

47th Edition - December 2019

CAKAP TAKTIK

MARITIM

PUSTAKMAR

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Encountering

CYBER THREAT

MARITIME WARFARE CENTRE

What Shape?

THE ROYAL MALAYSIAN NAVY FORCE MULTIPLIER







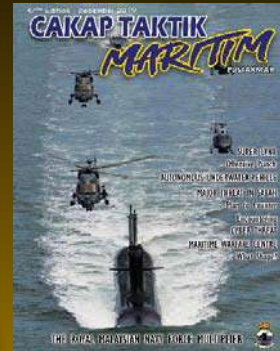
WELCOME to the 47th Edition of CAKAP TAKTIK MARITIM. This 2019 edition was designed exclusively to provide a comprehensive and valuable insight pertaining two themes 'The RMN as a Force Multiplier' and 'Encountering the Asymmetric Threat'. We recognise that challenges lie ahead while spurring ahead in the direction towards 'Transformation 15 to 5'. I am really appreciative of the contributions from various ranks, positions and expertise delivering a unique view of their own and trying to stimulate and enlighten our Navy People.

Since the age of Napoleon – and likely going back to the beginning of warfare, battles were often decided by the side that brought the most troops and firepower to the fight. Factors other than numbers and firepower also count today: elements that can include weather, seasons, terrain, fortifications, mobility, air superiority, surprise, and relative combat effectiveness. These factors are called force multipliers. Meanwhile, Asymmetric Threats may be defined as a broad and unpredictable spectrum of military, paramilitary, and information operations, conducted by nations, organizations, or individuals. A conflict between belligerents whose relative military power differs significantly, or whose strategy or tactics are very different may be called Asymmetric Warfare.

As our commitment is to continually serve you better, PUSTAKMAR is and always will strive for continuous improvement and development. Even as the ASTT system ages, we still manage to serve the 'Fleet' as its training platform in conducting Basic Tactical Training, Command Team Training as well Integrated Team Training for the Regional Command Headquarters. Moreover, several workshops and seminars have been successfully conducted through out this year and PUSTAKMAR has helped host the Joint Force EXERCISE PAHLAWAN. With a highly professional and motivated workforce, although we are leaving Operational Readiness Headquarters we look forward to strengthening the ability of RMN warfare skills and enhancing our knowledge remains a priority.

Once again, with gratitude and appreciation for your support and contribution to CAKAP TAKTIK MARITIM's 47th Edition, I wish you every success and enjoy reading.

“Strive for victory”



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The wider Naval warfare community is strongly encouraged to submit articles to this publication on issues relating to maritime warfare, which are tactical in nature. To ensure the maximum number of articles you are requested to write about 1000 words. Illustrations are most encouraged. Contact the Editorial Team for advice at Tel: 05-6817853 or Fax: 05-6817868

SUBMARINE :

The ROYAL MALAYSIAN NAVY

FORCE MULTIPLIER

By Cdr Noor Hazri bin Mohd Dzohir RMN

Introduction

Ever since its early beginnings in the 16th century, the submarine has always been considered as the greatest naval contraption in the history of war. It has allowed men to dive to a certain depth in the open seas at will, whilst capable of carrying and delivering enough firepower to accomplish its mission's objective. But its most valuable asset is its stealthiness. It is quick, nimble and hard to locate hence making it the perfect naval vessel of war.

The submarine, along with its predominantly torpedo and anti-ship missile based weapon systems, has achieved a position of dominance within the underwater battlespace. Consequently, the submarine will remain a maritime force's principle instrument for prosecuting Anti-Submarine Warfare (ASW), Anti-Surface Warfare (ASuW) and a significant component for delivering strike warfare. No navy forces would in their right mind, sideline the fact that a single adversary submarine could jeopardize the whole war if not handled effectively. The capabilities, as showcased by the submarine, are substantial enough to cast it as a force multiplier for a naval force. Speaking of this, are both of the PERDANA MENTERI class submarines a force multiplier to the Royal Malaysian Navy (RMN)?

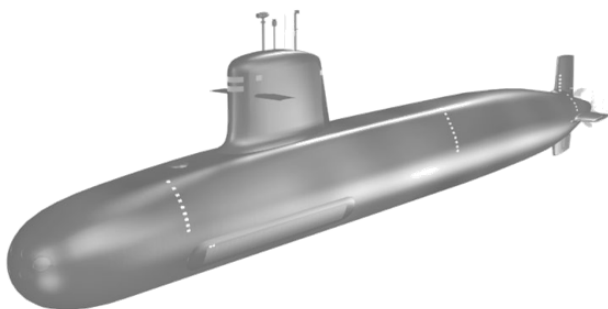


Figure 1: RMN Scorpene Class Submarine.

Definition

According to Cambridge Advanced Learner's Dictionary and Thesaurus, the phrase "force multiplier" can be defined as "something that increases the effect of a force". The United States Department of Defence defines the phrase force multiplier through its Joint Special Operations Task Force Operations reference JP 3-05.1 as "a capability that, when added to and employed by a combat force, significantly increases the combat potential of that force and thus enhances the probability of successful mission accomplishment".

The Tasks

What does it take for our PERDANA MENTERI class, or better known as Scorpene class submarine, to be referred to as a force multiplier for the RMN? To answer this question, let us dive deeply to get acquainted with what are the RMN submarines capable of to function as a force multiplier. RMN's Scorpene class submarines are hunter killers and diesel-electric powered, which are also commonly termed as conventional submarines (SSK). The first RMN submarine was completed and delivered in 2009 with the second operational in the following year. The first submarine is named KD TUNKU ABDUL RAHMAN with the second named KD TUN RAZAK, both of them named after the first and second Prime Ministers of Malaysia.

Being an SSK, the most imperative of all aspects are the facts that the Scorpene class submarines are first and foremost designed for operations in the littoral and shallow waters. This is especially true for us. More than half of this littoral perspective in the South China Sea has a depth of less than 100 meters. This is due to the southward underwater extension of the

main Asia continent, sitting on a continental shelf called Sunda Shelf. The Peninsular Malaysia, Sumatera, Borneo and some part of Jawa are all sitting atop of this shelf. There is deeper water on the north-eastern part of South China Sea but this covers a smaller area, thus making Malaysia operating submarines within shallow littoral waters a priority.

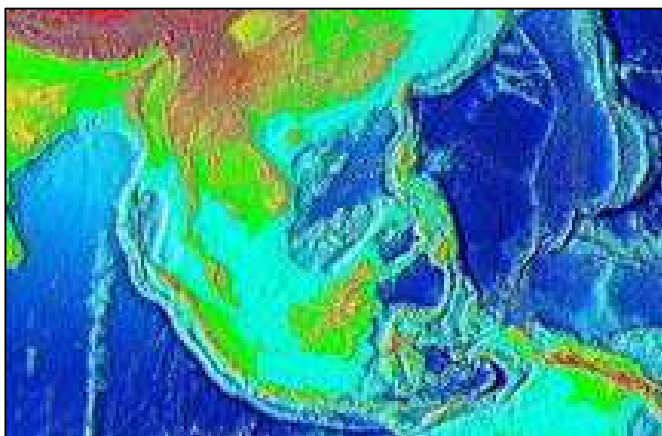


Figure 2: Continental Shelf Layout Within Malaysia's Waters.

Owning SSKs is an advantage to us in this shallow littoral region. During the Cold War, other than nuclear deterrence, Intelligence, Surveillance and Reconnaissance (ISR) were the main roles for submarines. This ISR can be effectively done in the littorals and it is the major role for any submarine during peacetime. This extensive role of intelligence and data gathering is one of the core reasons why the RMN requires submarines. The RMN Scorpens could sneak covertly into any littoral and gather all the intelligence needed, be it Signal Intelligence (SIGINT), Communication Intelligence (COMMINT), Electronic Intelligence (ELINT), Imagery Intelligence (IMINT), Acoustic Intelligence (ACINT) and other branches of intelligence. The Scorpens, with various above water and underwater sensors are geared to facilitate the gathering of intelligence. The advancements in battery capacity and efficient electrical distribution have given our submarines an advantage in not frequently coming to periscopic depth for snorkeling.



Figure 3: ISR Operations.

Anti-surface operations and anti-submarine operations against submarine and sub-surface forces whilst defending the Sea Lines Of Communication (SLOC) in coastal areas is also one of the conventional roles for a modern SSK in the littoral, while in this case, for both the RMN Scorpens within our maritime territories. The strategic location of Malaysia makes us responsible for some of the most important and busiest maritime sea lanes and critical 'choke points' in the world. Equipped with Black Shark heavyweight torpedo and SM-39 Exocet sub-surface to surface missiles, together with an advanced detection system, both RMN Scorpens are capable of providing Malaysia with underwater warfare capabilities, including conducting strategies of sea-denial, which deter and deny an enemy's naval freedom-of-movement and secure friendly ships' movements in times of conflict.

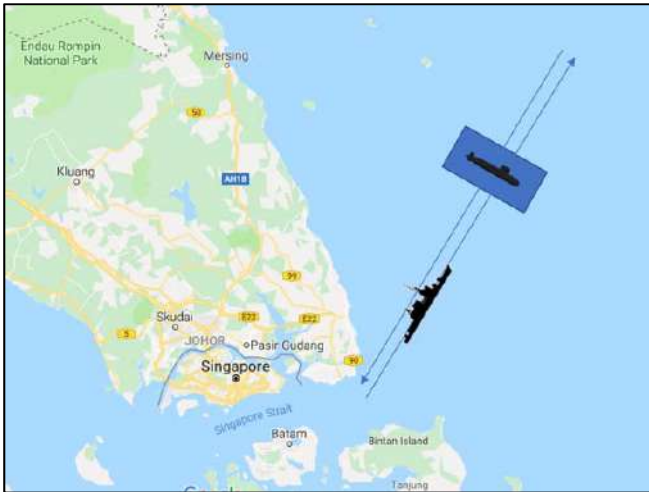


Figure 4: Barrier Operation Close to Choke Point.

Offensive mine laying is better suited for SSKs as they can covertly approach enemy naval bases or ports. However, a more unconventional role in terms of mining for modern SSKs now is that they can be used for detection and localization of enemy mines or mine hunting. RMN Scorpene submarines are equipped with a Mine Obstacle Avoidance Sonar and it is a reliable equipment for detecting mines. The last role that suits the operation of our Scorpene submarines in shallow littoral waters is the delivery of special operation forces. This operation is used to conduct both insertion and extraction of our very own special forces, Pasukan Khas Laut or Paskal as well as our sister services' special forces into and from enemy coastal areas, bays, islands, and offshore stations discreetly. Such missions could dictate our submarines to be at a very shallow littoral with depth of only 30 meters with a very low speed. All of these requirements call for a modern SSK and modern SSKs like ours were made with such missions in mind.

Are Both Scorpene Submarines a Force Multiplier to the RMN?

As stated in the definition, the phrase force multiplier defined as “*something that increases the effect of a force*”. Do both RMN Scorpene submarines meet these criteria to be considered as an RMN force multiplier? The explanation above has clearly stated the dominance of RMN submarines in conducting their specialised roles which can't be done by any other forces, and these have increased the

effectiveness of the RMN, especially when dealing with underwater threats. These specialised roles could also support strategic effects for the RMN, and to some extent, for the nation. Strategic effects can only be measured as a consequence of what we do. By observing the enemy's manner of response, it will enable us to understand if the strategy has resulted in its intended or unintended effects.

The sinking of Indian Navy frigate, INS KHUKRI by Pakistani submarine, PNS HANGOR on 3 December 1971 showed how a single submarine deployment could change the effect of the subsequent operations. The Indian Navy cancelled its planned Operation *Triumph*, an operation to attack Karachi Port in view of the PNS HANGOR threat. A massive submarine hunt was conducted by the Indian Navy involving surface ships, aircraft and helicopters but failed to locate the Pakistani submarine. The fact that an enemy submarine had just successfully sunk a frigate, and was still lurking in the Indian Ocean was more than enough to create fear of further losses which led to an intense anti-submarine operation to neutralise the threat. The sinking of Argentinian ARA GENERAL BELGRANO by HMS CONQUEROR in the early stages of the Falklands War in 1982 had also gained tremendous strategic effect for the British forces sailing to recapture the Falklands Islands, in which the entire Argentinian Navy returned to port and never attempted to sail out again during the Falklands War and were not able to threaten the British naval forces. The strategic effects, as portrayed by these two submarines managed to show consequences far above the weight of the torpedoes they launched and these drastically affected the end state of the theatre.

Conclusion

The two RMN Scorpene submarines, being small, agile and versatile, are well suited for operations within the strategically located Malaysia's maritime territories, as well as the waters beyond. The unique characteristics of the submarines are able to enhance the RMN capabilities to provide Malaysia with underwater warfare capacities to conduct strategies of sea-denial which are to deter and deny enemy's naval

freedom-of-movement and to secure friendly ships' movement in times of conflict. The specialised roles, in which can be performed individually by a single RMN Scorpene, can still generate valuable strategic effects. The result of the RMN submarine's deployment may significantly increase the capabilities of RMN, thus making it a significant force multiplier for the RMN.

About The Author



Cdr Noor Hazri bin Mohd Dzohir RMN, a Royal Malaysian Navy submariner is currently appointed as an Assistant Chief of Staff for Readiness at Submarine Command Headquarters. Specialised in submarine weapon and combat system, he is the premier crew of KD TUN RAZAK when it was commissioned on 5 November 2009. Previous appointment, he had served on board KD LEKIU and KD SERANG prior to submarine employment. His last sea deployment was as a PWO of KD TUN RAZAK until the end of 2016, clocking with more than 11,500 of diving hours.



DEADLY PAW:

SUPER LYNX MK 100 OFFENSIVE PUNCH

Introduction

The rapid modernization of neighbouring navies has recently outpaced the RMN in terms of quantitative modern asset procurement. Various naval asset procurements by regional navies ranging from Fast Attack Craft (FAC) to Frigates, capable of delivering lethal missile attacks to their opponents indicates that missile delivery platforms remain the key element in naval tactics in this region. Anti-ship missiles are the primary instruments and the most influential weapons shaping tactics.

Being small does not mean an absence of big ideas. The RMN, although a small and humble naval force compared to some other regional navies, is implementing its innovative 15to5 transformation program, in the hope of a new naval inventory. However, various challenges, mainly fiscal, have had a significant impact on this ambitious program, which eventually will affect RMN maritime operations. The operational art particularly the operational force was greatly affected, and it was further worsened with the challenges in operational space; the Straits of Malacca and the South China Sea. These two bodies of water have had attracted many superior navies to exert their influence on Malaysia's frontiers.

Thus, to mitigate the gap in capability, it is imperative that the RMN warfighter must make full use of its current assets and be more innovative on how to put them to our advantage. One of the assets is the helicopter force which is capable of delivering air to surface missile (ASM) attacks. There are several justifications on why the RMN needs to retain its helicopter fleet as part of the missile delivery platform alongside the surface fleet.



The primary rationale is to keep its current capacity as a force multiplier. The Super Lynx Mk 100 helicopter has played its role as the eyes and ears of the fleet since its first acceptance into the RMN inventory in 2004. With the right tactics in the right hands, the RMN helicopter force may play its role as part of the sea-denial team similar to the David versus Goliath scenario, when facing a superior opponent. This will assist the RMN in performing its duties in protecting its maritime resources and interests while waiting for the realization of the 15to5 RMN innovative program.

Force-Multiplier Capability

The introduction of the Super Lynx helicopter into the RMN in 2004 has enhanced the fleet warfighting capability. Several new naval tactics have been developed, which to some extent influence RMN naval tactics. Capabilities such as providing Over The Horizon Target (OTHT), Tele Guidance in extending the missile effective range, stand-alone missile attacks and weapon carrier for Anti-Submarine Warfare (ASW) are some of the

capabilities brought by this helicopter. All these capabilities significantly enhance the RMN fleet warfighting capability.

However, several capabilities were degraded due to the obsolescence of spares, particularly from the fleet. It is the same fate for the helicopter fleet as its struggles to retain capabilities by strictly adhering and complying to maintain its aircraft especially in ASuW role. The ability to launch Sea Skua missiles has been prioritized as it is one of the main force multipliers in RMN naval tactics. Missile warfare dominates modern warfare at sea thus the RMN fleet must keep this capability. Records of missile combat between fleets dating back to 1967 in the Arab-Israeli War and later the Indo-Pakistan War, Tanker War and the Falklands War showed the domination of missiles in a naval battle. The RMN must ensure that this dedicated air launched capability is retained as it may become a game-changer by providing alternative solutions to the fleet for Anti-Surface Warfare (ASuW) role.

As a small coastal navy, the RMN may adapt the Corbett ideas of sea denial strategy to mitigate the gap in its force and space factors to challenge superior navies within its waters. A small coastal navy does not have to be a sea power as it may not be able to stop a big navy dead in its tracks, but it can bloody their nose thus delaying or in some extent denying them freedom of access. A sea denial strategy requires the RMN fleet to avoid decisive naval battles, disperse its fleet and control multiple choke points within its region. Several area-denial tools such as submarines and mines are perfect tools for this strategy. In addition, the RMN may utilize its helicopter force to become one of the sea-denial tools: challenging the aggressor force, thus denying them control of surrounding seas. This defensive fleet strategy is known as a fleet in being, one of the methodologies to dispute command of the sea. This strategy has been used by a weaker force to challenge superior aggressor forces by utilizing the concept of avoiding decisive action as to keep the fleet in being until the situation develops in their favour. One essence of this tactic is mobility, as it is vital to continually harass the enemy and continuously occupy his attention, thus preventing the enemy from exercising control in spite of its

superiority. As mobility is critical, the RMN helicopter fleet can perform this task with the speed that it brings. Further, it only takes 3 crew to fly a mission and less than an hour to make the aircraft ready for its operation compared to a surface ship. Moreover, the helicopter's missile is able to deliver an offensive strike on an enemy surface combatant although the level of destruction is not as lethal as the surface to surface missile.



The helicopter's missile may provide an alternative solution to achieve a surprise attack, thus denying the opponent's intent. As the RMN fleet disperses to avoid a decisive naval battle to prevent destruction, the RMN helicopter fleet may assist them by preventing their opponent from exercising sea control. This is feasible via continuous active and vigorous harassing operations and obliges them to think of nothing but being on their guard against attack. Prior to the attack, accurate targeting information is a prerequisite and vital for a precision attack and to achieve the element of surprise.

As a small naval force with a very modest budget, the RMN is constrained by the amount of ammunition it can expend, particularly missiles. Therefore, its attack must be precise and lethal. Precision is a prerequisite before launching an attack and this is possible with excellent scouting. Timely targeting information is imperative as it will contribute towards the element of surprise and the economy of force, one of the elements in the principles of war. A sound scouting tactic will assist the fleet to attack effectively first, thus gaining initiatives in a naval battle. A surprise and lethal attack will bring trauma to the opponent and it will worsen as the attack is frequent and accurate. This will tear down enemy morale and effort which eventually will deny them to focus on its objective

instead having to guard their rear against continuous attack.

Counter Argument

Some would argue that the RMN helicopter missile attack capability is insufficient to contribute towards the RMN fleet warfighting capability. The good anti-access strategy is to prevent an opponent from operating military forces near, into or within a contested region and arguably, the helicopter is incapable of performing this task due to its limitation and constraints. Limitations such as lesser endurance compared to a surface ship, vulnerability to anti-air missiles and weather dependence are a few limitations that will affect helicopter operations particularly when delivering a missile attack.

That a helicopter's endurance is less compared to a surface ship or submarine means its operational time in the operations area is limited. With a limited amount of time, the effort to initiate the first attack is more challenging whereby the aircrew needs to make a decision faster. The phases in ASuW: Surveillance, localization, identification and engagement time are shorter and more critical, thus requiring the aircrew to work under pressure and this may degrade the crew's awareness which potentially leads them to make a mistake. In addition, technology advancements in surveillance and detection by sensors has made the helicopter susceptible to be detected and engaged by surface to air missile in the early stages even before the helicopter is able to locate its opponent. Moreover, the helicopter is weather dependent and only able to fly whenever weather permits.

Rebuttal

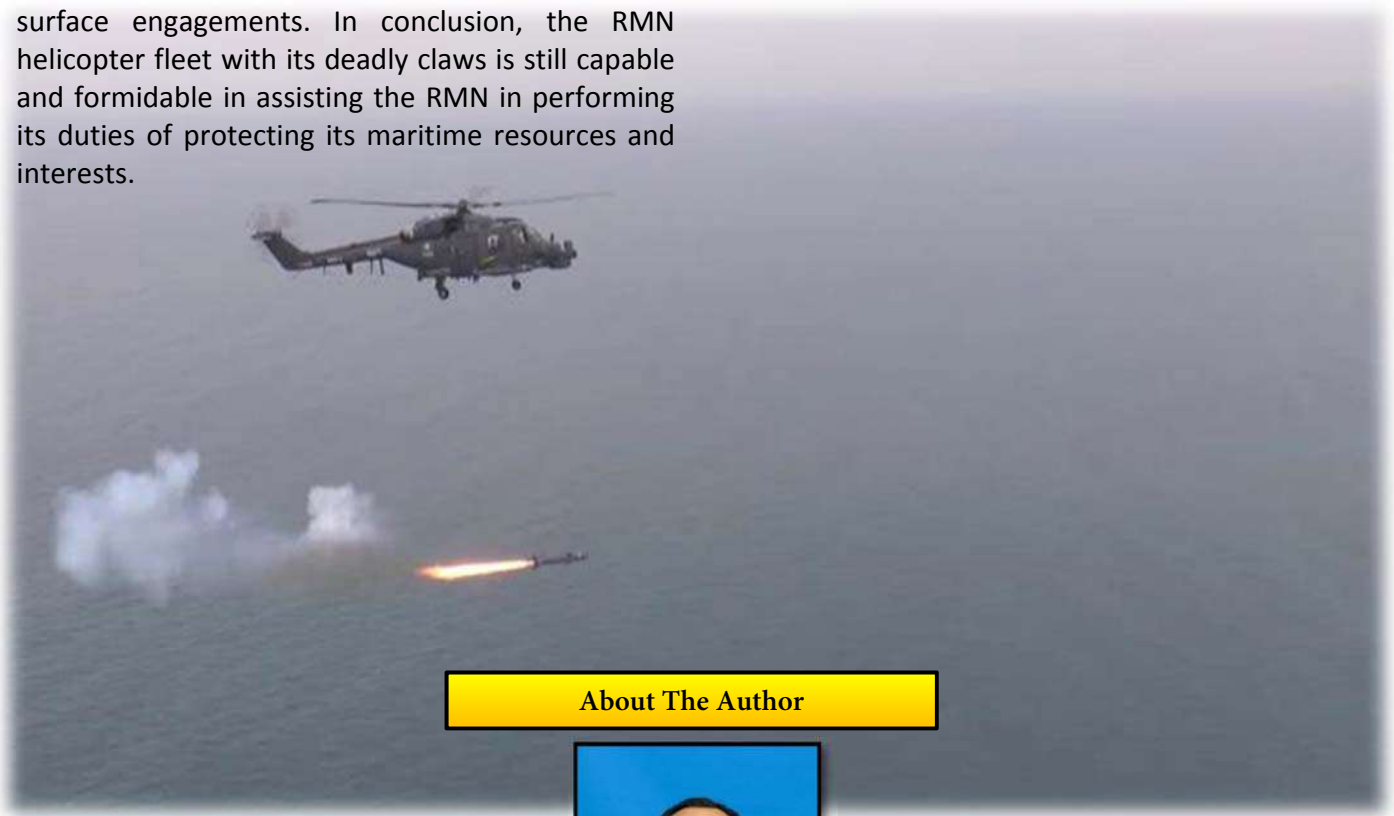
Despite its limitations, it is arguable that the helicopter contribution is insufficient to assist the RMN fleet warfighting capability particularly vis-à-vis a superior navy. However, the helicopter may make full use of Malaysia's unique geographies whereby its long peninsular coastline, scattered small islands and variable topographies are the excellent home playground for the helicopter. These unique geographies will significantly pose a challenge by complicating and limiting the opponent's sensor

capability and disrupt its layered defence, defence in depth and mutual support, thus exposing its vulnerabilities. Furthermore, the RMN helicopter may exploit various choke points areas which are in the vicinity of land to launch a surprise attack and to obtain the attack effectively first concept which is the cornerstone in naval tactics. It will become a big blow for the opponent if the attack is carried out against the enemy's critical vulnerabilities which eventually affect their operational art. Although the weather plays a significant role in helicopter operations, it does the same too for the opponent. Besides degrading the sensor and armament efficacy, bad weather affects the ship's crew readiness and morale to perform their duties and this may be an excellent opportunity for a helicopter to strike.

As a warfighter in a small navy, it is a fact that we are unable to get whatever we want or dream of, to fight in the most simple and easy way with less risk as demonstrated by the modern superior navy. Thus, it is imperative that we, a naval officers, must think of how to use whatever assets and resources that we have and build initiatives to perfect our tactics. This was emphasized by former Rear Admiral Joseph Caldwell Wylie Jr from the US Navy when he once quoted that naval officers are 'a breed of fine seamen, of able airmen, efficient administrators, and of superb tacticians and technicians.' Training and a sound doctrine must be developed and revised to meet the current and future challenges. The exploitation of our unique geographies is one of the resources that we must use to our advantage as part of our naval tactics. The RMN helicopter, with its high maneuverability and agility is one of the RMN's current assets that may exploit this advantage and eventually deliver a heavy blow to the opponent with a lethal strike from its missiles. It can be considered as one of the A2AD tools beside submarines and sea mines, a concept that has been long used throughout military history dated back in 480BC between Persia and Rome whereby we learnt how a smaller naval force might use stratagem and coastal terrain to destroy a larger fleet.

The recent Sea Skua missile firing by 501 Squadron during Exercise KERISMAS 24/2019 and TAMING SARI demonstrated that the RMN Super

Lynx Mk 100 helicopter had maintained its relevancy in the ASuW environment. It is the only helicopter in the region that is capable of delivering the farthest missile attack and the RMN must retain this capability as it provides an alternative solution to surface engagements. In conclusion, the RMN helicopter fleet with its deadly claws is still capable and formidable in assisting the RMN in performing its duties of protecting its maritime resources and interests.



About The Author



Lt Cdr Syed Muhammad Shafiq RMN joined the Royal Malaysian Navy in 28th September 2001. He has served in various units; DGO onboard KD L&E;KIU, ADC to former Fleet Commander, Tactical Coordinator Officer (TACCO) of 501 SQUADRON Super Lynx helicopter, Naval Assistant to former Deputy Chief of Navy, Executive Officer KD L&E;KIR and currently back to 501 Squadron as TACCO. Lt Cdr Syed graduated from the USNWC Rhode Island, United States with Honour in Master of Arts in Defense and Strategic Studies in the year of 2018.

Major Threat in SABAH

Strategic Plan to Counter

By Sub Lt Muhammad Anas bin Zulkornain RMN

Introduction

Asymmetric threats are certainly no longer a new thing in this modern world. Be that as it may, it has turned into a strategy of choice among dissident, extremist political groups and will be the most likely national and international security threat in this 21st century. Operating in small, cover groups, and having unrecognized sovereign territory or populaces to promote, asymmetrical combatants can engage in violent, lethal activities with far less risk of being totally overwhelmed by reprisals that a nation-state may employ. In addition, those killed in action can be portrayed as martyrs to the cause and used to recruit more adherents.

Definition

Janice Gross Stein stated that threat perception has been central to theories of war, deterrence and compellence, alliances, and conflict resolution. Threats were initially equated to military power, but scholars then looked seriously at intention as a source of threat, independent of military capabilities. Additionally, taking a "War" definition written by Carl Von Clausewitz, war is "the continuation of politics by other means". Thus the asymmetrical threat could be define as an armed conflict to achieve political objectives, and as the name implies, involves a disproportionate distribution of power and it is initiated by the weaker side. The objectives could be numerous and subjective. The strategic objective of asymmetrical threats is psychological not military. It is to intimidate the adversary psychologically by directly or indirectly inflicting fear and terror in order to achieve its political agenda.

In more descriptive terms, it is, "the combined use and threat of violence that is directed at one set of targets the victims, to compel compliance or allegiance from another set of targets (target of demands) or to impress a wider audience that is not directly involved in a specific conflict (the mass media, the general public, world opinion, other governments".

Objectives

Right off the bat, asymmetrical combatants use such as covert terrorist and unconventional guerilla tactics and seek avoiding direct military encounters with the adversary's usually vastly superior armed forces. A second objective that could be a vital strategic objective in an asymmetrical threat is to win the hearts and minds of potential sympathizers and supporters, thereby gaining financial and logistic support, safe havens, and the ability to recruit new combatants. No asymmetrical organization or movement could survive in the long term without a significant outside support system.

Contents

It is known that security issues that are most pertinent to Sabah are maritime threats and they are essentially non-traditional. Issues such as territorial integrity, political independence and military threats have continued to dominate the literature on security issues in Sabah. There could be many threats but I would like to highlight the noteworthy threats that compromise this state such as kidnapping, smuggling, and illegal immigrants which can be a nightmare for our country. On the other hand, smuggling and illegal immigrants might be

seen as less threatening, but it will gradually have a huge impact in Sabah and the whole country. Having militants that are living furtively in Sabah is quite challenging, and it is difficult for the security Forces to capture them. Militant groups such as Moro Islamic Liberation Front and the Abu Sayaf Group are the main militants that cause a lot of threats in Sabah.

Kidnapping

One of these militant groups here caused a big scenario in 2013 at Lahad Datu, Sabah. They were a small group moving tactically and waiting for the right time to ambush or cause a small skirmish with the armed forces. Through my research, I became aware this militant group had planned the attack a long time before and waited for the right time. Back to the kidnapping issue. There were two separate incidences which happened on 1984 in Lahad Datu, and another on 1996 at Semporna, a group of gunmen, believed to be a group of Filipino pirates, attacked the police station and military outposts and caused injury and deaths.



Figure 1: Kidnapping Statistic from The Malay Mail Online.

Furthermore, there was another incident in April, 2000 which involved Abu Sayyaf group (ASG) abducting foreign tourists from the Sipadan and Pandanan islands. ASG used small boats, armed with Bazookas and M16 abducted 10 Malaysian workers and 11 foreign tourists. They gained a US\$ 1 million ransom for each victim and the establishment of a commissioner to look after the rights of refugees in Sabah.

Smuggling

Smuggling has caused threats such as the loss of millions of Malaysian ringgit in taxes for Sabah in which essential subsidized goods such as cooking oil, petroleum, rice and sugar are smuggled out to neighbouring countries. The smuggling activities occur along the coastline of eastern Sabah. Illegal shipments of firearms, people and contraband are also smuggled between borders. In places like Tawau, it takes just 10 – 20 minutes by speedboat to reach Indonesian waters.



Figure 2: Sabah Marine Police foils smuggling.

Commodity	Year		Value Seized (RM Million)		Estimated Taxes (RM million)	
	2016	2015	2016	2015	2016	2015
Drugs	60	55	73.43	35.41	-	-
Alcohol	1601	1425	34.84	71.35	122.29	212.87
Textile	88	139	3.97	6.10	0.43	0.78
Other Commodities	1111	1339	180.28	192.97	28.91	36.18
Cigarettes	961	1183	68.67	56.93	648.08	315.43

Source: 2016 Annual Report, Royal Malaysian Customs Department

Table 1: Commodities Statistic

Illegal Immigrants

For the illegal immigrants issue, most of the immigrants based on facts are from Indonesia and the Philippines but then 70 percent of them illegally crossed the border of Malaysia. Despite regular enforcement operations to apprehend and deport these illegal immigrants and stricter penalties on employers, illegal immigrants continue to stream into the state. From the period of 1990-2007, it was estimated that 360,000 illegal immigrants were caught while 280,000 were deported.

The Plans

There are many tactics and strategic plans to counter the asymmetrical threat. I have selected the top relevant tactics based on my research that relates to Sabah and Malaysia. These are, diplomacy, intelligence and use of military force. Diplomacy plays an important role in multinational and bilateral cooperation. Due to the international scope and transnational reach of the asymmetrical threat, no single country can meet a major asymmetrical threat unilaterally. Therefore, diplomacy must play a leading role in seeking, maintaining and participating in cooperation at the senior political levels of foreign governments and in facilitating cooperation and cooperation with counterpart agencies and companies.

Next, because of the covert nature of an asymmetric threat, timely intelligence, collection analysis and dissemination and sharing information is absolutely necessary. To defeat the enemy, it is vital to identify asymmetrical adversaries, their locations, assets, capabilities, intentions, and targets. Hence superior intelligence is required in this field. Finally, it is the use of military force. The primary role in the use of military force has traditionally been to combat counter-military forces. In any case, it has increasingly become involved in counter- insurgency operations when national security is threatened, including restoring and maintaining public order and assisting in public relief programs.

Conclusion

From the above discussion, it should be clear that the strategic vision proposed here is not intended to be an all-purpose formula for countering all specific asymmetrical threats. Malaysia must create a strategy tailored to meet its specific domestic capabilities and political costs and benefits, and be flexible enough to address the specific requirements for successfully countering the specific threats facing it. Strategic plans must constantly be modified to meet evolving challenges.

About The Author



Sub Lieutenant Muhammad Anas bin Zulkornain RMN, a Royal Malaysian Navy officer, is currently appointed as an Return and Traffic Officer at Logistic Department of Submarine Command Headquarters. Specialised in Supply Branch and completed his Degree in Strategic Study at National Defence University of Malaysia Class of 2017. Previous appointment, he had onboard KD PERAK and East Fleet Supply Depot during his On Job Training.

Autonomous

Underwater

Vehicle

By Lt Ahmad Aiman bin Yusoff Cheong RMN

Introduction

In 1988, the USS Samuel B. Roberts struck an Iranian M-08 mine in the Persian Gulf. The resulting explosion punched a 5 meter hole in the hull, knocked the ship's engines from their mounts, and flooded the engine room. The damage cost the United States Navy nearly \$100 million. The M-08 mine was designed in 1908. It costs approximately \$1500 to manufacture. This asymmetry explains why maritime mines are one of the most cost-effective weapons in the naval arsenal. They deny access to coastal zones, thereby seriously impairing the effectiveness of surface and subsurface assets. It is estimated that there are more than 250,000 mines of more than 300 types in the inventories of navies worldwide. For this reason, most navies have fleets of mine countermeasures vessels (MCMV) designed to detect, classify, and dispose of mines. A typical end to end which is a complete mine countermeasure (MCM) mission that uses an AUV and a Mine Disposal Vehicle (MDV) can include up to four steps of response:

- Detection: Discover a mine-like object (MLO). - **AUV**.
- Classification: Determine whether a MLO is a mine. - **AUV**.
- Identification: Confirm the exact type of mine. - **MDV**.
- Disposal: Blow up the mine. - **MDV**.

But the challenges of the underwater environment can make a typical MCM mission extremely time-consuming and error-prone. Furthermore, most of the steps require proximity to the mine itself, which is dangerous for the MCMV and its crew. The next

generation of MCM robotics will use swarms of unmanned, fully autonomous underwater vehicles (AUV) that travel far from a launch vehicle and operate in a mine field for extended periods of time. This approach promises such a dramatic reduction in risk to ships and sailors that it warrants significant military investment. Furthermore, a single MCMV will be able to launch multiple AUVs. This will increase operational tempo, reduce manning requirements, and enable general-purpose vessels to be used as MCMVs.

The Global Market for AUVs

Since the last AUV review in 2016, the market has continued to grow. The biggest market for AUV systems remains the military. The world's most advanced Navies own and operate low-logistic AUV systems for MCM in very shallow waters. These systems can operate in confined areas where MCM vessels cannot. The same systems can also be used in search and recovery operations, hydrography and salvage. This market used to be dominated by a handful of AUV providers. However, the number of manufacturers is increasing. Defence primes are also investing in these technologies through internal development programmes or acquisitions. The AUV market in Asia-Pacific Countries (APAC) is expected to grow at a high rate between 2017 and 2023. The rising need for energy, along with the high Gross domestic product (GDP) growth rate, in developing countries in APAC, such as China and India, is creating huge opportunities for manufacturers of AUVs in this region. North America is expected to hold the largest share of the AUV market in 2017. The increasing adoption of AUVs for military & defense applications in the US is driving the growth

of the AUV market in North America. The market is currently dominated by players such as Kongsberg Maritime (Norway), Teledyne Gavia ehf. (Iceland), Bluefin Robotics (US), ECA Group (France), and SAAB (Sweden).



Figure 1: AUV widely used in military operation.

Specifications & Capabilities

The growth in AUV use is in part driven by continuing improvements in AUV technology and capability. In the last two years, new AUV models have been launched and these can gather more data, over longer periods and more accurately. Many of these AUV systems are more compact than their predecessors despite their increased capacity. Better endurance, improved communications, more accurate navigation, enhanced imaging, artificial intelligence and big data are all contributors. Recent advances in energy density, spearheaded by the mobile phone industry, have helped improve AUV endurance. In parallel, communications, navigation and payload instruments are becoming more effective. The latest advances in signal design are being used to make acoustic communications travel further and carry more data, using less power. Other techniques like free space optical modems are also enabling large amounts of data to be transferred through water to AUV systems, using the visible light spectrum at distances of up to 150m. More than ten thousand times more data can be transferred this way than is possible with acoustics. In parallel, navigation performance is improving thanks to new inertial navigation systems that can dead-reckon with as much as twice the certainty of

what was possible even two years ago. This is possible by combining latest generation gyros and acoustic aiding from Doppler velocity logs as part of a single instrument.

There are now many more options for AUV payloads. When thinking about a mission, operators can choose from lasers, sonars and even stereoscopic high-definition video. Electronically scanned sonar systems are now manufactured in all sizes even as small as a GoPro camera for every application. Some produce stunning imagery at 5m range using high frequencies. Others, working at lower frequencies, can spot obstacles at ranges of over 1000m. For inspection missions, video and laser are combining to provide stunning pictures of the subsea environment as it has never been seen before; at centimetric resolution and in full colour. When it comes to survey, operators are not just limited to side-scan sonar imagery and multibeam bathymetry. There is now a new generation of multi aperture sonar systems capable of extending range and producing three-dimensional bathymetry. Synthetic aperture sonar has also proved popular for large AUV systems. This is an industry generating more data than ever before. Fortunately, it is at a time when storage solutions have become more prevalent, and machine learning and big data techniques are becoming wide-spread.

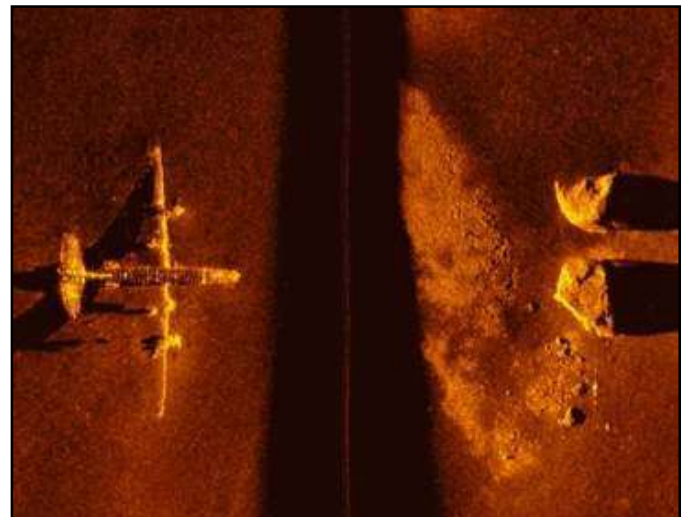


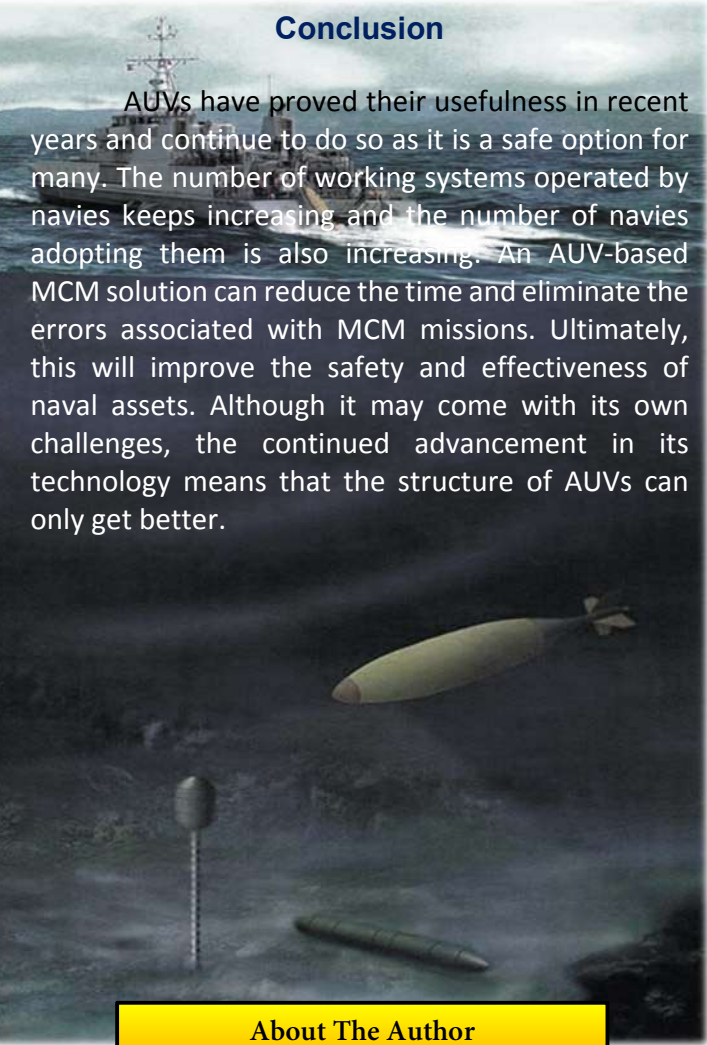
Figure 2: High resolution image in seabed.

Cylinder shaped AUV systems with a diameter of approximately 9in to 12in have become a common sight in MCM operations. These systems are typically equipped with side-scan sonar systems and high-grade survey systems. They are launched from small vessels or rigid hull inflatable boats and survey rectangular areas of the seabed in search of objects of interest. The data quality and speed of survey make them the ideal tool for this purpose. The AUV comes with a user-friendly mission preparation and post analysis software. Missions can be prepared in advanced in order to be quickly deployed on field. The AUV performs its mission in a completely autonomous way enabling the operators to focuses on other important tasks and prepare post-mission treatment.

An AUV, as mentioned above, comes in various sizes and it is these sizes that determine the actual depth to which these vehicles be deployed. This factor therefore makes it very important when the prospective usage of this marine technology is considered. An AUV uses a computer system that can be manned from a ship or a naval vessel from which it is being launched or deployed into the water. Also enabled are equipments like compasses, sonars and thermal resistors. It has to be noted that the AUV as a marine technology operates on the basis of something known as the Underwater Acoustic Positioning System which uses the aid of the GPS fitted in the ship or the naval vessel to propel it further in the water. With so many technological aids to help the marine technology of an AUV, it can be proved without any doubt that an AUV is a very successful apparatus when it comes to underwater recon and scouting. When it comes to the aspect of power supply in an AUV, the problem is also solved with the use of batteries. There is also an advanced battery management system that allows an AUV to spend more time underwater than looking for repeated recharging of the battery system.

Conclusion

AUVs have proved their usefulness in recent years and continue to do so as it is a safe option for many. The number of working systems operated by navies keeps increasing and the number of navies adopting them is also increasing. An AUV-based MCM solution can reduce the time and eliminate the errors associated with MCM missions. Ultimately, this will improve the safety and effectiveness of naval assets. Although it may come with its own challenges, the continued advancement in its technology means that the structure of AUVs can only get better.



About The Author



Lt Ahmad Aiman bin Yusoff Cheong RMN, a Royal Malaysian Navy Mine Warfare Officer, is currently appointed as Staff Officer 3 of Mine Warfare at HQ NDMW. Specialised in Mine Warfare, he had attended the IMWOC at HMAS Waterhen in Sydney, Australia back in 2016. Previous appointment, he had served on board KD KINABALU, KD LEKIU and KD KASTURI prior to Mine Warfare employment.

Encountering **CYBER THREATS**



for **NATIONAL SECURITY**

By Sub Lt Irham bin Hashim RMN

Asymmetric refers to an unequal balance or whenever we thinking about threats, an unfair advantage, usually to the perpetrator providing an excellent preview of what an asymmetric threat is. Often it is described that attacks of this nature are undetectable, and once they have occurred, impossible to determine their origin. Further elaboration on this concept is by defining the term asymmetry as that which focuses on placing one strength against an adversary's weaknesses, even when the overall forces may favour the adversary. This is opposed to traditional combative threats, which require much more planning, financial means and well-coordinated execution through the use of militaries.

When considering asymmetric threats in the context of cyber warfare, it is essential to consider counter measures. How do we combat a threat that we cannot see coming? Here, the importance of fostering a more educated cyber security workforce is emphasised that can be better equipped to detect and mitigate such threats. We need a national program covering technology, doctrine and techniques, law and regulation, research into the underlying causes of catastrophic terrorism, and institution-building. This program should cover all phases of the "life cycle" of catastrophic terrorism: intelligence, prevention and deterrence, warning, protection, crisis management, damage mitigation and cleanup. Long discusses the importance of applying lessons learned from past attacks, and updating our policy mindsets realizing asymmetrical threats will not be countered successfully by force alone. Long also points to the importance of a multi-faceted approach including the cooperation of the international community. In addition to this, the government and business organizations will need to

continue building stronger cyber defenses and protections including multi-layered approaches and strategies for continuous mitigation. Regardless of strategy, it is clear that demand will continue to increase for skilled personnel who will be able to lead the way in these efforts.

New technology means that smaller and smaller groups of people, well below the scale of nation-states or traditional terror groups, will be able to inflict war-scale violence. This poses a fundamental long-term problem for global society. Appropriate and effective counters to this danger are likely to take a long time for governments and others to devise. Asymmetric threats are not new, nor are strategists' attention to them. In every era, from the pre-modern to the present day, weak forces utilize surprise, technology, innovative tactics, or what some might consider violations of military etiquette to challenge the strong.

Identifying the existence of asymmetrical threats is far easier than to define them. While asymmetry focuses on how to place one strengths against an adversary's weaknesses, even where the overall correlation of forces may favour the adversary, there remains no consensus about the nature of the asymmetric threat concept. Stephen J. Lambakis, an analyst in space power and policy, questions the usefulness of the concept, given the lack of consensus over its meaning. Such logic, however, falls flat. After all, that there exists no consensus about the definition of terrorism does not mean that a government should not develop counter-terrorism strategies. Still, the breadth of asymmetrical threats undercuts the notion that there can be any unified response to them. While, in general terms, the asymmetrical threat concept

describes how the weak might battle the strong, discussions diverge when discussing asymmetrical threats from states versus those posed by non-state actors. Control of technology is among the most important factors in determining state power. History is replete with centralized states seeking to consolidate control and peripheral forces resisting it. Fracturing of central control marked the decline of the Abbasid Empire. Authorities might have paid nominal heed to the caliph in Baghdad, but local dynasties held sway. They controlled the military necessary both to ensure obedience from local residents and to counter pretensions to control from Baghdad. These city states and small polities became easy pickings for the Mongol hordes who swept through Asia and Europe in the 13th century. No sooner had they departed, though, than centrifugal forces again fractured Asia and Europe. With no central monopoly over the most advanced weaponry bows, arrows, and iron they could not overcome challenges to control vast and far-away territories.

The components of the military balance-of-power changed though in the fifteenth century. Governments monopolized gunpowder technology and found their relative power over the periphery to increase when they controlled artillery which smaller states could not master or afford. Rulers could control far broader swathes of territory than had earlier been possible. In the early sixteenth century, the Ottoman, Safavid, and Mughal states the so-called "Gunpowder Empires" together stretched from Eastern Europe to Southeast Asia. Their monopoly faded over time. Both internal and external challenges eroded the empire's control over its periphery. The Ottoman sultan lost control over large chunks of North Africa, the Safavid Empire disintegrated into rival states on the Iranian plateau, and the Mughal Empire disintegrated. European armies, though deficient in numbers compared to their Middle Eastern and Asian counterparts, made vast inroads, if not formally colonizing territory, nevertheless exerting informal influence over it.

While the Islamic world never again rose to challenge Europe, within the context of their own societies, Muslim rulers soon regained advantage over their periphery. The communications revolution swung the balance of power in favour of the central government. While weak within, for example, the Qajar dynasty in Iran experienced a resurgence of power when it invested in the telegraph to bolster communications among government officials dispersed across the nation. For a few decades in the latter half of the nineteenth century, they consolidated control over restive provinces. They had a technological advantage and re-established an asymmetric relationship. However, with time, they lost their comparative advantage. Opponents used the communications technology to coordinate a mass movement to check the government's power. The result was a period of upheaval and mass movements, culminating in the 1905-1911 Constitutional Revolution. Technology not only enables asymmetry in power relations, but can also be used to overcome it. In conclusion, everybody must understand and play their role in order to counter asymmetric threats. We must identify our weaknesses and start to plan appropriate protections and countermeasures.

About The Author



Sub Lieutenant Irham bin Hashim RMN N405591 was commissioned into the Royal Malaysian Navy in March 2018. He was born on March 13, 1995 in Kuala Krai Kelantan. He is the 3rd child of 5 siblings. He holds a Degree in Defense Human Resources management from the National Defense University of Malaysia (UPNM). He currently holds the position of Administrative Officer of the Headquarters Eastern Naval Logistics (HQ ENL).

What Shape Should The Royal Malaysian Navy

MARITIME WARFARE CENTRE TAKE ?

By LCdr Christopher Charles Watson RAN

Introduction

The Royal Malaysian Navy (RMN) is about to turn its Maritime Warfare Centre (MWC) concept very quickly into a reality and therefore careful consideration must be invested in defining its role, aim and objectives to ensure its future relevance and effectiveness. It is possible that there are several key questions yet to be sufficiently explored. How should it be manned and by whom? What linkages should it have with other Defence agencies and external government agencies and even NGOs? Indeed, should there just be one RMN MWC? In considering such questions it is perhaps worth looking at how some other modern navies, large, medium and small have approached the issue.

Overseas MWC

ROYAL NAVY

Why have a MWC? If one considers the RN's MWC, it has evolved over several post-war generations. The Navigation and Direction branch specialists responded to the realization that new over the horizon technologies such as radar and missiles as well as the development of tactical nuclear weapons were radically changing the face of war at sea. Responding to meet the many rapidly developing challenges meant it was essential tactics, techniques and procedures would need to be studied in depth to meet the advances in the science and art of maritime warfare. Now housed in HMS COLLINGWOOD, the RN's MWC is fully matured. It is an alliance of Servicemen, scientists, and analysts, whose sole driving purpose is to create battle-winning tactics. The unit is made up of some 120 people, split almost equally between civilian and military, although at any given time many of them will be out at sea, on board ships: running trials and

experiments; and most importantly asking questions. Of note perhaps for Malaysia's Navy, as it was earlier alongside the School of Maritime Operations and its simulators in HMS DRYAD, today the renamed School of Maritime Warfare and the RN's warfare simulators rest within the same shore establishment as the MWC.

INDIAN NAVY

Turning to India, their MWCs seem to reflect much of what is currently undertaken, or was meant to be undertaken in the RMN's Maritime Tactical Centre, PUSTAKMAR. MWC(MB) – Mumbai, under the administrative control of Headquarters, Western Naval Command, was formed up as a tactics centre in 1981 and re-designated in 2000. Its functions include: ensuring all operational units achieve maximum tactical and procedural training before going to sea; arranging tactical games for ships and other units as required; assisting in the evaluation and assessment of new tactical doctrine; assisting in the analysis of major tactical exercises; conducting training courses; trying out newly developed tactics as realistically as possible in their Action Speed Tactical Trainer (ASTT) system prior to being employed at sea. In addition they compile and maintaining a data library of the capabilities of own and enemy naval units as well as all the similar functions undertaken in Lumut's WASPADA bridge simulator.

Perhaps unsurprisingly MWC(MB) is, like PUSTAKMAR, "the venue for conducting briefings/presentations for visiting foreign and inter-service delegations and also hosts numerous seminars, workshops and Naval Professional Series Lectures throughout the year." In India's Southern Naval Command in 2018 the Diamond Jubilee of the MWC (Kochi) was celebrated, self-described as "the

premier warfare training centre of the Indian Navy.” Headed by a one star officer the Centre’s main function is to train officers of Indian and Friendly Foreign Navies in the Art of Warfighting and its historical mission was to become a “global level centre of excellence in maritime warfare through highest quality of ab-initio training, specialist level education, command at sea consolidation and tactical analysis cum-wargaming”.

Under the Eastern Naval Command (ENC) for training, validation and evolution of tactics at sea is the MWC at Visakhapatnam. One of the premier ‘Category A’ training establishments of the Indian Navy, it was commissioned as the ‘Action Speed Tactical Trainer, Visakhapatnam’ (ASTT (VZG)) in September 1993. Like the MWC(MB) it was re-designated as the MWC (VZG) in 2000. MWC (VZG) is in an impressive five-storied building located within the Naval Dockyard, Visakhapatnam. MWC (VZG) plays host to various levels of computer based networked wargaming, evaluates naval tactics and validates mathematical models of a tactical nature. As in PUSTAKMAR, command teams of ships and submarines are exercised on a regular basis in the planning and conduct of the entire spectrum of naval operations in order to amalgamate them into coherent fighting units prior putting to sea.

UNITED STATES NAVY

The sheer size and scale of the USN like the Indian Navy precludes one centre alone being responsible for maritime warfare. The US Naval College at Newport Rhode Island conducts more than 50 wargaming events per year, and they range in variety from complex, multi-sided computer-assisted games to simple, single-sided seminar games. They develop strategic and operation insights, risk assessment and operational skills. Spread across a dozen or so Congressmen’s electorates are the Naval Surface Warfare Centers, a part of the Naval Sea Systems Command (NAVSEA). As well as supplying the technical operations, people, technology, engineering services and products needed to equip and support the Fleet and meet the warfighter’s needs they are also the USN’s principal Research, Development, Test and Evaluation (RDT&E) assessors for surface ship and submarine systems and subsystems.

Other units exist, such as the USN’s Naval Surface and Mine Warfighting Development Center (SMWDC) Headquarters in San Diego. The USN’s support to other smaller allied nations that do not have their own centres is also influential. “History has shown coalitions that don’t have a common tactical language lose, particularly when the opposition is monolithic... for New Zealand this forum represents essential access to a large pool of warfighting and scientific expertise that allow us to keep pace with tactical developments, in order to be ready to integrate our combat units with our partners.”

ROYAL AUSTRALIAN NAVY

The Royal Australian Navy’s (RAN) Australian MWC (AMWC) was opened by the Fleet Commander in 2011. Its focus is maritime warfare development, enabling a concentration of effort and presenting a single point of contact for the Australian warfare community. Based in Fleet Base East, its outstations include the Sydney Harbour Degaussing Range, the Land Based Magnetic Test Range at Orchard Hills, the Jervis Bay Sound Range and Telemetry Station, and the AMWC-West Office in Western Australia. Its mission is to optimise the warfighting effectiveness of the Fleet. To achieve this it has an effects based approach grounded in knowledge acquisition and operational analysis. The principal effects are: the generation of warfare policy and tactical doctrine; the optimisation of weapons and weapons systems performance across the Fleet, including through the conduct of quantitative and qualitative analysis of weapons firings, and the measurement and analysis of warfighting effectiveness, including mission specific signature management.

The exploitation of operational knowledge to better enable the Fleet to fight and win in the maritime environment is the central tenet of the AMWC. A Fleet Operational Knowledge Exploitation Cell (FOKXC) is a key enabler and is led by a cross discipline team known as the AMWC Lessons Board. It shapes the majority of activities and outputs of the AMWC. The AMWC is a part of the RAN’s Fleet Headquarters under the leadership of the Deputy Fleet Commander who is responsible for warfighting development. AMWC is also accountable to

Commodore Flotillas (COMFLOT) for the facilitation of the Fleet Lethality Assessment and the Joint Maritime Warfare Steering Group. AMWC is commanded by a Captain. In the future it is proposed that the Commander of AMWC will first serve as the Commander Maritime Task Group.

Among its other responsibilities, the AMWC develops the fleet's warfare policy, doctrine, tactics and techniques; it sets and enforces warfare standards; coordinates fleet science & technology program co-ordination; it provides support to the Joint Force Maritime Component Commander and joint tactical maritime planning. The AMWC develops detailed briefings for numerous standing committees such as the Navy Capability Committee, Joint Warfare Steering Groups, and the Joint Commanders' Meeting. Organised along functional lines it has several divisions responsible for key outputs with staff expertise in relevant disciplines, such as warfare domain specialists, engineers and analysts.

ROYAL MALAYSIAN NAVY

There is no doubt that the potential of a well considered and designed RMN MWC would be a real asset and possibly eventually a force multiplier in these times of severe budgetary constraint in Malaysia. Its creation is timely. The recent '15 to 5' Fleet restructuring program recognises and promotes the need for tertiary education for future RMN personnel. This, linked with the continuing rapid technological advances in so many areas of modern warfare, requires an organization with personnel that can identify and link to its advantage, new technology with new tactics. At the beginning of this article it was suggested that there are a number of questions regarding the establishment of the RMN's MWC. The answers to them need to be further explored if the organization is to maximize its future potential.

Concept

The RMN has now accepted in principle that the fast moving evolution of maritime warfare requires a one stop centre responsible for managing maritime warfare development at a tactical *and*

operational level. The idea of turning PUSTAKMAR into an MWC was the brainchild originally of the then Commander of PUSTAKMAR, First Admiral Soundrarajan K. Kalliappan RMN in 2012. The establishment of an MWC is now considered essential if maritime warfare is to remain current in the 21st century. The concept sees two main divisions within the MWC: Warfare simulation (currently conducted by the training department of PUSTAKMAR) and Research and Development (R&D). It is believed that the knowledge and expertise of MWC personnel should support the Development and Planning Division in Naval Headquarters to gain insight into the development of weapons and combat system technology before implementing new acquisitions into service. It is acknowledged that selected staff should have extensive experience in warfare, being subject matter experts (SME) in their area of warfare. Officers serving in the MWC will probably also be assigned as permanent representatives for the series of exercise planning including joint exercises, affiliations, bilateral and multilateral as well as assisting the process of designing exercise scenarios. The Commander would support higher authorities in all aspects of Maritime Warfare development as they affect senior committees and warfare planning.

The Malaysian MWC will be responsible through study and research for knowledge improvement in the arena of maritime warfare and naval tactics through discussions, workshops and seminars. It will contribute to the development of publications, doctrines and concepts of maritime warfare at the tactical, operational and strategic level and as required assist in their integration with the other services and the Joint Force. The R&D Division will evaluate and analyze the effectiveness of warfare doctrine and tactical publications; conduct research and publish; support training plans for the design, testing and implementing warfare training and provide technical advice to Fleet Commanders during JMAP planning. Importantly, they will also collect, coordinate and promulgate warfare lessons learnt. The Simulation Division will design and coordinate training and courses employing ASTT and be responsible for all aspects of wargaming and simulation in maritime warfare in the RMN.

Location

This question is perhaps the easiest to answer. In the author's view the RMN only needs one MWC. The PUSTAKMAR building in the Lumut Naval Base was established around the original warfare simulator and expanded to fit the modern ASTT. With the 2011 extension to the site for the Fleet EW Centre and a voluminous and under utilised library space with its surrounding meeting and small conference rooms, there is a ready-made home in Lumut to house the new MWC. As the middle word in the title of a MWC is *Warfare*, it makes a great deal of sense for the RMN to locate its own MWC nearest to its principal warfighters and Fleet Commander, not to mention the training establishments and the Action Speed Tactical Trainer simulator within the current PUSTAKMAR building. The latter has rarely been employed for R&D and with an MWC, new R&D staff with new responsibilities this should change.

Command and Control

Although Malaysia has two distinct and separate land masses separated by the South China Sea, senior RMN officers are already discreetly questioning the wisdom of establishing two Fleet Commands in 2017 with the associated costs of an extra Headquarters and its related support and sustainment issues as well as internal Fleet versus Fleet competing considerations. As described above, the Indian Navy has 3 MWCs, one for each of its three Fleet Commands: Eastern, Southern and Western. However the smaller Royal Navy makes do with one MWC under the Navy Command Headquarters, which also encompasses the Flag Officer Sea Training and Fleet Battle Staff. Even though its two main bases are more than 3,000 kilometers apart, the Royal Australian Navy also has only one MWC under its Fleet Command. Although perhaps a subject for another day, two Naval Region Commands are planned for East Malaysia while West Malaysia already has two. There is a strong logic to the suggestion to revert again to just a single Fleet Commander with the headquarters in Lumut. This is further reinforced by the future basing plans which will see the most capable surface units (LCS, Glasgow frigates, future MPCSS) remaining in

Peninsular Malaysia, together with the Fleet Air Arm.

Two options were put forward for ownership of MWC, a decision perhaps complicated by the presence of two Fleet Commands. The first would sit the MWC under the 1 star Operational Readiness Commander while the second would see the organization reporting to the Naval Headquarters N3, the ACoS for Operations and Exercises. In the present two Fleet system the latter has significant C2 benefits, primarily allowing the MWC to provide a service to both star Fleet Commanders while working for neither but ensuring it can also meet strategic and joint demands prioritised in Kuala Lumpur. Should the RMN revert to one Fleet Commander in Lumut then it would be logical for the MWC to be a Fleet unit, reflecting the Australian and Indian MWCs structures.

Manning

The present proposals for the RMN's MWC considers both divisions: Wargaming simulation and R&D. The former task is relatively straightforward as the players are by and large already in place to create and execute scenarios in wargames at the Basic Tactical, Command Team and Integrated Team (one star headquarters) levels. The ASTT has also on occasion been employed as part of joint and combined exercises at the operational level. Led by an O-5 the team comprises six O-4s including the RAN exchange officer and a Malaysian Air Force MPA specialist. Supported by a team of almost 30 sailors to man the simulator development, control room and eighteen cubicles/CICs the MWC manning concept understandably changes nothing from PUSTAKMAR's present wargaming team. There is one weakness which has existed since the new ASTT came online in 2005. That is the lack of continuity in game developers. If the RMN employed two ex-navy personnel on long term contracts as developers then their knowledge base would significantly enhance the usage capability of the current ASTT and any future replacement. It would enhance the system's capability to be employed as an R&D tool for new systems and tactics. 'Make do and mend' has not been a very successful or appropriate approach in this vital ASTT function.

PUSTAKMAR itself has an R&D department, however it has morphed over many years into primarily facilitating seminars and exercises rather than itself considering new tactics and researching new warfare systems. In the MWC concept it is envisaged the staff will comprise of one or two O-5 PWOs and four O-4s, one of the latter being an Air Force Major. PUSTAKMAR was established to have one O-5 and 4 O-4s, although the RMAF position has never been filled. The manning proposed for the R&D Division is simply inadequate for a modern navy's MWC. The Royal Navy began its MWC with specialists from the many different warfare areas at the O-5 level. As described above it now encompasses civilian scientists and analysts. The Royal Australian Navy has divisions led by O-5s or their equivalents in: Above Water Warfare; Underwater Warfare; Amphibious Warfare; Operational Analysis; Operational Knowledge Exploitation; Weapons; Science and Technology; Weapons System Performance and Signature Analysis.

In the RMN concept one O-4 will for example be responsible for AAW, ASuW and EW. As with '15 to 5', recognising that the RMN is faced with near time budgetary constraints should not prevent a satisfactory future vision for Malaysia's MWC being drawn up for the present. If several positions have to be gapped at the beginning in R&D there should be a plan for the medium term to overcome this. It is suggested that within 5 years of its creation the MWC should be at full complement.

O-5 desk officers are necessary because they bring a level of experience including often command and overseas courses and as senior officers will crucially have time and the self-discipline to analyse and think independently. It is suggested the following RMN O-5 desk officer positions should be established, noting that the current Fleet EW Centre is co-located with PUSTAKMAR and that its Commanding Officer may have the capacity to be dual-hatted or the FEWC be incorporated into the MWC: EW, AAW, ASuW, ASW, Submarines, Aviation (Rotary & UAV), Aviation (RMAF - Fixed Wing); Communications, Logistics (including MPCSS), Mine Warfare, Information Warfare (including Cyber, Asymmetric and Information Operations), Joint

Warfare (Army, including Amphibious, CIMIC, HADR and Peacekeeping), Meteorology and Oceanography. This is a total of 11 RMN commanders but In addition a Doctrine position heading a small team of O-4s/O-3s would be required to incorporate Tactics, Techniques, Procedures and warfare publications into the Fleets and higher headquarters, together with acting as the first point of contact for liaison coordination with external agencies. The RMN may also be well advised to consider the experiences and best practices of other navies as well the impact of future technologies when considering which science and technology elements should be included employing civil servant desk officers in the role of warfare analysis and developing a key relationship with the Institute for Defence Science and Technology Research (STRIDE). The current internet and IT infrastructure at the PUSTAKMAR site as well as access to online publications and research data such as Jane's will also need to be considered.

Aim and Objectives

The current MWC concept does not contain a suggested mission statement, aim or objectives although the level of responsibilities and tasks are listed in detail and could easily be finessed into objectives for the MWC command and its Divisions. The aim would appear to be to ensure maritime warfare is always relevant and updated according to current developments. This is itself is an admirable goal. The AMWC mission is focused on the Fleet: to 'optimise the warfighting effectiveness of the Fleet', while the RN's MWC has a 'sole driving purpose is to create battle-winning tactics'. While both those look to the sea, it is suggested that for the 21st century the RMN should aim to be more holistic and encourage the R&D element of its MWC in particular to look to the future, developing joint tactics sympathetic to Malaysia's unique location, geography and divided land masses as well as considering how the operational and strategic levels can best employ RMN assets in crisis and war.

Conclusion

This brief article has endeavoured to answer the question: what shape should a Royal Malaysian Navy Maritime Warfare Centre take? This next century promises to bring more rapid technological and societal expectations. If the RMN is to get ahead of the game in maritime warfare it must allocate

sufficient talent to its MWC. It must place there officers who are given time (free from the clutches of Human Resources' external demands) not only to think 'outside of the box' in terms of future warfare but to check that RMN tactics, techniques and procedures inside the box are optimized so the RMN's Commanding Officers, if called upon to do so, can fight and win at sea.





CAKAP TAKTIK MARITIM



 **Navy** 

