large at 30,000,000 sq km. It covers a large part of the South Pacific Ocean, stretching from the equator to Antarctica, and from Australia to Chile.

The importance of these ocean areas to the local economy cannot be overstated. The marine economy is well developed in terms of fishing and aquaculture, making it the fourth largest export earner for New Zealand. Oil, gas and mineral exploration can be expected to grow as a consequence of the continental shelf claim.⁶ Trade is the lifeblood of the economy: more than 99% of that trade, by volume, is carried by sea.⁷ Given the distance to foreign markets, the sea lines of communication are both long and vulnerable.

The attendant responsibilities for these areas and the vast distances involved present significant challenges in terms of surveillance and patrol. Moreover, the weather conditions and associated sea state in the southern ocean can be severe, which impacts on the sea keeping qualities (and costs) required for patrol platforms. All of these rights and responsibilities need to be undertaken by New Zealand, which is a nation with a smaller population and economy than Singapore.⁸

Governments have a duty to protect their national interests. Defence forces traditionally have focused on the military aspect. If, however, "maritime threats are no longer confined to the traditional concepts of a naval or military threat", then Defence Forces also have a wider role in protecting national interests.⁹

⁵ "UN recognises NZ's extended sea bed rights", *Department of Prime Minister and Cabinet*, 22 September 2008, <http://beehive.govt.nz/release/un+recognises+nz+extended+seabed+rights>, accessed 30 September 2010

⁶ "Maritime Patrol Review", p. 8.

⁷ "New Zealand Economic and Financial Overview 2010", *The Treasury*, 27 Apr 2010, p. 25.

⁸ New Zealand's estimated population was 4.3 million as of 30 June 2010. "National Population Estimates: June 2010 quarter", *Statistics New Zealand*, 13 Aug 2010, http://www.stats.govt.nz/browse_for_stats/population/estimates_and_projections/NationalPopulationEstimates_HOTPJun10qtr.aspx, accessed 13 Oct 2010. In 2009, Singapore was rated 43rd and New Zealand 53rd in Gross Domestic Product by the *World Bank*. "GDP", *World Bank*, <http://siteresources.worldbank.org/DATASTATISTICS/Resources/GDP.pdf>.

⁹ "Maritime Patrol Review", p. 5.

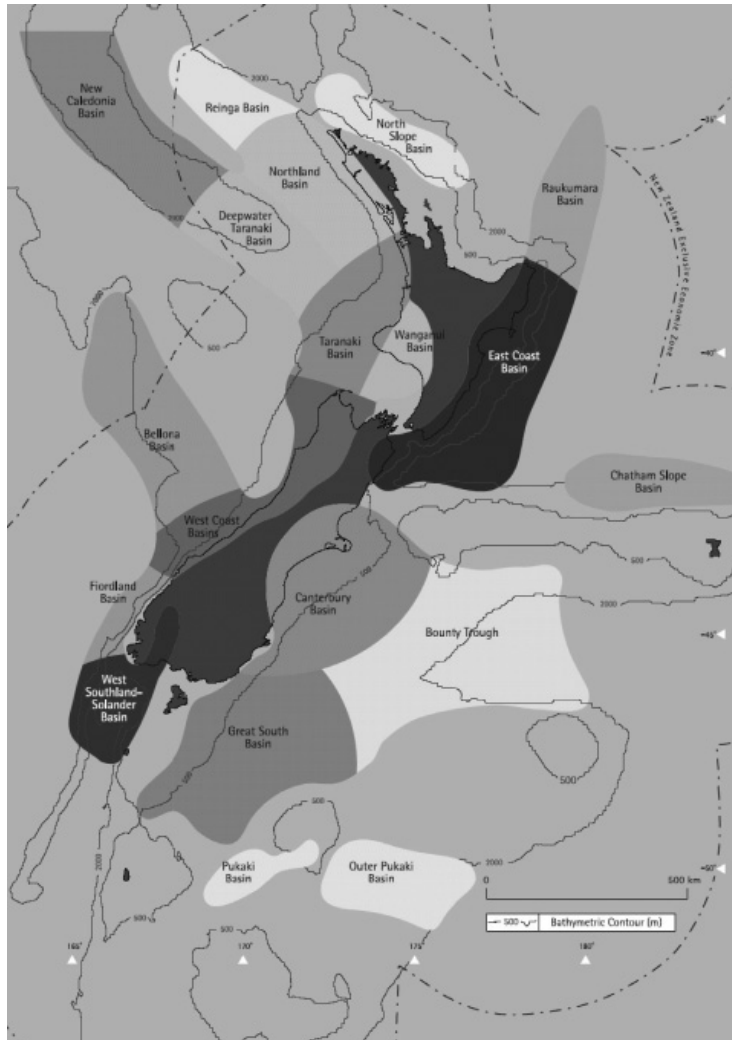


Figure 4: Hydrocarbon deposits surrounding New Zealand.

The exact identification of maritime threats will vary depending on the parties involved, however some common threads have emerged, including at least some of the following: smuggling (of contraband, people, etc.), weapons proliferation, armed robbery/piracy/violence at sea, illegal fishing, maritime safety, environmental degradation and maritime terrorism.¹⁰ Naturally, other government agencies also have a role in national defence.¹¹

¹⁰ Richard Davies, "New Zealand's Maritime Security Challenges", IFC inaugural Anniversary Workshop, 27 April 2010.

¹¹ "Statement of Intent 2010-2013: New Zealand Defence Force", *Headquarters New Zealand Defence Force, G55 SOI* (2010), p. 11 lists Ministry of Defence, Ministry of Foreign Affairs and Trade, New Zealand Customs and New Zealand Police as having roles in defence outcomes.

Section 2: National Level Collaboration

Inter-Agency Collaboration

“A comprehensive maritime security solution starts with a shared dialogue at the national level. A dialogue amongst maritime agencies on where security risks may exist and how best to reduce these risks collaboratively is critical.”¹²

In 2001 the Maritime Patrol Review (MPR) was set up to consider the civil and military requirements for patrolling New Zealand’s MAOI. The report was a comprehensive whole-of-government analysis aimed at providing an integrated national framework for coordinating the maritime patrol requirements.

Somewhat surprisingly, given New Zealand’s relatively small land mass compared to its vast MAOI, information sharing nationally was very limited:

“No one agency in New Zealand has been given the responsibility for integrated management, and there has not been a great deal of co-operation between agencies..... New Zealand seems to have 9 or 10 separate agencies monitoring ocean areas for its own purposes.”¹³

This finding highlights the inter-agency stove-pipes that existed at that time. The MPR concluded that the “knowledge and information held by individual agencies should be centralised in one place to allow a more complete picture to be produced and used as the basis for management of New Zealand’s maritime environment”.¹⁴

The mechanism recommended was for a new independent agency to centralise New Zealand’s maritime surveillance and response.

The new agency was established in 2002 and is now known as the National Maritime Coordination Centre (NMCC). Its mandate was to “combine information management and operational activities in respect of the civil security of New Zealand’s maritime areas”.¹⁵ The NMCC is a whole-of-government organisation which is operationally independent and supported by a multi-agency framework of governance rules. These principles underpin the NMCC’s operations and therefore require further consideration. Liaison officers from the core agencies of New Zealand Customs Service (NZCS), Ministry

¹² RADM Chew Men Leong, “Navies and Maritime Security – A Republic of Singapore Navy Perspective”, p. 7.

¹³ “Maritime Patrol Review”, p. 9.

¹⁴ Ibid., Annex II.

¹⁵ Ibid., p 25.

of Fisheries (MFish) and the NZDF are attached to the NMCC. Other agencies involved are the Maritime New Zealand, Department of Conservation, Ministry of Foreign Affairs and Trade, and New Zealand Police (NZP).¹⁶

In the New Zealand context, ‘whole-of-government’ is where government agencies work across their portfolio boundaries to work towards shared goals and an integrated government response to particular issues. It is premised on the basis that the outcome will be more effective through integrated and coordinated effort rather than if the agencies work independently.¹⁷

To be ‘operationally independent’ requires the NMCC to perform its functions through the lens of the whole-of-government approach, rather than from an individual agency perspective. Similarly, whilst NZCS is the host agency, the NMCC is required to treat NZCS requests for its services in the same light as the NMCC’s other stakeholders.¹⁸ NZCS, as the host agency, also has formal accountability to the government for the NMCC. Although the NMCC is co-located in the NZDF Headquarters Joint Forces New Zealand (HQJFNZ), it has a formal agreement for the provision of accommodation and services.

Given the whole-of-government and operationally independent approaches, a documented framework of governance rules was put into place.¹⁹ This framework sets out the expectations and parameters for the successful and sustainable operations of the NMCC. Moreover, it provides guidance to user agencies on NMCC functions and accountabilities, as well as mechanisms for problem solving and dispute resolution.

RNZN Contribution

The NMCC’s key purposes are:²⁰

1. To contribute to Maritime Domain Awareness (MDA) in relation to risks in the marine environment that could impact on the sovereignty, security, safety, economy, environmental or foreign policy interests of New Zealand.
2. To support the effective and efficient use of New Zealand’s maritime patrol and surveillance assets.

¹⁶ “National Maritime Coordination Centre Governance Framework”, *NMCC Working Group*, 2006, p. 15.

¹⁷ G55 SOI, p. 44.

¹⁸ *Ibid.*, p. 16.

¹⁹ *Ibid.*, p. 4.

²⁰ *Ibid.*, p. 10.

3. To support and facilitate the effective use and accessibility of maritime-related information from multiple sources that supports the core business of government agencies.

As the primary mission of the NZDF (and by extension the RNZN) is “to secure New Zealand against external threat, to protect our sovereign interests, including in the Exclusive Economic Zone (EEZ), and to be able to take action to meet likely contingencies in our strategic area of interest”, there is a strong relationship with NMCC’s key purposes.²¹

In terms of the RNZN contribution to border protection, the 2002 Maritime Forces Review (MFR) consulted, in line with the whole-of-government ethos, NZCS, MFish and NZP (amongst others) when considering what patrol platforms should be acquired. The outcome of the MFR and subsequent study was ‘Project Protector’. Under this project the RNZN obtained two offshore patrol vessels (OPV) and four inshore patrol vessels (IPV). The last vessel was delivered on 6 May 2010. In addition to military and foreign relation tasks, these vessels provide support to civilian agency surface patrol requirements. These civilian surface patrol requirements are coordinated through the NMCC. The vessels were purchased to meet civilian requirements, as stated in the MPR and subsequent documents, and also provide military capabilities.

Surface patrol for civilian agencies falls under rubric of Multi-Agency Operations and Tasks (MAO&T). MAO&T is the formal, pre-planned support to specific government departments and agencies under the whole-of-government approach.²² The significance of these tasks is expected to increase for the RNZN now that all of the Project Protector vessels have been delivered.

Given that the RNZN and Royal New Zealand Air Force (RNZAF) provide the bulk of surface patrol and maritime air surveillance support to the NMCC, the decision to house NMCC within HQ JFNZ made sense. Although there were initial concerns that by doing this the operational independence of NMCC would or could be compromised, this has not occurred. As the asset owner, the RNZN retains command and control of its vessels, although it must allocate a number of sea days to MAO&T. Therefore, this co-location has provided access to planners and decision makers, which assists mutual understanding and relationship building.²³

²¹ “Statement of Intent 2010-2013: New Zealand Defence Force”, p. 12.

²² “Annual Report 2010: New Zealand Defence Force”, *Headquarters New Zealand Defence Force, G55 AR* (2010), p. 113.

²³ “Effectiveness of arrangements for co-ordinating civilian maritime patrols”, *Office of the Auditor General* (2010), p. 23.

National Challenges

“Even if the will and capability are there, it remains a complex endeavour bringing about cross-boundary whole-of-government info-sharing, let alone international info-sharing collaboration. Inter-agency stove-pipes and information silos have posed a formidable challenge for many countries. Indeed, mental barriers are often the hardest to deal with.”²⁴

Although the NMCC has been operational since 2002, it is still developing as an organisation. Whilst leadership commitment and stakeholder participation are crucial for fruitful inter-agency collaboration, clear strategic level guidance and operational level procedures are also required for successful implementation.²⁵ Roles and responsibilities need to be clearly defined, with processes for resolving inter-agency disputes and opportunities for both formal and informal linkages at various levels of interaction. The NMCC experience as a whole-of-government organisation has emphasised relationship management, ensuring that lines of communication remain open, and encourages the active participation of its stakeholders.

As a service provider, NMCC has required their stakeholders to specify their needs in order to produce tailored solutions. However, “[a]chieving this, in practice, [has been] difficult because the NMCC must strive for a balance between encouraging agency involvement, reconciling different agencies’ interests, maintaining operational independence, and being seen to operate in a transparent way”.²⁶ Top level guidance and extensive use of the formal and informal communication channels have enabled NMCC to work through operational issues as they arise.

NMCC has been tasked with building comprehensive MDA for New Zealand using a whole-of-government perspective. This has produced a number of challenges. For New Zealand, the purpose of MDA is to enable early identification of abnormal risks in the maritime domain. As the NMCC has a coordination function, the objective is to complement rather than replace individual agency processes for identifying and responding to abnormal activities.²⁷ The agencies need reassurance that their functions are not being usurped.

²⁴ RADM Chew Men Leong, RSN, “Realising Safe and Secure Seas for All”, *POINTER*, Vol. 35, No. 3 (2009), p. 10.

²⁵ “Effectiveness of arrangements for co-ordinating civilian maritime patrols”, pp. 7-8.

²⁶ *Ibid.*, p. 24.

²⁷ *Ibid.*, pp. 34-35.

Technology has also presented various challenges.²⁸ Incompatibility between various information systems used across government agencies has necessitated the building of a common network. As with any new agency, the building of this network requires a plethora of time consuming manual processes, which has limited the timeliness of the information sharing. However, the NMCC is now implementing more automated processes to alleviate this problem.²⁹

Security classifications and sensitive information do create limitations.³⁰ However, effective personal communication, appropriate protocols, and information filtering builds trust between the various parties involved. This, of course, takes time, but will contribute to ensuring an appropriate and effective level of information sharing.

Section 3: International Collaboration

International Dimension

“Achieving Maritime Domain Awareness (MDA) will ... require info-sharing, info-fusion and sense-making in order to cue responsive intelligence and operational coordination, as directed by decision makers backed by relevant maritime legislation and shaped by strategy driven policies.”³¹

The international security dimension is recognised in NZDF policy objectives. The NZDF contributes to global security and peacekeeping initiatives under the auspices of the UN and through other multilateral peace support and humanitarian operations. Security in the Asia-Pacific region and New Zealand’s obligations under the Five Power Defence Arrangements (FPDA) receive specific mention in NZDF planning.³²

International collaboration is not limited to defence; the NMCC is also empowered to foster international information sharing efforts to enhance MDA.³³ Such efforts require contribution of our “individual pieces of information within our respective maritime [area] to complete the overall [MDA] puzzle”.³⁴ The IFC aims to play a key role in completing this MDA ‘puzzle’.

²⁸ Ibid., p. 35.

²⁹ The IFC conducted a study tour to NMCC on 17 Aug 2010 where it was briefed on new technological updates.

³⁰ “Effectiveness of arrangements for co-ordinating civilian maritime patrols”, p. 35.

³¹ LTC Irvin Lim, “Comprehensive Maritime Domain Awareness – An Idea Whose Time Has Come?”, *POINTER*, Vol. 33, No. 3 (2007), p. 14.

³² “Statement of Intent 2010-2013: New Zealand Defence Force”, p. 10.

³³ “National Maritime Coordination Centre Governance Framework”, p. 9

The IFC

The IFC is a RSN purpose-built multi-national facility based at the Command and Control Centre at the Changi Naval Base, and is unique in Southeast Asia (SEA). The RSN's vision for the IFC is a regional node for information sharing to enhance MDA, this strengthening maritime security.

The RSN has provided, amongst other systems, the Regional Maritime Information Exchange (ReMIX) internet portal in order to facilitate information sharing between Western Pacific Naval Symposium countries. ReMIX displays a Recognised Maritime Picture (RMP) utilising the shipping database, the Open and Analysed Shipping Information System (OASIS). In addition, there is also an anomaly detection software, the Sense Making and Research Tool (SMART).

The ILO plays a critical role in the operation of the IFC. As national liaison officers, ILOs provide a link back to their respective operation centres and represent their navies and other national agencies. However, the ILO is much more than a national linkage as they are also an integrated member of the IFC, involved in the day-to-day work and decision making of the IFC. Although the IFC was inaugurated in April 2009, a critical mass of ILOs was not achieved until December 2009. Consequently, the IFC is still in its infancy.

Given New Zealand's emphasis on international and national level collaboration and information sharing, the decision to commit an ILO to the IFC was not difficult. An RNZN officer, the New Zealand ILO provides links to both the wider NZDF and the primary operational centre, the NMCC, providing a range of perspectives when analysing maritime security threats.

Section 4: International Challenges

A sub-theme of the morning session of the IFC's inaugural anniversary workshop on 27 April 2010 was 'information sharing collaboration'.³⁵ During the discussion panel, it was noted that different agencies within and between states, and the states themselves, approached maritime security issues according to their own culture, procedures and modus operandi. Moreover, agencies can jealousy guard their jurisdiction, providing a potential barrier to collaboration.

³⁴ LTC Irvin Lim, "Comprehensive Maritime Domain Awareness – An Idea Whose Time Has Come?", pp. 15-16.

³⁵ The three presentations were: LTC Chow Ngee Ken, RSN, "Role of Inter-Agency Collaboration – Maritime Security Task Force"; Richard Davies, "New Zealand's Maritime Security Challenges"; CAPT Pierre Landiech, FN, "Inter-Agency Collaboration".

When combined with sovereignty and language differences, these difficulties can increase dramatically in the international context. Each navy and agency has its own culture and language (not just the spoken language but also terminology). Even though navies share much in common, differences exist in approach and style. Strategic alignment and goals for the IFC are difficult given the varying interests of participating nations and the RSN. In fact, individual ILOs may also have conflicting backers. Another concern is information security classifications, which can be even more difficult to manage in the international arena.

As with the NMCC, relationship management and maintaining communication is the key to ensuring success in the IFC. Interaction through exercises and workshops and communication via portals such as ReMIX are excellent mechanisms to maintain engagement. As the RSN built these portals prior to establishing the IFC, they have already pre-empted one of the problems faced by the NMCC during its initial stages. ReMIX provides a common network to work from that is constantly reviewed and improved by the RSN. At the workshop and seminar level, ideas and experiences can be exchanged which help build common understanding. All nations have their own protocols in dealing with sensitive and classified material, which are naturally exclusive and restrictive. Although a shift in operating principles from the 'need to know' to 'responsibility to share' is gaining traction, building trust to share such information takes time.

Notwithstanding the portals and regular IFC sponsored activities, stationing an ILO at the IFC also provides tremendous benefits. Whilst there is general agreement on the threads of maritime threats, the degree and intensity of emphasis on each threat varies between nations. Having an ILO as an integrated member of the team ensures that his country has direct input into the IFC's activities and focus. Day-to-day interactions build awareness of other nations' maritime threat concerns and how they deal with those threats. Although such insights are not always applicable to one's own context, they do provide other perspective for consideration. Moreover, these personal contacts also engender trust, which encourages further information sharing. Last but not least, it provides a tactical level platform to engage with all the nations represented, separately or in any combination.

Conclusion

Although the term is somewhat of a cliché, New Zealand is a 'maritime nation'. New Zealand's land mass is some 270,500 km², but when the Exclusive Economic Zone is taken into account, the area is over 4,000,000 km² before the addition of 1,700,000 km² for the continental shelf claim. In addition, maritime interests include broader security concerns such as marine resource management, law enforcement, maritime safety, environmental protection and external relations. The maritime security challenge is to balance the risks and responsibilities concomitant with these interests.

New Zealand's maritime security challenge is shaped by its geographical context. Like all nations, New Zealand has limited resources in which to manage its maritime domain. Given the sheer size of the maritime area, New Zealand takes a whole-of-government approach to managing risks and exploiting opportunities in the maritime domain. The NMCC is tasked with coordinating this approach. Whilst individual national agencies with an interest in the maritime domain are still responsible for risk assessments within their own portfolio, NMCC is responsible for producing the overarching view in order to allocate resources in the maritime sphere. Underpinning the allocation process is timely information flowing from national agencies in order to provide a national-led, rather than agency-led, approach to maritime domain security.

The RNZN is part of that whole-of-government effort through the provision of patrol vessels. This recognises that navies require the cooperation of other national agencies in order to cover the wider scope of maritime interests. The RNZN also contributes to the NMCC's international role by providing an officer as the New Zealand ILO at the IFC.

International information sharing and collaboration are a must to deal with the multitude of threats in the maritime domain. The IFC is a unique multinational information sharing facility in SEA and therefore is well-positioned for its vision to become a regional node for handling maritime challenges.

Although the NMCC has been in existence since 2002, it is still building up its information sharing and collaboration capacity. The challenges encountered by the NMCC and the lessons learned are instructive for the newer IFC. Thematically, these lessons come down to effective communication, relationship management, and the building of trust. In this the IFC has an advantage: although technology and regular interaction can contribute, the presence of an ILO is invaluable in communicating national perspectives, strengthening relationships, building trust and engaging with other nations.

REINFORCING MARITIME CONNECTIVITIES THROUGH INFORMATION SHARING: AN INDIAN PERSPECTIVE

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ABSTRACT: This article first examines the altering dynamics of maritime challenges faced by nations and concludes that illegitimate enterprise is exploiting loopholes, posing new challenges. It then examines the Indian Navy's (IN) concept of cooperative engagement specifically in the realm of information sharing. It reviews some measures taken by the Navy to further sharing of information in the maritime arena in the IOR. It also provides an overview of issues that underpin the Indian Navy's engagement at the IFC. A small part about India's engagement with South East Asia is also included since IN's core concerns are derived from the over-arching national perspective.

KEY WORDS: Freedom & Exploitation Of The Seas, Cooperation & Information Sharing Between Navies And Maritime Agencies, Information Sharing At The International Level; Challenges To Information Sharing

Preamble

This article first examines the altering dynamics of maritime challenges faced by nations and concludes that while legitimate use of the seas is the driver for the world's economy and development, illegitimate enterprise is exploiting loopholes, posing new challenges that have a predominantly transnational imprint. These new threats necessitate a greater degree of cooperation and information sharing to enable navies and maritime enforcement agencies to jointly guarantee the safety and security of the seas. It also postulates that while navies have traditionally focused on their core warfighting role, the time has come for them to take the lead in furthering the cooperative charter between navies and maritime security agencies, shedding aside some of their earlier misgivings about information sharing being inimical to national interests. The article then goes on to examine the Indian Navy's concept of cooperative engagement, specifically in the realm of information sharing. It reviews some measures taken by the Navy to further sharing of information in the maritime arena in the Indian Ocean Region (IOR) and examines the Indian Navy's engagement at the Information Fusion Centre (IFC) with a focus on its core concerns. The section also examines India's engagement with South East Asia as being 'a natural progression of a mutually rewarding paradigm' and postulates the way forward.

Information Sharing – A New Paradigm

Nature of the Seas

The oceans do not qualify to the same degree of jurisdiction and control that is characteristic to land frontiers. In fact, the traditional concept of 'freedom of the high seas' predates much of known history, though its formal enforcement occurred amidst the heightened rivalries of the European state system in the fifteenth and sixteenth centuries. It was on the principle of freedom of the seas that King Francis I of France disputed the exclusive right in certain seas that the Pope had granted to Spain and Portugal in the fifteenth century. Later, Queen Elizabeth I of England proclaimed: "The use of the sea and air is common to all; neither can any title to the ocean belong to any people or private man." Dutch jurist Hugo Grotius' book *Mare Liberum* (1609) made the most notable assertion of this principle which defined the seas as being, like the air, limitless and therefore common to all people.¹

Freedom of the Seas – A Stellar Symbol of Human Endeavour?

The open nature of the high seas is thus championed as a stellar symbol of human endeavour, and its ungoverned status is often upheld as a reasonable and legitimate arrangement. Combined with its sheer expanse, the maritime domain has come to be characterised by a lack of control bordering on the anarchic. While there is a clamour for the seas as a resource, there is relative disinterest about the seas as a responsibility. This is something that has been exploited by illegitimate and unlawful elements to further their agenda.

Unlawful Exploitation of the Seas – High Costs

The impact of the illegitimate exploitation of the oceans is clearer today than ever before. Piracy costs the world economy almost \$16 billion per year, not to mention indirect costs (in terms of ransom money being channelled into other subversive activities like terrorism, for example).² Illegal, Unregulated and Unreported (IUU) fishing costs an estimated \$4 billion to \$9 billion dollars a year in addition to the unquantifiable loss resulting from the harvesting of marine resources at an unsustainable pace.³ The illegal drug trade cost almost \$300 billion in 2003, a

¹ "Freedom of the Seas – Origins of the Concept of Freedom of the Seas", [www.americanforeignrelations.com](http://www.americanforeignrelations.com/E-N/Freedom-of-the-Seas-Origins-of-the-concept-of-freedom-of-the-seas.htm#ixzz0iUUXY5Cf), <http://www.americanforeignrelations.com/E-N/Freedom-of-the-Seas-Origins-of-the-concept-of-freedom-of-the-seas.htm#ixzz0iUUXY5Cf>

² Peter Chalk, "The Maritime Dimensions of International Security: Terrorism, Piracy and Challenges for the United States", *RAND Corporation* (2008); Pierre Landiech, FN, "Inter-Agency Collaboration".

³ "Global Network to Stop IUU Fishing: The Traffic Report", *World Wildlife Foundation*, <http://www.worldwildlife.org/what/globalmarkets/wildlifetrade/WWFBinaryitem9939.pdf>

considerable proportion of which was trafficked by sea.⁴ From terrorism to drug trafficking, piracy to armed robbery, arms proliferation to insurgency, the seas make the lowest common denominator of almost every crime and potential threat.

Transnational Imprint of Maritime Crime

A secondary subscript of maritime crime is that it often has a transnational imprint. Unlike land based crime that is confined to national territorial limits, maritime crime is characterised by a lack of conformity to traditional boundaries, affecting unconnected nations in unconventional ways. For example, a United Kingdom registered ship carrying Korean cargo is hijacked by Somali pirates enroute from Singapore to Saudi Arabia.⁵ It has crew from Ukraine, Romania, Bulgaria and India. Ransom payments for a vessel like this are usually made in cash and paid through middlemen based in Nairobi, Djibouti or Dubai.⁶ These payments are laundered by organised syndicates in Dubai and other Gulf states, among others, to fund terrorism and fundamentalism in Afghanistan, Iraq and Pakistan, to purchase arms from suppliers in Ethiopia, and as property investments in nearby destinations such as Kenya.⁷

Convergence of Enterprise on the High Seas

The increasing use of the seas as a conduit to facilitate illicit activity could not have come at a worse time. Seaborne trade accounts for 90% of global trade. Over the last four decades, seaborne trade has quadrupled, from just 8 thousand billion tonne-miles in 1968 to over 32 thousand billion tonne-miles in 2008.⁸ In addition, although alternative energy sources are being developed, dependence on oil is also unlikely to change. The US Energy Information Administration's (EIA) International Energy Outlook for 2009 estimates that world dependence on liquid fuels and natural gas will remain largely unchanged over the next 20 years (2009 - 2030).⁹ Two-thirds of this energy is transported by sea. The relevance of the seas to other legitimate human endeavours is also witnessing an exponential rise. Whether as a source of

⁴ UN report puts world's illicit drug Trade at estimated \$321b", *Boston.com*, 30 June 2005

⁵ The incident narrated refers to the hijacking of the Ro-Ro carrier *Asian Glory* in the Gulf of Aden on 1 January 2010.

⁶ "Ransom payments: the hole in Somali pirates' net", *AFP*, 12 January 2009, <http://www.google.com/hostednews/afp/article/ALeqM5gGilBVHvFJS-ae2dlsyDb84aDiKg>

⁷ "Kenya Property Boom as a Result of Somali Piracy", *Newstime Africa*, 2 January 2010, <http://www.newstimeafrica.com/archives/9899>

⁸ "Shipping and World Trade: Key Facts", *ShippingFacts*, <http://www.marisec.org/shippingfacts/worldtrade/volume-world-trade-sea.php?SID=a6012e9a0145fe8c15d3e9d4f5ba181a>

⁹ World market energy use was 58% for liquid fuels and natural gas. This will remain more or less constant per projections for 2030 (55%). "International Energy Outlook 2010 – Highlights", *U.S. Energy Information Administration*, 25 May 2010, <http://www.eia.doe.gov/oiaf/ieo/highlights.html>

global diets or high quality protein, feeding the energy needs of rising economies, furthering diplomatic ties, or waging the ‘war against terror’, the ocean is increasingly the preferred medium across the economic, political and diplomatic spectrum.¹⁰ The seas are therefore seeing an increasing ‘convergence’ of enterprise, whether genuine or furtive, making it a veritable ‘pot-pourri’ of intended and unintended effects.

Cooperation and Information Sharing between Navies and Maritime Agencies – The Way Forward

Navies, the *de-facto* sentinels of the national maritime boundaries, have traditionally focussed their energies on safeguarding the sea borders against adversaries. While this commitment on core warfighting capabilities cannot be relinquished, there is a growing realisation that the new challenges across the horizon necessitate cooperation rather than competition, engagement rather than estrangement. These challenges are simply too wide in scope to be negotiated by any single entity and have to be handled by a judicious dose of coordination, diplomacy and statecraft. ‘Resource pooling’ and ‘cooperative engagement’ are thus the new buzzwords in the naval lexicon that will enable enforcement agencies to find common ground across boundaries. As navies increasingly gravitate towards initiatives such as ‘Global Maritime Partnership’, WPNS, IONS etc., it is clear that greater integration has rewards for all.

Information Sharing as a Concept

The concept of information sharing has roots in the realities of the maritime landscape today. Although it can be argued that navies have shared information since ages, albeit under different paradigms (predominantly under bilateral arrangements), the term itself is of fairly recent coinage. Wikipedia describes the term ‘information sharing as having “gained popularity as a result of the 9/11 Commission Hearings and its report of the United States government’s lack of response to information known about the planned terrorist attack on the New York City World Trade Center prior to the event”.¹¹ Though 9/11 did not have a maritime dimension, it had a definite bearing on maritime security consciousness and orientation. Information sharing is one of the visible ‘byproducts’ of such contemporary reorientation.

Information sharing can have numerous dimensions – ranging from intra-agency to inter-agency, and national to international. Since it would be over-ambitious to try and list key attributes of each dimension in one paper, this article would try and highlight some of the core issues relating to the international dimension.

¹⁰ Fish is man’s most important source of high quality protein, providing 16% of the animal protein consumed by the world’s population. NCBI, <http://www.ncbi.nlm.nih.gov/pmc/article/PMC1084135/>

¹¹ “Information Sharing, *Wikipedia*, http://en.wikipedia.org/wiki/Information_sharing

Information Sharing at the International Level

Just as sharing information at the national level has several challenges, information sharing at the international level also faces several predicaments – whom to share information with, to what classification level, how to share information and bridge gaps in terms of cultural sensitivities, technological gaps and individual perceptions, and how to defuse jurisdictional and legislation issues. Though the odds are significant, they are not in themselves insurmountable. To start with, the concept of information sharing at the international level between navies has to be predicated on addressing mutual concerns, exploiting mutual strengths while setting aside mutual differences. It can therefore be a ‘coalition of the willing’ that agrees to engage on ‘issue-based’ concerns so as to derive mutual and equal benefit.

Navies – Ideally Placed to Facilitate Information Sharing

Apart from the fact that navies can derive considerable dividends by pooling information to tackle common challenges, the second consideration is that navies are also particularly suited to take on this role. Naval Men O’ War are traditionally described as the best ambassadors of their country and diplomacy counts as one of the core tenets of almost every Navy. India’s Maritime Doctrine, for instance, recognises that “the navy can be used as an important means of strengthening political relations and goodwill amongst countries”.¹² Information sharing can thus be a worthy conduit to strengthen existing bonds and understanding between nations and navies.

Most navies are the lead agencies at the national level for ensuring the safety and security of their nation’s waters in close coordination with other national maritime agencies. Navies are also key stake holders in the maritime security ‘command and control’ matrix of a nation and have extensive linkages with other maritime agencies to enable coordination of effort and resources. Navies are therefore well suited to share information at the international level and ensure its best integration at the national level so that the concept receives the ‘best bang for the buck’.

Deriving Synergy at the Operational Level

Another distinct advantage of sharing information between navies is that it allows navies to synergise at the operative level rather than at the usual conceptual level. In essence, info-sharing can be a tangible product of a web of intangible relations. An arrangement to share information allows navies to tide over the usual (impenetrable) web of diplomatic authorisation and sanction controls that throttle efforts to shape tangible outcomes at the operational level.

¹² “Indian Maritime Doctrine”, *INBR 8* (Standard Press, August 2009)

Navies are thus uniquely situated to integrate the national and international dimensions. As RADM Chew Men Leong said in a recent *Pointer* article, “Maritime agencies are uniquely poised to spearhead national and international maritime security and safety efforts. At the national level, we need to work together to catalyse whole-of-government efforts. At the international level, where mutual understanding and dialogue has translated into practical cooperation in the past, evidence suggests that the whole is indeed greater than the sum of its parts in dealing with collective challenges”.¹³

Challenges to Information Sharing

While the concept may be appealing on the surface, the devil lies in the detail. Some of the challenges to information sharing also bear consideration.

‘Information Sharing’ – Antithesis of the Uniformed Archetype

Militaries tend to be tightly knit organisations with a tendency to over classify information. In a sense, ‘sharing information’ is the very antithesis of the uniformed archetype. While there are no easy solutions to this tendency, we must recognise that true integration will only result when information is shared at both national and international levels. The instinct to withhold and over classify information, something that is deeply ingrained within the military and intelligence communities, will need to be reviewed.

Information Handling

Another challenge would be to delineate unclassified and classified information handling streams. While the former is already being shared through mechanisms such as Merchant Ship Information System (MSIS), REMIX, MSSIS, etc., mechanisms will also need to be formulated to share actionable intelligence on an as required basis. Given the diversity of stake holders, this is a substantial challenge. A possible way ahead could be to initiate efforts in this direction on the bilateral level and slowly graduate to multilateral and regional levels.

Integrating Efforts

Information will also need to be pooled from various international, inter-governmental and non-governmental agencies that are stakeholders in maritime security. Effective information sharing mechanisms will need to look beyond the traditional information contributors to the broad range of information pools – reports from Lloyd’s agents network, information from flag administrators, customs administrations and signal intercepts – so that the effort is more inclusive and authentic.

¹³ RADM Chew Men Leong, “Realising Safe and Secure Seas for All”, *POINTER*, Vol. 35, No. 3 (2009)

National Information Chains

Deriving adequate synergies from information at the national level is another challenge. It is an 'open secret' that effective coordination at the national level is often stymied by technological constraints and internal dissent. Capacity building and capability enhancement can be a worthy subset of international information sharing arrangements so that one can learn from the experience of others and overcome technological constraints. This is already happening through various bilateral and regional mechanisms but the effort is *ad hoc* and fragmented. Robust National Information Chains that integrate all stake holders in a nation's maritime security (customs, coast guard, fisheries department, marine police, port authorities, etc.) will also need to be put in place to effectively exploit connections at the international level.

Effective Exploitation of Information

Another challenge is how the information would be put to effective use. There are differing perspectives on almost all maritime security issues and achieving common ground will take time. Whether it is the Malacca Straits or the Gulf of Aden (GoA), the positive yet divergent application of collective effort proves that several key issues need to be ironed out before information sharing and cooperation can become effective and actionable.

Some of the issues are:

- The prioritisation of security measures;
- Whose responsibility it is to implement the measures;
- How exactly these measures should be implemented and what level of cooperation is necessary.

Some of the other challenges that merit consideration are:

- The broad mandate of the information sharing arrangement;
- Participation, whether open or restricted;
- The regulatory and legal framework required to be put in place to enable information sharing (MoUs, agreements, SOPs, etc.);
- The type, quality and fidelity of information that needs to be shared, end use of information and necessary safeguards (intellectual capital, proprietary information, exclusivity clauses, non-release to third parties etc.);
- The interoperability architecture and protocol that will enable information handshaking.

Information Sharing – The Indian Navy’s Perspective

Indian Navy – A Keen Participant in Coordinated Arrangements

The Indian Navy for its part is fully convinced of the import of coordination and collaboration between navies to counter maritime threats of today. The Indian Navy has therefore been a willing participant in several such arrangements where forces collaborate to mitigate common challenges. Indian forces have participated in 43 of the 63 UN peacekeeping operations to date, contributing more than 90,000 personnel. India has also signed various memorandums of understanding (MoUs) and agreements with littorals in the IOR to collaborate and share information on maritime security issues, especially, piracy. India also ratified the Regional Cooperation Agreement on Combating Piracy and Armed Robbery Against Ships in Asia (ReCAAP) in June 2006 and the Indian MRCC routinely shares information with the ReCAAP ISC on issues relating to piracy.

In fact, one of the incidents that cued the formulation of several of the info-sharing regimes of today was the coordinated capture of the hijacked vessel, *MV Alondra Rainbow*, by the Indian Navy and Coast Guard in October 1999. The incident occurred at a time when the former Prime Minister of Japan Obuchi Keizo appealed for regional cooperation in fighting piracy at the meeting of Association of Southeast Asian Nations (ASEAN) plus 3, and proposed to hold an international conference.¹⁴ 1999 was also a year when acts of piracy peaked in South East Asia. In October the same year, the Panama-registered vessel *MV Alondra Rainbow*, owned by a Japanese company and carrying aluminium ingots valued at over \$14 million, was hijacked at sea after it departed from an Indonesian port. The original Japanese crew was set adrift aboard a lifeboat and was discovered by Thai fishing boats off Phuket. The vessel meanwhile had changed its name to *MV Mega Rama* and was sighted by another merchant vessel in the Indian Ocean. This information was shared with the Indian Navy by the International Maritime Bureau (IMB) Piracy Reporting Centre at Kuala Lumpur, based on which an air search was launched. The vessel was subsequently spotted off Kochi and Naval and Coast Guard assets secured its arrest after a high sea chase.

More recently, the Indian Navy has participated in the anti-piracy operations in the Gulf of Aden since the end of 2008 and is a member of the UN-mandated Contact Group on Piracy off the Coast of Somalia (CGPCS) and Combined Maritime Forces (CMF) -hosted SHADE (SHared Awareness and DEconfliction) grouping, constructs that aim to collaborate anti-piracy efforts in the Gulf of Aden by sharing of intentions and information. In February 2008, the Indian Navy also initiated the Indian Ocean Naval Symposium (IONS) to provide a platform for bringing together navies of the IOR,

¹⁴ Takai Susumu, “Suppression of Modern Piracy and the Role of the Navy”, *National Institute for Defense Studies*, 2002, http://www.nids.go.jp/english/dissemination/kiyo/pdf/bulletin_e2002_2.pdf

to build friendship, cooperation and mutual understanding. The Indian Navy is also collaborating with several navies around the world and the IOR in sharing white shipping information through its Merchant Ship Information System (MSIS) portal.

Engagement at the IFC

The Indian Navy's engagement at the Information Fusion Centre is thus an extension of its policy of synergising efforts and information for safety and security of the seas. Indian Maritime Doctrine recognises that "constructive engagement with regional and extra-regional navies provides operational and doctrinal benefits. It facilitates sharing of transformational experiences, examination of 'best practices', generation of interoperability and enhancement of MDA through *information sharing mechanisms*".¹⁵

Indian and Southeast Asia – Regional Landscape

The Indian Navy's engagement at IFC also complements the larger strategic landscape between India and South East Asia. An understanding of this matrix may be germane in determining how the strategic imperatives peculiar to the region underpin the Indian Navy's key maritime concerns at the IFC.

Strategic Imperatives

India and Southeast Asia, in many ways, make natural partners in global geo-politics. In terms of shipping density, the sea area around India is one of the busiest waterways of the world. Passing through the Indian Ocean, the energy and trade highways lead to the Southeast Asian littorals, the South China Sea and the United States through the Malacca Straits. The Asia Pacific region holds 66% of the world's population and accounts for 60% of the world's GDP. By 2020, seven of the ten largest economies in the world are expected to be from this region, making the 21st century a true 'Asia Pacific' century. India's partnership with ASEAN and Bay of Bengal Initiative for Multi-Sectorial Technical and Economic Cooperation (BIMSTEC) are part of an irreversible process of integration of India's economy with that of Southeast Asia.

Economic Outlook

As a consequence of India's increasing economic engagement and integration with the Southeast Asian and East Asian regions, the share of East Asia Summit countries in India's total trade increased from 18% to 26% between 1991 and 2006. The total volume of India's trade with the 16 East Asia Summit countries amounted to US\$ 80.1 billion in 2006. The coming together of increasingly interdependent countries that have transformed the region into the engine of the world economy has the potential of redrawing equations, both within Asia and of Asia *vis-à-vis* the rest of the world.

¹⁵ "Indian Maritime Doctrine", p. 108

Common Challenges and Threats

However, one cannot underestimate the challenges that are peculiar to this region. Both South and Southeast Asia are the *de-facto* homes for global terrorism, with several states covertly or even inadvertently aiding and abetting subversive elements. The rising trend in piracy statistics, on both flanks of the ocean, is ominous. The illegal ingress of arms, drug-smuggling, and, human-trafficking, are generating significant instability in several countries and creating disquieting connectivities across the region. While the region holds great economic promise, its prosperity, cultural diversity and traditional inclusiveness have also had the negative effect of attracting malevolent non-state actors and as such, amidst all its present and future abundance, it also contains a significant potential for instability and conflict.

Key Maritime Concerns of the Indian Navy at the IFC

Piracy, human and drug trafficking and maritime terrorism therefore make few of the key maritime concerns of the Indian Navy at the IFC. Piracy, manifested along key choke points of global commerce, namely the Gulf of Aden and Straits of Malacca, creates a veritable 'Achilles Heel' that could have a devastating impact unless navies coordinate and collaborate to keep it in check. Human trafficking abuses the maritime medium to upset demographic equilibrium and cause numerous regulatory complications for which there are no ready answers unless navies collaborate to prevent it. Drug trafficking is another underestimated concern where peddlers exploit local knowledge with a global impact. With most of the poppy cultivation occurring in areas that encircle the IOR, navies and coast guards will need to share expertise and information to limit its spread. Maritime terrorism is another key concern. The Mumbai blasts resulted in the death of 173 people, destruction in property worth 2 billion Rupees and insurance losses to the tune of 5 billion Rupees.¹⁶ It proved that terrorists had developed adequate maritime expertise to exploit maritime vulnerabilities and the recent terror alert in the Malacca Straits only reaffirms this assessment. Petty armed robbery has also been on the rise in South and Southeast Asia and though the solution is land-based, prevention has to be done at sea.

The Indian Navy is keen to collaborate with the IFC in developing a more authentic 'white-shipping' picture in the world that enable navies and enforcement agencies to move from reaction to prevention of maritime incidents. The Indian Navy is also convinced of the role the IFC can play in facilitating Humanitarian Assistance and Disaster Relief operations in the region. With 70% of the world's known natural disasters occurring in South and South East Asia, forging links at the operational level is a key consideration. Finally, while we address common concerns, interaction and engagement at IFC between various International Liaison Officers can only result in more diverse and richer working experience that will pay dividends for all.

¹⁶ "2008 Mumbai Attacks", *Wikipedia*, http://en.wikipedia.org/wiki/2008_Mumbai_attacks

Conclusion

In conclusion, India, with territory astride the western funnel of the busy Strait of Malacca, has a significant convergence of interests in maritime security with our maritime neighbours to the East. It is for this reason that India views information sharing as one of the key enabling elements in strengthening our partnership with Southeast Asian countries in a mutually beneficial and rewarding manner. The strategic imperatives of today therefore underpin the Indian Navy's engagement at the IFC and the Indian Navy hopes to nurture it further in the coming years.

THE ENHANCEMENT OF THAILAND'S MARITIME SECURITY COOPERATION

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ABSTRACT: Thailand has used its Exclusive Economic Zone (EEZ) as a natural resource and for maritime transportation. However, many illegal activities take place in this zone. This article examines important trends in illegal activities in Thailand's maritime areas, such as Illegal, Unregulated and Unreported (IUU) Fishing, drug smuggling, piracy and armed robbery and contraband smuggling. Cooperation between organizations and the importance of information sharing are noted and proposed as mechanisms to resolve the issues aforementioned.

KEY WORDS: Exclusive Economic Zone, Transportation, Illegal Activities, Information Sharing

Introduction

Thailand's maritime Exclusive Economic Zone (EEZ) covers the Gulf of Thailand and the Andaman Sea. This is an area with abundant marine resources of immense value to the Thai economy. It is an important sea lane of communication for commerce and is also the theater for deploying naval forces against intruders. Competition for natural resources in Thailand's EEZ has been increasing, creating conditions that allow the growth of illegal activities.

Illegal activities in Thailand's maritime area have national security implications, affecting maritime security, the economy, society and international relations. Hence, the prevention and suppression of these illegal activities in Thailand's maritime area is an issue of immediate concern. As 90% of all import and export activities in Thailand are conducted via the sea, law enforcement agencies in Thailand are united in their efforts to enhance maritime security. As a result, the Thai authorities have spent a considerable amount of effort in enhancing maritime security in the ports of Thailand as well as its surrounding waters, resulting in reduced occurrences of piracy against ships.

Maritime Security Threats

Although there are many organizations responsible for law enforcement in Thailand's maritime area, the number of ships and aircraft available is limited. This heavily constrains the operations of Thai enforcement agencies. Therefore, effective planning is of utmost importance. Conversely, without effective planning, Thailand's national interests and national security will ultimately be compromised. Notable trends of illegal activities in Thailand's maritime jurisdiction are as follows:

Illegal, Unregulated and Unreported (IUU) Fishing

IUU fishing has become a serious problem in the region. Clashes between different groups of fishermen, alleged illegal immigrants and maritime law enforcement forces occur regularly in the region, including the Gulf of Thailand and Western Thailand. While these may seem to be trivial and localized events, they assume a more serious dimension when neighboring countries are involved, especially when they occur in areas of disputed sovereignty. The risks of further incidents may also increase in the future as national fish stocks continue to decline and fishermen have to move further afield to obtain worthwhile catches, which may eventually intrude into the EEZs of neighboring countries.

Drug Smuggling

The majority of drugs trafficked into Thailand, the Andaman Sea and other distribution points originates from Myanmar, which is the largest base of operations for drug traffickers. After the major crackdown in 2001, during Prime Minister Thaksin's tenure, there have been no further reports of large scale arrests. This is a result of Royal Thai Navy (RTN) policy, which emphasizes prevention and deterrence of drug trafficking. However, drug trafficking in the Andaman Sea remains a problem and is likely to increase due to the fact that it is easier to evade authorities at sea than on land.

Piracy and Armed Robbery

Southeast Asia is one of the regions where pirates are most active. The major attraction for pirates is that 33% of global sea transportation passes through the area. Therefore, a large number of tankers and vessels that commute through the sea lanes crossing the Malacca Straits to the South China Sea are at risk of attack. Furthermore, the myriad small islands in Southeast Asian waters are obstacles to authorities and provide sanctuaries for pirates at the same time. Many countries in the region also face social instability, economic problems, separatist movements, severe poverty and ineffective law enforcement, which results in ineffective policing of maritime areas.

Although piracy in the Strait of Malacca is at a five-year low, the increasing piracy east of the Singapore Straits and the South China Sea has garnered regional attention. This suggests that piracy is still a problem in the region.

Contraband Smuggling

This is more common in the Andaman Sea compared to the Gulf of Thailand as it is geographically closer to the place of origin of the contraband goods. This region contains numerous fishing piers and wharves, places where maritime contraband smuggling commonly occurs. Dealing with this problem requires the cooperation of countries in the region. For example, there has been successful cooperation between Thailand and Malaysia in suppressing contraband smuggling along their common border.

Other Maritime Crimes

Most of the immigrant workers that come to Thailand are from Myanmar, Cambodia, and Laos. Failing internal economies and political instability are some of the reasons why these individuals choose to leave their country. Due to weak penalties for immigration offenses, many illegal workers are willing to risk being arrested by the authorities. Today, immigrant workers can be found both on shore and at sea. However, fishing wharves are increasingly hiring illegal immigrants, providing easy access for syndicates that commit other maritime crimes such as IUU fishing and drug smuggling.

Maritime Terrorism is also a key concern of the Government of Thailand. Evidence has been found of links between the terrorist groups in the South of Thailand and other terrorist groups in the region. These terrorist groups have a history of attacking maritime targets and have the capability to launch future attacks. As a result there are many possible nightmare scenarios, such as an attack on oil rigs in the Gulf of Thailand.

In general, improvements in technology and lower costs have made the construction of illegal boats easier. Illegal activities in Thailand's maritime area benefit from favorable geographical factors and overlapping EEZs. Furthermore, the people who live along the coast and in the affected waters are not conscious of protecting the natural resources of the EEZ from illicit activities. Therefore, criminals on the seas are able to avoid surveillance and cannot be easily found. In addition, the execution of 'hot pursuit' as defined by the Law of The Sea is not very effective in apprehending such individuals.

Issues and Challenges

An overview of the various maritime security threats reveals that many of them are regional in scope and thus require a regional response. In addition, there are many countries with overlapping EEZs in the Gulf of Thailand and the Andaman Sea and law enforcement operations must be planned carefully to prevent clashes with other naval forces in the region. Similarly, overlapping jurisdiction and turf wars between the various government agencies in Thailand is a formidable obstacle to effective law enforcement. In addition, studies show that Thai maritime laws and regulations do not adequately cover all the problems found in Thailand's maritime area. In summary, effective maritime law enforcement requires cooperation at both the national and regional levels.

Maritime Security Cooperation

Maritime Inter-Agency Cooperation

At the national level, the Maritime Enforcement Coordination Center (Thai-MECC) was established in 1997 to serve as the national focal point on maritime security-related issues. The Thai-MECC reports directly to the National Security Council and includes five main organizations, namely the RTN, the Royal Thai Marine Police, the Customs Department, the Marine Department and the Department of Fisheries. Under the RTN Command Center, it is further divided into three sub-focal point districts, each with its own Area of Operations (AO). The AO of the 1st Focal Point covers the Northern Gulf of Thailand, the AO of 2nd Focal Point covers the Southern Gulf of Thailand, and the AO of the 3rd Focal Point covers the Andaman Sea.

The Thai-MECC enables inter-agency cooperation and information sharing to better tackle maritime security issues. Nevertheless, Thailand still needs improvement in equipment, operations and the methods used in policing its maritime areas. By consolidating command and coordination through the Thai-MECC, we will be able to see improvement in our handling of illegal activities. An adequate budget from the government is also needed for establishing surveillance systems to support the intelligence gathering activities of the Thai-MECC. This includes provision of essential equipment to the vessels of the core enforcement organizations in the Thai-MECC to enable them to perform their duties efficiently and effectively. Laws, rules and regulations have to be revised and improved by the authorities to ensure that the lawful operations of the core organizations in the Thailand's maritime area proceed smoothly. In addition, stronger relations and better understanding with neighboring countries in the region should be promoted and encouraged.

Considering the constraints on law enforcement organizations, steps must be taken to ensure unity of command and effective cooperation. This can be done as follows:

1. The roles and responsibilities of the various agencies should be clearly delineated. The Thai-MECC should be further developed to take responsibility for directing and ensuring efficient cooperation between the various agencies. Effective surveillance systems should also be established along the coast to support intelligence gathering. Maritime laws, international conventions and Memorandums of Understanding with neighboring countries must be ratified to reduce problems and prevent potential disputes.
2. Prevention and deterrence should be the primary and continuous concern of the organizations involved. The organizations tasked with these responsibilities must work very closely with one another. The deployment of forces must be increased to prevent and suppress illegal activities.
3. The concept and importance of maritime law enforcement must be reinforced. There must be cooperation between the core organizations in the Thai-MECC. Decisions and actions must be undertaken carefully. Every operation must be evaluated to analyze the best possible measures to deal with the situation should it arise again.

Malacca Strait Patrols

On 18 September 2008, Thailand became the fourth country to join the Malacca Strait Patrols (MSP), an initiative by Indonesia, Malaysia and Singapore to work together to enhance maritime security in the Straits of Malacca and Singapore. Thailand's participation was formalized in the signing ceremony for the revised Standard Operating Procedures and Terms of Reference for the Malacca Straits Joint Coordinating Committee. The MSP, which comprises the Malacca Strait Sea Patrol (MSSP), the "Eyes-in-the-Sky" air patrols as well as the Intelligence Exchange Group (IEG), is a concrete set of practical cooperative measures undertaken by the littoral states to ensure the security of the Straits of Malacca and Singapore.

Since the implementation of the MSP, annual figures for incidents of piracy and armed robbery have been on a downward trend. In recent months, the Malacca Strait is no longer considered to be the hot spot of piracy in Southeast Asia. Although it remains a challenge to ensure that all vessels are safe and secure when they transit the South China Sea, the recent increase in incidents is mainly in petty theft. Nevertheless, vessels traveling along these waters should maintain a high level of vigilance to prevent opportunistic attacks by pirates.

Enhancing Information Sharing Collaboration

On August 2008, a Thai flag vessel, the *MV Thor Star*, was hijacked by Somalian pirates in the Gulf of Aden. This prompted the RTN to pay attention to the maritime security problem in that area. Subsequently, a Thai fishing trawler *Ekawat Nava 5* was also reported to have been hijacked by Somalia pirates. In this incident, an Indian Navy ship, which was patrolling in the area, mistook the ship for a pirate 'mother ship' and sank her.

The RTN realizes that it cannot protect all Thai national maritime interests. Cooperation with allied navies is thus required in order to extend its maritime security situation awareness. Hence, the RTN decided to accept an invitation to send an International Liaison Officer (ILO) to the Information Fusion Centre (IFC) based in Singapore.

On 29 October 2009, another Thai tuna trawler, the *Thai Union 3*, was hijacked in the Indian Ocean. In this incident, the IFC provided information and updates on the situation to international partners involved in the Indian Ocean and the RTN in order to deal with the incident appropriately and in a timely manner. The RTN also received information from other ILOs who had national forces in the area.

The IFC works closely with the RTN Command Center through the Thai ILO to relay real time information and analysis for prompt response in maritime issues. Currently the RTN is establishing a Maritime Domain Awareness Information Sharing Center (MDA-ISC). This new maritime center will build and enhance collective awareness among the local and international maritime community. In addition, the RTN will develop its surveillance capability by setting up a coastal surveillance system.

Conclusion

Many factors that affect the maritime security of Thailand, including maritime territorial and interest disputes, piracy, maritime terrorism and other illegal activities. These activities affect not just Thailand but all countries in the region. Thus, the most practical solution to these problems is through national and regional cooperation. Maritime crime is a long term problem that every country in the region has to face which can only be solved by enhancing cooperation so as to ensure safe and secure seas for all.

About the Authors

LTC Nicholas Lim has been the Head of the Information Fusion Centre since its inception in April 2009. LTC Lim is a naval surface warfare officer by training. He has served various shipboard tours and his last shipboard appointment was the Executive officer of a Missile-Gunnery Boat, *RSS Sea Tiger*. His staff experience included serving as a staff officer in the Fleet Experimentation Battlelab, where he was instrumental in operationalising the ACCESS system – a standalone portable C2 system used for multinational operations and exercises. LTC Lim holds a BBus. (Hons) from Nanyang Technological University and a MSc. in Strategic Studies from the Rajaratnam School of International Studies.

MAJ Gary Ow joined the RSN in 1997 and has undergone various junior shipboard postings on board the patrol vessels. After attending the Boarding Officer Course at USCG Yorktown, US in 2002 where he graduated with distinction, he was posted to 180 SQN as the Head Shipping Control to spearhead the regularization of 180 SQN and the ASSET program from 1 January 2005 to 24 August 2008. In addition, he attended the International Joint Maritime Warfare Course at San Diego, US from 18 October to 10 December 2004 and the Sekolah Staf dan Komando Angkatan Laut (SESKOAL) at South Jakarta, Indonesia from 12 January to 16 November 2009. He was awarded the Best Foreign Student Award and Best Course Thesis for foreign students in his command and staff course at SESKOAL. MAJ Ow is currently serving as Commanding Officer on board RSS Gallant and will be posted to the Information Fusion Center as Head Operations & Exercises, IFC.

LCDR Stefan Hansen joined the Royal New Zealand Naval Volunteer Reserves (RNZNVR) at *HMNZS Ngapona* in 1993. During his five years as a rating he served on Inshore Patrol Craft HMNZ Ships *Hinau* and *Kiwi*. He was commissioned as a Shipping Control Officer with the rank of Ensign in 1998. After promotion to Sub Lieutenant in 2001, he qualified for a posting to Headquarters Joint Forces New Zealand as the Shipping Control Duty Officer.

Promoted to Lieutenant in July 2004, he joined the Royal New Zealand Navy (RNZN) and was deployed to Afghanistan in the role of Civil Military Affairs Officer. On return to the RNZNVR, Lieutenant Commander Hansen fulfilled a number of roles within the Maritime Trade Operations (MTO) branch at *HMNZS Ngapona*.

In September 2007 then Lieutenant Hansen rejoined the RNZN and was deployed to Sudan as a United Nations Military Observer. Upon his return to the RNZNVR in 2008 he was appointed MTO Head of Department at *HMNZS Ngapona*.

In December 2009 Lieutenant Commander Hansen rejoined the RNZN to take up the New Zealand International Liaison Officer position at the Republic of Singapore Navy's Information Fusion Centre.

Outside of his naval career, Lieutenant Commander Hansen worked in the insurance sector in various roles including Claims Officer and Legal Counsel. His last role prior to rejoining the RNZN was as a Senior Underwriter specialising in casualty and financial lines.

He holds Bachelor's degrees in Arts and Law. In addition, he is a Senior Associate of the Australia and New Zealand Institute of Insurance and Finance.

LCDR Kapil Bhatia was commissioned in the Indian Navy on 1 January 1998 and was awarded the CNS Bronze Medal on completion of the Sub-Lieutenants' Technical Course. LCDR Bhatia is a naval surface officer who has specialised in navigation, aircraft direction and operations. His important pre-specialization appointments included Flag Lieutenant to the Fleet Commander, Western Fleet at Mumbai and command of Coast Guard ship, *CGS C-133*, based at Goa. After completing his specialist course in 2005, where he stood 'First in the Overall Order of Merit', LCDR Bhatia navigated the missile corvette, *INS Karmuk*. LCDR Bhatia was posted onboard the Indian Navy's aircraft carrier, *INS Viraat* before deputing as the Indian Navy's Liaison Officer at IFC. He has spent more than 3 years onboard *INS Viraat*, where he was the Navigating Officer. He was commended by the Commander in Chief, Western Naval Command in 2007. LCDR Bhatia graduated from the National Defence Academy, Pune in 1996 standing second overall in the order of naval merit.

CDR Yodyooth Wongnawich is an Operations Staff Officer from the Royal Thai Navy. He joined the navy in 1996. He has served various shipboard tours. His last shipboard appointment was the Commanding Officer of RTN Mine Sweeper Ship, *HTMS Donchedi*. His staff experience included serving as a staff officer in Sattahip Naval Base and the Operations Department in RTN HQ. Prior to assuming his the job as the Thailand ILO, he was working on navy-to-navy cooperation and engagement. CDR Wongwanich holds a Bachelor's Degree in Communication Engineering from the Royal Thai Naval Academy and Master's Degree in Business Administration from Kasetsart University in Bangkok.

LCDR Ekgarat Narkmee is an Operations Staff Officer from the Royal Thai Navy. He joined the navy in 2001. He has previously served as the Commanding Officer of RTN Ship PGM13 and has also served in the 3rd Naval Area Command and tours in headquarters. In his current capacity, he is working on developing the Thai Maritime Enforcement Coordinating Center in Bangkok. LCDR Narkmee holds a Bachelor's Degree in Communication Engineering from the Royal Thai Academy.

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