

AIRFORCE

RESILIENT, MOTIVATED, ADAPTABLE & FORMIDABLE

Digest



- **LIMA '19**
- **Defence White Paper**
- **CAP55-The RMAF Blueprint**



RMAF STRATEGIC THEMES

AIR POWER CAPABILITIES (KEUPAYAAN KUASA UDARA)

Projection of RMAF's war-fighting capabilities
to deliver the desired Air Power effects



OPERATIONAL EXCELLENCE (KECEMERLANGAN OPERASI)

RMAF's operational philosophy employed
in fulfilling all its roles and functions towards excellence



STRATEGIC ENGAGEMENT (KERJASAMA STRATEGIK)

RMAF's regional and global commitment
through strategic military engagements and convergence programs





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FOREWORD



LT GEN DATO' SRI HJ ABDUL MUTALIB BIN DATUK HJ AB WAHAB RMAF
AIR OPERATIONS COMMANDER

It gives me such a great pleasure to be able to pen a few words in this issue of Air Force Digest. I thank the Editorial Board for the opportunity to share some of my thoughts here as we celebrate the 61st Anniversary of the Royal Malaysian Air Force.

The Air Force Digest serves not only as a platform for the Air Force people to share their thoughts but also to reflect on their invaluable experiences by contributing essays and articles for the magazine. It is also a medium for the RMAF to promote itself as a professional organization to the sister services, friendly defence forces and the wider public.

In recent years, I have seen the quality of the magazine improve considerably. For that, I would like to thank all the writers for contributing the good articles. I must also express my gratitude to the Editorial Board for their commendable editorial effort in ensuring that the Air Force Digest meets high standards.

Turning 61 years old this year, the RMAF has come a long way, as part of the national defence organization; it reflects character, wisdom and maturity from all the experiences gained through the years. I have had the privilege to witness and to be involved in various capacities in the transformation of the RMAF from a supporting force in the 1980s to a modernized Air Force in the 1990s and now towards a full spectrum Air Force. It gives me a great sense of pride and joy to be part of the RMAF family and to have experienced these transformations first hand.

On this 61st Anniversary also, I would like to record my heartiest appreciation to all of the RMAF people who are currently serving and to those who had retired for their contributions through the years in ensuring that the RMAF always lives up to expectations and that it is indeed the "Backbone of National Defence" or "*Tonggak Pertahanan Negara*".

The recently concluded LIMA '19 was a remarkable testimony of 'living up to expectations' through the high level of professionalism shown by the Air Force people. I would like to take this opportunity to personally thank all RMAF personnel who were involved both directly and indirectly in the successful organization and execution of LIMA '19. My personal thanks also go to all crew involved in the Opening Gambit, the Air Display Cell and the Safety Cell for the superlative execution of the Tactical Air Display.

I pray to the Almighty ALLAH SWT to guide us towards success and to keep us safe always in all our endeavours in safeguarding the Malaysian skies for the years ahead. Let us live by our core values and strive for excellence to ensure the realisation of the RMAF's vision to become a dominant air power.

Happy 61st Anniversary and *Sentiasa Di Angkasa Raya*

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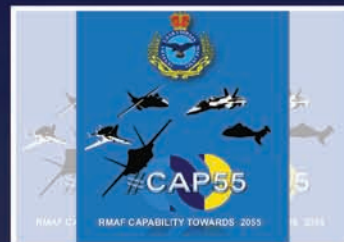
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ROAD TO EXERCISE PITCH BLACK '18 (PB18)

by LT COL ABDUL RAHIM BIN JUSOH RMAF

"Blade, we are going to PB18 next year."

The announcement by Col Koey RMAF, callsign 'Mickey', the Commanding Officer (CO) of No 18 Squadron of the Royal Malaysian Air Force (RMAF) to his Executive Officer, Lt Col Blade RMAF, hit like a thunderclap.

It was June 17, 2017. Already, Blade's mind was spooling up. Only a year to work out the logistics, the game plan, scheduling and tasking. This was going to be big.

Ten years had elapsed since the RMAF took part in one of the largest multilateral, comprehensive air exercises in the world, Exercise Pitch Black. A large-scale multinational war-game, Pitch Black is considered to be one of the premier air combat exercises in the world, one of the largest outside of Exercise Red Flag, held at Nellis Air Force Base in the United States. Pitch Black has a full spectrum of scenarios that make up modern air warfare, and participating air forces use the opportunity to provide realistic, high-end air combat training for their aircrew, while at the same time, build and cement professional and personal friendship among the participants.

Bilateral engagements such as exercises, Air Staff Talks, etc are regarded as necessary to keep the pointy end of the RMAF sharp and relevant. Aside from providing invaluable training to aircrew and groundcrew, these exercises also keep the air force clued in on current and emerging threats.

The RMAF took part in Pitch Black for the first time in 2008. Six Boeing F/A-18D Hornets from No 18 Squadron and one KC-130 from No 20 Squadron, together with more than 100 men were involved in the 3-weeks exercise in RAAF Base Darwin. Other Offensive Counter Air (OCA) players from various countries were also involved, bringing together their invaluable expertise and experience. RMAF detachment, led by Col Sanusi RMAF, callsign 'Smooth', with Lt Col Zahani RMAF, callsign 'Top-P' as Squadron Leader, acquitted itself well, providing a potent force and fulfilling all their mission objectives.

Now, 10 years on, the RMAF was chomping at the bit to show the world how it had matured as a fighting force, backed by the latest upgrades in capability and enhancements to the airframes in the '25X Standard' configuration.

The tempo, scenarios and pace at Pitch Black is so realistic that aircrew regard it as "coming within an eyelash of a shooting war". In August, 2017, a planning team was formed by RMAF Air Operations Command (Markas Pemerintahan Operasi Udara-MPOU). Lt Col Blade was named as the head of exercise planning in the initial stages and later formally attached to MPOU for final planning. The order came from one of the main drivers of the initiative, Lt Gen Dato' Sri Hj Mutallib RMAF, the RMAF Air Operations Commander. "Blade, you are going to Darwin in November. Enjoy your journey. Meet Dato' Zahani for further instructions," was his brief.

The sheer scale and complexity of the RMAF involvement in PB18 necessitated three full days of planning. The initial plan called for a direct flight from Kuching to Darwin with two of our latest heavy tactical transports, the Airbus A400M that would not only be tasked with hauling our personnel, gears and spare parts, but also be our 'Texaco' – a world's first. Unfortunately, as details began to slowly emerge, it became apparent that we would only be able to get just one A400M configured as a tanker by Feb 18. It was obvious that we needed an alternate plan, one which involved a transit in Indonesia. Thankfully, the RMAF is imbued with strong spirit of cooperation and professional courtesy with different air forces all over the world. Issues and hurdles are usually overcome quickly with a simple phone call. This was real-world Bilateral Engagement at its best.

"Assalamualaikum Pak Duto, semoga sihat selalu Pak. Niat kami ingin nanya, boleh mohon jasa baik pihak Indonesia untuk TUDM transit di Indonesia, lalu parkirnya di kawasan militer? Dalam masa yang sama, kita boleh ngeratkan hubungan saudara."

The reply came without hesitation.

"Boleh saja Pak; asalkan mohon PTU ngantar surat kepada KASAU sudah cukup. Yang lain itu, semuanya bisa diatur Pak."

With that, the arrangements and formalities were handled deftly, efficiently and with precision by MPOU, led by Maj Gen Dato' Zahani from RMAF, and its counterparts in TNI-AU.

In November, 2017, the first Planning Conference was held in Darwin. Four 'Horneteers', led by Blade, landed safely, quickly acclimated themselves with their new home for the next three weeks and jumped right in to

sort out the details and logistics with the other planners. The Jalur Gemilang velcroed on our left shoulders was a constant reminder of the responsibility we bear. From the get-go, we are reminded of the value of getting along and making friends. Often, the easiest way to get people to see things your way is by being nice.

The 'charm offensive' extended not just to the organiser of PB18, but to all the participants, especially Indonesia and Singapore, our closest neighbours. In the end, the 'peace dividend' we reaped was beyond measure, with a willingness by the other participants to help us with whatever we needed. A special shout out to the Republic of Singapore Air Force and the Royal Australian Air Force Super Hornet crew for their strong sense of camaraderie and brotherhood.



December was supposed to be the start of the holiday month; time traditionally spent with our families when school is on a break. However, Staff had to work round the clock, 24/7, to make sure that even the minute details did not escape the planners, and that all information was relayed back to the organiser of PB18.

This was the time to construct and plan out the timeline – our roadmap for PB18. Planning had to be thorough with due consideration of possible eventualities, aircraft maintenance, spares usage, ground support requirements, human resource planning, building block training for tactical flying, and the Air-to-Air Refueling (AAR) trials with the A400M.

The year 2018 rolled in, and along with it came more unexpected challenges. Aircraft spares and maintenance forecasts had to be reviewed to better gel with the RMAF budget constraints and delivery lead-time. Other platforms, such as the Sukhoi Su-30MKM and the BAE Systems Hawks were brought into the mix so that aircrew could continue training and stay current. Playing a pivotal role in managing our preparations for PB18 were the simulator training and ground classes.

One event in 2018 underscored the close-knit relationship enjoyed by the RMAF and the RAAF, and that was the 60th Anniversary of the RMAF-RAAF at the Butterworth Air Base. Working via the International Engagement Office in Canberra through the RAAF Defence Attaché in Malaysia, the RMAF made good on its friendship with Australia and the results were truly amazing.

Split into Blue Air (the Good Guys) and Red Air (the Bad Dudes), the scenarios at Pitch Black centered primarily on Large Force Employment (LFE) missions in strike

packages attacking targets inside the exercise area. Blue Air is primarily based in RAAF Base Darwin, performing OCA missions, while Red Air's main mission is Defensive Counter Air (DCA), defending the targets, while operating out of RAAF Base Tindal.

Traditionally, detachments are assigned as either Blue, or Red Air. Rarely are participants tasked with performing both roles in the same evolution of Pitch Black. The RMAF was the only exception, being given the rare honour by the organiser of PB18 to conduct both Blue and Red Air ops, covering all spectrum of air combat. This privilege was proof of the RMAF's ability to conduct these missions and spoke volumes of our operational flexibility and the confidence of the RAAF in our capabilities.

Live Exercise, 'Livex' began in earnest in the second week. From then on, the pace was frantic, the operational tempo a real bruiser and the learning curve, steep.

"My leaders lead from the front", RMAF Chief Gen Tan Sri Affendi Buang RMAF, once said. Going by that credo, the first Day Mission was led by the CO of 18 Squadron itself, Col Mickey RMAF, while the first Night Mission was led by Lt Col Blade RMAF. The first AAR was conducted by Lt Col Baharin RMAF. No 18 Squadron was also given the opportunity to become the OCA Package Commander twice on the first week of 'Livex'. The honour was grabbed by Mej Faizal RMAF, callsign 'Monk', on the third day, while Mej Faizul RMAF, callsign 'Rain', took the mission on the fourth day.

Thanks to the dedication of our ground crew, our sortie generation rates were at an all-time high. Flight crew ticked off all the check boxes in terms of all their mission objectives. Stoked by their successes, morale



was through the roof. This was buoyed further when a special request came in at the end of the week by the organisers of PB18. "Can you lads take the point as lead commander on the OCA and Strike Packages?" The request came in after we had acquitted ourselves well in our earlier tasking, providing a potent and credible threat for the Red Air guys. This also included keeping our Hornets as the lead sweeper all day. This was a testament to our professionalism and the confidence of the RAAF in our guys.

Meanwhile, PB18 also saw another first. The RMAF's A400M was the first in the world to be used as an operational tanker. In that role, it performed beautifully and with clean safety account, and became the yardstick for other A400M operators around the globe.

The beauty of Pitch Black is that it is not limited to just flying. Once the engines were shut down and G-suits and torso harnesses are hung, the guys got together in a social setting and hung loose. Nothing beats forging relationships between fighter pilots from different nations than over a meal at the 'O' Club. The RMAF delegation continued engaging in social events under its own initiative to strengthen bilateral ties between Malaysia and other countries. Social events were organised with the RSAF F-16 and F-15 aircrew, TNI-AU, the Royal Thai Air Force, the Indian Air Force, the French Air Force, and the F/A-18 A/B and F/A 18 E/F guys of the RAAF. The warmth and camaraderie shown by the RMAF to its compatriots from the other air arms even won praise from the RAAF delegation during an Air Staff Talk at the Ministry of Defence in Kuala Lumpur, long after PB18 ended.

Undoubtedly, the RMAF's involvement in this large-scale exercise was an eye-opener in terms of planning and execution for something of this magnitude.

Numerous experiences and lessons were learnt, especially with regards to operating in multi-aircraft environment while carrying out different mission packages, including air-to-air and air-to-surface roles such as Area Sweep, Route Sweep, Escort, Strike, Dynamic Targeting, Close Air Support and others. Utilising the vast Australian airspace over the Northern Territories, and with it, the huge number of aircraft involved, the complexity of the scenarios were replicated to the nth degree, giving our guys an 'almost real-world' look at how to conduct missions in a high-threat combat environment.

In addition, several other interesting missions, such as the High Value Airborne Asset Protection (HVAAP) saw our F/A-18D Hornets performing the Close Escort role, shepherding a flying legend – the Boeing B-52 Stratofortress strategic bomber of the USAF. Flying wing to this 60-year-old icon of the Cold War was certainly an unforgettable experience.

One of the competencies developed by RMAF aircrew was the ability to put together different assets and capabilities from different nations; developing tactics, strategies and game plans to integrate the various platforms with the ultimate aim of achieving mission success. The fact that the RMAF accomplished all its mission objectives at PB18 – from the strategic to the operational, right down to the tactical level – is something we should all be proud of.

A round of thanks to every RMAF personnel who made PB18 a reality. Next year, the torch will be passed to No 11 Squadron's Sukhoi Su-30MKMs.

Let's go get 'em!





OP YAMAN: THE REAL EXPERIENCE

by COL IDRIS BIN A. WAHAB RMAF, LT COL FAIZAL BIN ABU BAKAR RMAF
& LT COL RAZALI BIN AHMAD JUMALI RMAF

INTRODUCTION

The Republic of Yemen is a Middle-East country located in the south of the Arabian Peninsula and is the second-largest sovereign country in the Peninsula. Islam has been the official religion since the 7th century. Since 2011 Yemen has been rocked by street protests and violence, driven by abject poverty and high unemployment rates. This situation forced the President at that time, Ali Abdullah Salleh, to relinquish his position to his deputy, Abdrabbuh Mansour Hadi.

During the power transfer, the Houthis saw the instability in Yemen as an opportunity to take Saada in the north and its neighbouring areas. Later, in 2014 and 2015, the rebels successfully claimed Sanaa, the capital city of Yemen. The fight did not stop there but got worse after security forces (that were once loyal to Ali Abdullah Salleh) joined the rebel Houthis to retake the whole country. This forced Abdrabbuh to flee from Yemen in March 2015.

Because of the imminent threat posed by the Houthis, Saudi Arabia as Yemen's closest neighbour, decided to intervene militarily to stop the violence from spilling over onto its doorstep. A coalition led by Saudi Arabia was formed with 12 other Muslim countries under an operation code named 'Operation Decisive Storm'. An air campaign was launched over Yemeni airspace targeting the Houthis' strategic assets which were mainly located in Sanaa. Due to the high casualty rates from the Houthis' reprisal, especially among the civilian population, the name 'Operation Decisive Storm' later was changed to 'Operation Restoring Hope' which focused on restoring peace primarily through diplomatic negotiations instead of through violence.

MALAYSIA IN ACTION

At the time of the conflict, there were approximately 500 Malaysia citizens in Yemen, concentrated mainly in small enclaves within the city of Sanaa and Hodeidah. University students and religious scholars were among the Malaysians trapped in the conflict zone without any means of assistance and security. As the civil unrest in Yemen rapidly escalated, Government of Malaysia expressed concerns over the safety of its citizens and called for a humanitarian mission to evacuate Malaysians from the conflict zone.

This article chronicles the three-year deployment of the Malaysian Armed Forces and its personnel in carrying out this humanitarian mission.



The Malaysian Armed Forces answered the call and immediately began leading, planning and executing the mission, with particular emphasis on ensuring the safety and wellbeing of the Malaysians trapped in Yemen.

This then went on with deploying of two C-130H aircraft and the associated support teams on a three-month rotational basis. Code named OP YAMAN, the RMAF tactical airlifters and about 90 personnel that formed the nucleus of the Malaysian Contingent deployed to the Middle East and operated from the Prince Sultan Air base (PSAB) in the Kingdom of Saudi Arabia (KSA). The contingent comprised a quick-response team that was put on high alert, ready to intercede to evacuate Malaysians out of Yemen if the situation in that country became untenable.

Additionally, four MAF officers were attached to the Combined Air Operations Centre (CAOC) and three to the Joint Force HQ (JFHQ), both in Riyadh. Eventually, as the contingent settled in at the KSA as part of the 12-nation coalition force, they were given tasks to fly some Logistics missions while standing by to execute their primary mission.

From 6 May 15 to 4 Sept 18, a total of seven C-130Hs and 1,068 MAF personnel were deployed. The frugal living conditions, scorching temperatures, language barriers and cultural peculiarities were some of the challenges all the contingent members experienced

throughout their 3-month tour. Morale was kept high by adapting to the situation quickly despite all the challenges faced. At the back of their mind was one thing - the purpose of the deployment and the mission. Throughout the 3-years deployment, one of the longest in the history of the RMAF, the force maintained a serviceability rate of between 50-60%, conducted more than 500 operational sorties and training flights, and integrated and acquitted itself admirably with the other Air Forces that formed the multinational force. Concept, training and best practices adopted by the RMAF were put through the ring and validated. Team leaders were taught how to manage the priceless human capital. It also enhanced the interoperability between the Royal Saudi Air Force and other regional, American and European Air Forces.

Most importantly, it allowed us to evolve as a modern, capable and formidable fighting force that is able to respond quickly to rapidly-changing scenarios. The experience gleaned from OP YAMAN has allowed us to grow and ready to face the challenges of tomorrow.

EARNED VALUE FOR RMAF

After three years of relentless efforts, and despite all the challenges, MAF proved its capabilities in carrying out all the tasks assigned to it and put Malaysia on par with other countries in conducting joint air operations. Professionalism demonstrated by MAF members, be it on the field or in the CAOC, earned the trust and admiration of the KSA and the rest of the coalition forces, giving a favourable impression of Malaysia in the eyes of the world. The experience gained throughout the deployment, especially the involvement in the CAOC was something that could be brought back to Malaysia to improve our battlefield management protocols, both in the operational and tactical spheres.

The CAOC, is the nerve centre of any air operation or air campaign. This centre is responsible for the planning, coordinating and execution of all air tasking by Air Component Commander in support of the strategic level objectives by the Joint Force Headquarters (JFHQ). The MAF personnel who manned the CAOC were given the chance to apply and put into practice the knowledge gained from the Joint Military Appreciation Process (JMAP) based on real-world scenarios. This presented a rare opportunity for MAF personnel.

OPERATIONAL EXPERIENCE GAINED

CAOC is the tool to integrate and centralise air command, control, intelligence, surveillance and reconnaissance, and forms a part of the overall total weapon system. The decisions of the CAOC force structure and responsibilities are vitally important to overall mission success. Rigorous planning by talented airmen, streamlined links and full integration of coalition partners have continually ensured good results.

Unmanned Combat Aerial Vehicles (UCAVs) were also deployed to the area of operations to maintain 24/7 surveillance. The information gathered by these platforms provided real-time data and enabled coalition forces to conduct effective Time Sensitive Targets (TSTs) and to locate tactical surface-to-air missiles efficiently. Based on the CAOC officers' experience, intelligence data was shared in a timely

manner. An eye-opener for RMAF with regards to missile threats in the modern battlefield is the need for us to look into a 'layered defense' structure comprising medium and long-range SAMs to provide a protective 'umbrella' over our country. In a nutshell, the threat from these missiles is off the charts, and their capabilities are far greater than what we currently know. A key takeaway on our side is that hostile forces will never stop modifying their systems to improve their lethality against our assets.

On a positive note, the actions recommended to us and the multinational aircrew in avoiding those threats validated RMAF's operational and tactical thinking. They mirrored those we had been practicing, especially in the fighter fleet. Air dominance in any campaign is essential but has to be done in concert with the support of a strong ground element, as well as a naval blockade to prevent the enemy from receiving logistical support from their backers.



BOOTS ON GROUND

Operating in a multi-aircraft environment with almost 600 aircraft in total involved in the campaign and 150 aircraft operating at any one time on a daily basis was new and posed some challenges to the RMAF personnel, especially those stationed at Prince Sultan Air Base (PSAB). These men were our boots on ground who were responsible for carrying out the mission and tasks assigned to them.

They had to deal with different doctrines, procedures and execution processes with other allied nations. Through integrated training, they were able to adapt and fit RMAF operations and procedures into the combined environment, thus maximizing the capabilities and achievements for each mission.

There were several challenges faced during the conduct of the operation, mainly in terms of crew resource management. From observing the practices of other countries, the calculation for the ideal number of crew for an operation was determined based on the forecasted rate of effort projected until the conclusion of the operation. This will ensure compliance with established regulations with regard to human limitations in crew rest and crew duty time in order to eliminate any possibility of human error, especially for aircrew.

The RMAF was forced to adapt quickly as the initial brief and subsequent planning was to conduct evacuation missions but things changed once they set foot on PSAB. Because of this, the RMAF made a request for additional crew to be deployed as RMAF was now one of the airlift elements under the command of the CAOC and had to perform airlift missions when directed.

Extreme weather was also another component that had to be considered during the pre-deployment planning. Sandstorms and the scorching heat were some of the things that our crew were not used to. It took a while for everyone to adapt and acclimatise to the local weather conditions. It was very important for everyone to be fitted out with the proper gear and be familiar with the operating procedures. Aircraft maintenance processes and discipline had to be altered to suit real-world and actual weather conditions.

Planning and flying missions in foreign airspace is nothing new for RMAF C-130 crew as they have been involved countless times in other international missions, long before the introduction of the new Airbus A400M. However, operating in the Middle East posed some challenges, not least of which was the frequent desert storms and operating in punishing temperatures of 50°C down to chilling 2°C, with headwinds or tailwinds of more than 100 knots. Flying in constantly changing weather conditions pushed crew and hardware to their limits. Nevertheless, previous experience enabled the Hercules crew to overcome these challenges. Navigation was always a daunting task, with the featureless, barren desert offering no landmarks. Some crew logged 12 hours on a single sortie with no clouds present most of the time, which was never experienced when flying over Malaysia.

LOGISTIC EFFECTIVENESS



RMAF C-130H together with other Hercules at PSAB, Riyadh

Logistics is the key enabler for the success of any mission, especially when in support of a sustained, long-duration operation, furthermore on foreign soil. The RMAF sent a Mobile Air Movement Section (MAMS) team to handle local and international logistics issues. The MAMS team also handled food and the domestic needs for the detachment. Organising and getting spares expeditiously during the course of the operation was not an easy task. It involved a lot of phone calls and paperwork, which had to be completed as soon as possible.

Meanwhile, maintaining the Hercules with limited resources over long periods was an invaluable learning experience for the engineering guys. Thanks to the strong relationships cultivated between the Mission Commander and the CAOC officers in the headquarters and the Saudis, we had ready access to spares and other logistical requirements while we waited for items to arrive from Malaysia. This kept our aircraft in the air at all times. Conducting servicing, maintenance and repair jobs under extreme weather conditions really tested our men as they worked round

the clock to keep the Hercules flying. This also allowed us to gauge the men's fitness level and their morale, as well. The exchange of knowledge in maintaining the Hercules also gave our ground crew the opportunity to learn new things from the Coalition Forces. This indirectly fostered a 'brotherhood' among them in achieving a common goal, i.e. to keep our venerable workhorses flying.



Strategically, through this operation, the bond between the Malaysian and Saudi governments became stronger as both nations worked together. Information sharing, knowledge transfer and experience gained in conducting such a major campaign were among the biggest takeaways for the MAF, specifically for the RMAF. This operation also demonstrated Malaysia's willingness to stand alongside its OIC brothers to provide support and assistance whenever needed.

The end result of the deployment of the MAF in this humanitarian relief effort was that it seemed to have strengthened bilateral relations between Malaysia and the KSA. As for the military echelon of both nations, this was manifested in the handling of the latest possible global threats, specifically through the planning and execution of joint air operation against hostile forces. This experience was invaluable in terms of allowing the MAF systems of handling current and emerging threats to be appraised.

CONCLUSION

As a conclusion and key takeaway, a comprehensively thought-out plan to conduct air campaign in the battlefield is essential to achieve common objectives. It requires close coordination that includes ISR integration. The rule of thumb is that the minimum requirement in ensuring the success of any air operation is to have at least an 80% airborne platform readiness. The outcome of the campaign against the Houthi forces was the direct product of proper planning and battle management. The inherent scope and complexity of planning in a high tempo air campaign throughout the operation necessitates planning that planning be conducted few days ahead before a mission was executed.

Assets like UCAVs are having their own uniqueness, are crucial and an effective force multiplier. We observed first-hand, their effectiveness in conducting surveillance, especially against TSTs. As part of its future doctrine, the MAF's vision of establishing a dedicated UCAV and UAV squadron for each of its sister services is the step in the right direction in safeguarding our borders against threats.

Another key takeaway for the MAF is in understanding of the complexities and challenges of coalition warfare. It requires extraordinary coordination and care at all levels between the coalition countries. Although there are certainly a number of important advantages to coalitions, aggregation of forces and international political legitimacy being two of the more important ones; coalitions always come with their own baggage. Adapting to and overcoming the enemy is difficult enough but adapting to and overcoming one's coalition partners is exponentially more complex.

Cultural differences among coalition partners are often significant enough to challenge a multilateral force's ability to achieve military objectives. The formation of multinational units led to significant language barriers that complicated operational effectiveness.

Therefore, the concept as currently configured, is to train foreign forces in peacetime to build military-to-military relationships in order to foster trust among the individuals from each nation's armed forces and help the host nation manage security threats within its borders. The good bilateral relations between Malaysia and KSA had gone from strength to strength as a result of this campaign.

For the MAF in general, and the RMAF specifically, the experience gained in this operation is invaluable as it allowed us to gauge our professionalism, competency, and readiness in conducting air operations abroad. This also gave the MAF a benchmark to measure our ability in safeguarding Malaysia's territory. It also allowed us to forge a closer working relationship with the various Air Forces in the Middle East, cementing an already strong and long-established relationship. The RMAF is confident that the current government will continue engaging the KSA in other areas that will benefit Malaysia.



Completion of OP YAMAN Detachment



GLOBETROTTER STRONG: THE RMAF A400M ATLAS EXPERIENCE

by CAPT MOHAMAD ERID BIN ABDUL RAHIM RMAF

INTRODUCTION

Life as an A400M crew is quite challenging but a considerably rewarding experience. As the new workhorse of the RMAF, the A400M has been utilized to perform a wide range of missions around the globe. A400M crew are privileged to experience many new things. As the sole user in the ASEAN region, we endured much more than our European counterparts in terms of climate, weather and humidity. The challenges we are going through is becoming a record of experiences so valuable that it is imperative for our European counterparts to learn and to improve from it, if they are going to operate in tropical countries.

Before we go any further, the A400M is presently known as the Atlas. During the developmental phase of the A400M prototype, it was known as the Grizzly by the Airbus Military (now known as Airbus Defence and Space). It was told as some urban legend has it, that for some reasons, the name Grizzly didn't impress the air force top brass, hence the name change. Fun fact: The first prototype, Grizzly One is now on display in Aeroscopia Museum in Toulouse. Spoiler Alert: No one wishes to visit their current aircraft in a museum.

Perhaps the A400M needs no introduction, as it has served the RMAF for four years and travelled great distances throughout its young service. To date, the furthest distance flown was approximately 6400 nautical miles back to Madrid for its retrofit. Journey to the West, it had reached Slovakia, Avalon-Down Under to the South, while to the East was Seoul, Korea. Everywhere we went, the reception was always warm with celebrity-like entrance as the aircraft is a new sight for most people, besides being very 'eye-catching'.

WINGED AMBASSADOR

In-country, the A400M created better impression for the RMAF among the civil air traffic controllers. It no longer gets relegated in the approach and landing sequence, as it is able to perform high-speed descent and travels almost as fast as the Airbus A320. The crew sometimes would enjoy the sense of achievement when listening to other airline pilots who spent most of their lives belittling RMAF 'cargo aircraft' asking "Check aircraft type?" in disbelief when we are given the first sequence to land by the air traffic controller.

As the A400M performs routine logistic runs and brushing-up on its Air-to-Air Refuelling (AAR) capability, there is another task which is least known in

the transport fleet – showcasing at international air shows. Being the only A400M user in this region, the RMAF A400M has been displayed at Singapore Air Show, Korean Air Show and recently Avalon-Australia as part of the Airbus marketing campaign around the world. Sending an operational, thousands of flight hours logged aircraft is a powerful marketing strategy and it would be more appealing to the potential customers and even to the aviation fans around the world. The aircraft have hosted numerous visits, ranging from business partners, subcontractors who helped building parts for the aircrafts, other air force personnel and public visitors. All of them were left in awe and admiration. Most importantly, to see an aircraft belonging to a nation that has been shying away from multinational exercises or RIAT (Royal International Air Tattoo) for the past few decades. Though it is a humbling experience for the crew, it is a giant leap for the RMAF (that is ranked 51 out of 137 air forces in the world) to have flown thousands of miles away from home to join such occasion.

Pilot's account of events: *"The flight to Seoul was a 7.5-hours journey. We flew over Vietnam and close to China's Sanya Bay. Over Vietnam, the pilots couldn't help but enjoy the beautiful scenery of vast paddy fields combined with karst formations along the way. At the same time, it was the same skies where the legendary air-to-air engagements took place during the Vietnam War, where Robin Olds, Randy Cunningham, Willie Driscoll and even Nguyen Van Coc made their fame. We further flew along the Eastern part of Taiwan before settling into the South Korean airspace. The approach into Seoul-Seongnam Air Base was interesting as we were radar vectored to land via Runway 20, thus allowing us to fly next to the newly completed Lotte World Tower that stood up at staggering 1,821 ft high. As we safely landed, the 'Follow Me' vehicle has been waiting at the taxiway where we were scheduled to park. We could observe the highest level of security inside the base as they waited for us having barbed wire fences readied alongside the taxiway. As the loadmaster opened the Crew Entrance Door, the cold Korean air rushed into the cargo hold. We alighted from the aircraft and found ourselves greeted by mixture of Republic of Korea Air Force (ROKAF) officers and Airbus Defence and Space personnel. The atmosphere is different here in the military airbase, it constantly reminds me of ROK is still a country at war and I am just about thirty miles away from the DMZ. Anything worse could happen. But as soon as we entered the Air Movement Building, it all would be forgotten as we met Ms. Choi, a young*

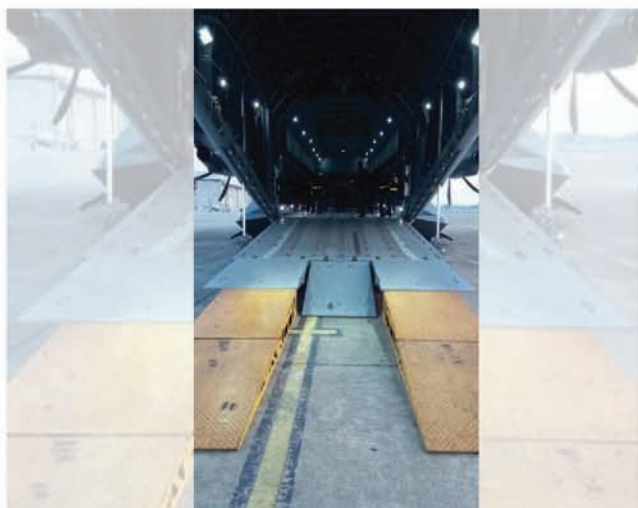
millennial Korean university graduate attached to us as our liaison. We are at K-pop craze back again."

DELIVERING HUMANITARIAN ASSISTANCE AND DISASTER RELIEF (HADR)

Performing HADR has since become the integral force projection by the RMAF to support Malaysian government's stance in the ASEAN region. The A400M has travelled to Chittagong, Bangladesh and Cagayan De Oro in the Philippines sending reliefs and basic needs for the affected people.

A400M experienced a new twist i.e. sending heavy equipment into ground zero i.e. to the tsunami stricken Palu in Indonesia in an effort to reinforce the clean-up and rebuilding process. This has given HADR tasking a new meaning. Sorties generated to assist the rebuilding of Palu was not directly into Palu itself. It was planned from the onset to reach Palu via Pangkalan Udara Tentara Nasional Indonesia Angkatan Udara (TNI AU) Halim Perdanakusuma as our staging point. A 22-ton indigenously-built PT Pindad Excava 200 and two Hino 300 trucks with 5000-litre capacity tank was part of our load, and may be added into our achievement trophy.

Loadmaster's account of events: *"We had an immediate task to carry a 22-ton excavator from Jakarta to Palu. However, the authorities were still coordinating the air supplies to reach Palu at time of our arrival, so we had another day of preparation. We (loadmasters) have prepared and brought along several plywoods as shoring and the RMAF-produced innovation: Ramp Toe Shoe Extension (RTSE). The excavator, brought all the way from Bandung via a low-loader trailer reached Jakarta and from there on, we are able to complete further assessment on the excavator loading process. The first shoring was done outside the aircraft, in order to test the strength of the shoring. Later in the evening the trial loading was carried out after the first shoring criteria was satisfied. It took about two hours to complete the loading process. The mission was carried out the next day, starting from loading the excavator into the aircraft. The obstacle was to get the excavator from the low-loader trailer into the aircraft, as the authorities were worried that the tracks would damage the tarmac. The solution was to arrange numbers of plywood along the excavator's path serving as shoring and protecting the tarmac itself, thanks to Pindad coordinators who were present at the scene."*



A short story on the RTSE - It is a four-part detachable all-metal construction extension ramp that was built upon the previous squadron EXO Lt Col (Rtd) Rusli's RMAF idea. Why should you buy new when you can build with less? It was initially made for the purpose of transporting the EC725AP / H225M helicopters inside the A400M as it was identified that the helicopter's lowest point clearance with the aircraft's ramp was insufficient.

AWESTRUCK AT THE SHOW CENTER

During the recent LIMA '19, the show couldn't be any more spectacular, with the RMAF planes that dominated the skies of Langkawi. The dazzling performance by RMAF combat fleet has wowed thousands of air show enthusiasts around the world. Proud to say that the A400Ms were among them.

Preparation for the Opening Gambit was a long and tiring process but nevertheless performed meticulously. We had our initial crew briefing as early as 0630H before joining the mass brief via video conference with other players at Butterworth Air Base. Then we walked out as soon as the mass brief ends so as not to delay our departure from Subang. Delays usually are due to incoming and outgoing civilian traffic in Subang Skypark and Kuala Lumpur International Airport (KLIA).

Flying practices both at Butterworth and Langkawi posed different conditions and perspectives. In Butterworth, we had to take extra precautions as there was bird concentration over the airfield, while in Langkawi we needed to negotiate the high terrain around the airport and most of all, to maintain safe separation between all participating aircraft. From our holding point, we had EC725AP formation holding close by below us on our left and at the same time we could see the F/A-18Ds over our right shoulder. As we go running in, we would first see the Hawk jets completed their bomb burst and zooming up, before having the sight of another A400M coming in slightly offset at opposite direction with PC-7 Mk-IIs tagging along. Safe separation is ensured when they are turning and crossed in front as we see them visually and verified by the TCAS (Traffic Collision Avoidance System) while we see the focal point right by the aircraft's nose.

The A400M show did not stop there. It went on throughout LIMA '19 air display segment, keeping the onlookers captivated and left with gaping jaw across their faces as they were seeing a large cargo aircraft performing incredibly difficult manoeuvres that other large transport planes do not usually do.

CONCLUSION

In all, the A400M has gone through maturing a process through the long, meticulous work by the RMAF A400M Project Team, the pioneering and existing pilots plus engineers. The Atlas is being constantly kept airworthy by strong-willed technicians and supported by civil contractors from various parts of the world. Being part of the A400M family, it does make us proud of our friends, co-workers, instructors and all those who make us fly. They are truly "Champions" not only at national level, but internationally.



DEFENCE WHITE PAPER: WHAT IT IS AND WHAT TO EXPECT

by LT COL KHAIROL MUZAMBI BIN SALEHIN RMAF

INTRODUCTION

The Ministry of Defence (MINDEF) and Malaysian Armed Forces (MAF) have started a few processes in forming the Malaysian Defence White Paper (DWP) early this year. This is the first time ever a DWP will be produced in Malaysian history and it is highly anticipated by the defence community.

The DWP shall serve as a strategic guidance for Malaysian National Defence Policy entailing responsibilities from many governmental agencies. Bear in mind the National Defence Policy has to be one that is applicable to the whole nation, and not only to the Armed Forces.

The DWP will firstly outline the conventional threats and what is expected of MAF. MAF has to plan proactively on many areas such as doctrines, concept of operations, force structure and capability development based on the possible conventional threats to the nation. Then there are the non-conventional threats to be outlined and agencies responsible to handle them need to be determined.

Debates about the DWP and the areas of concern are flaring up rapidly especially on social media. As for the general public, they probably are more concerned with two key areas, first, what is needed for defence; and second, what would it cost the nation?

There are different expectations on the forthcoming DWP. What is a DWP and what can we expect from it? Though the DWP shall cover many areas of interest, in this article, I shall only attempt to give my views relating to the Armed Forces.

THE CIVIL-MILITARY RELATIONS

We must first understand the civil-military relations before we delve deeper into the function of a DWP. It is important to put into context what shape a state's defence force, who decides what kind of military the country needs, and who determines the roles and functions of the military.

Samuel Huntington in his book 'The Soldier and the State', argues that in civil-military affairs it is the

civilians that controls the military. At present time, in the United States (US), the President holds the presidential control of the military and the Congress on the other hand, holds the congressional control of the military. Both the President and the Congress are the epitome of civilian control over military with the former is in the form of executive control and the latter is legislative control (Huntington 1957: p80-81). Additionally, both the President and the Congress are civilians, with the exception that there are cases where a small number of representatives in the House of Representatives are in the Reserve or National Guard (Cavanaugh, The Washington Post: 2 June 2017).

Similarly, in Malaysia, the military or the MAF is placed under the Ministry of Defence which is headed by a civilian - the Defence Minister who reports to the Cabinet. The Cabinet is made up of a group of civilians headed by the Prime Minister.

The Cabinet advises the Yang di-Pertuan Agong (YDPA), a monarch which is not a military person, but the YDPA holds the highest military position in the MAF. In accordance with Article 41 of the Federal Constitution, the YDPA is the Commander-in-Chief of the Federation's Armed Forces. That being said, technically, he is the highest-ranking officer in the MAF's chain of command.

WHAT IS A DWP?

There are many versions and different definitions of DWP. The New Zealand (NZ) Defence Ministry defines the DWP as the highest Government document that expresses the NZ Government's defence policy settings ([https:// defence.govt.nz/](https://defence.govt.nz/), 27 Mar 19).

The Australian Government used the Australian DWP 2000 to explain the role of ADF as part of the national identity, the kind of country Australia is and the role Australia seek to play at international stage (Australian DWP 2000: 7).

The Australian DWP 2000 also addressed the issue of the use of force by Australia in the international system, which is one of the most fundamental questions with regard to defence policy (Australian DWP 2009: 20). Hence, in a simplistic way, this can be



interpreted as the highest level document that expresses Australian defence policy.

Having considered all the facts discussed above, this article is in the opinion that DWP is a public document that explains government policy towards strategic outlooks and government's strategy in addressing those strategic outlooks which includes roles of defence force's and defence capability development.

PURPOSE OF DWP

The next question would be 'What is the purpose of this document? DWP as the highest Government document on defence policy actually serves many purposes.

By and large, DWP is a policy document that present an assessment of a state's strategic environment and set out at a high level the range of activities that the state's defence force must be prepared to undertake (<https://defence.govt.nz/>, 27 Mar 19).

DWP also serves as a document that set out the intended mix of capabilities that state requires it's defence force to have, to give effect to the Government's intentions (NZ Strategic Defence Policy Statement 2018: 5). On the same note, the NZ DWP is used to reinforce the principles underpinning NZ's defence policy - "Defence must have the resources to meet the Government's operational and strategic priorities" (NZ Strategic Defence Policy Statement 2018: 11).

In terms of showing commitment to fund the defence capabilities to execute the defence policy, the DWP is also a medium to explain the Government's long term defence funding commitment to the public (Australian DWP 2000: vi & 3).

The DWP is also the medium that explains and determines the force structure required to the stakeholders. Basically, the DWP explains the gaps identified in the current and projected force structure based on the analysis and reviews done prior (Australian DWP 2009: 58). It is necessary to do so in order to justify to the public the cost of ownership of the intended size of defence force and capabilities required.

Another interesting dimension on the purpose of a DWP is that, it can be used as a risk management tool. One of the key elements in defence planning is to establish clear parameters within which to judge risks and threats in the strategic outlook (Australian DWP 2009: 27).

Thus it can be fairly said that a DWP contains a wide spectrum of information pertaining to a state's defence policy and planning. In a nut shell, a DWP is a public document with the chief purpose largely to inform the public on the 'whats' and the 'hows' – i.e. what are the threats and how the government intend to handle those threats.

RELATIONSHIP BETWEEN STRATEGY AND CAPABILITY

Now that we know what the DWP is, the next step is to know how it works. Before we get there, it is important to first discuss the relationship between strategy and capability. A professor of strategy once mentioned that a state examines its interests and then strategize how

to safeguards those interests. To run a strategy and guarantee success, the state needs to possess certain defence capabilities. To obtain these capabilities, the state needs to invest. Therefore, Strategy + Capability = \$.

In a simplistic way, it can be said that with X amount of money invested, the outcome is Y, and therefore, with X-1 of money invested, the outcome to be expected is Y-1. This is the logic and the math. Therefore, without adequate funding, a state would not be able to obtain the required capabilities and thus, would not be able to execute the strategy.

In that scenario, the country must re-examine the strategy, as suggested by Mr. John Moore, Minister for Defence in his Australian DWP 2000 Pre-ambble, which stated, "As we said in the Public Discussion Paper, defence had reached the point where we could not maintain our present range of capabilities at our present levels of spending. We needed to make a choice to spend more on defence or expect defence to do less" (Australian DWP 2000: v).

Above statement reinforced the 'Strategy + Capability = \$' relation. With a smaller "\$", a state has no option but to run a lesser strategy due to lower level of capability afforded or forced to choose a different strategy such as alliance with a bigger state which changes the whole state's defence strategy and foreign policy choice.

That is why a state, particularly the smaller states, must carefully outline their strategy and develop the required defence capabilities since it is an expensive undertaking and it involves many stakeholders. Hence, it explains why DWP which lays down Government's defence planning is a document of high importance.

THE IMPORTANCE OF PLANNING

As Benjamin Franklin said, 'If you fail to plan, you are planning to fail!' This article is in the opinion that it is better to have a comprehensive plan and have the opportunity to see if the plan succeeds or fails, rather than not planning and hope that things will not fall short.

In this perspective, this article argues that the Malaysian DWP is the 'Master Plan' for MINDEF and the MAF in approaching the future. Talking about future plans, Peter Drucker once said, "Long range planning does not deal with the future decision, but with the future of present decision". Hence, as a master plan, the Malaysian DWP will carry many decisions decided today to address issues in the forthcoming years.

In that regard, it is fair to presume that in terms of planning, the DWP records many important decisions especially on the kind of MAF the country needs and what role the country expects MAF to perform in the future. As mentioned earlier, this will allow the Malaysian defence community to plan proactively.

WHAT TO AND WHAT NOT TO EXPECT

Having discussed what DWP is, its purposes, the strategy and capability relations and the importance of planning, this article will now discuss 'what to and what not to expect from it'.

Despite the importance of DWP especially in explaining the security strategic outlook and informing the Government's strategy and defence planning to the stakeholders especially the public, one must not forget one thing, the fact that the future is full of uncertainties. Predictions are made based on current indicators and trends.

That being said, this article argues that despite its importance, DWP is not a guaranteed policy. DWP is just a Government's documented policy and planning formulated in present day with the hope that it would be workable in the upcoming years. We are well aware that there is the uncertainty that looms in the future, especially in the strategic outlook that would influence the Government to change its policies and affects the whole planning.

The recent NZ experience is a good example of how those uncertainties affects the implementation of a DWP. Online Defence magazine DEFSEC in one of its articles, discussed about the delay in decisions on certain defence capabilities development program due to a review ordered by the new NZ Government (<https://defsec.net.nz>, 20 Dec 2018).

Another good example is the Australia's experience on the implementation of DWP. History shows that, changes on Australian DWP can be triggered by two conditions, first, change of government and second, change of leaders in the same government (Reynolds, ASPI: 25 Jan 2019).

On a different note, Mr. Mark Mitchell, the NZ opposition MP argues that DWP requires Government's commitment (<https://defsec.net.nz>, 20 Dec 2018). This article argues that without Government's commitment, the DWP is just another rhetoric document.

However, while it is duly noted that Government's commitment is essential, defence community must accept the fact that over time there will be emerging factor that could possibly affect the Government's willingness to fully implement what they have pledged especially with regards to funding.

Thus, defence community should have an open mind and be cognizant that there can always be change of plan especially on the implementation of defence capability development. The public on the other hand must understand that without funding, the required defence capabilities may not be developed. Anyway, this article argues that to some extent, some of the plans in the DWP can be expected to be successfully executed, since the DWP was mooted by the Government of the day.

CONCLUSION

This article has explained the Civil-Military relations, thus, proving a point that, it is the civilians in the form of a Government that plays its role in determining the kind of defence force that the state requires and the roles it is expected to perform. With that scenario imprinted as the background, the defence community must understand that they do not have the autonomy to unilaterally dictate what kind of defence force they want. Defence community must learn to accept this fact and must not be overly frustrated if the capability development outlined in the DWP does not executed as planned.

However, as the subject matter expert, defence community can certainly play its role within the allowable boundaries to shape the Government's decisions on defence strategy and defence capabilities development. Additionally, the public shall be well informed and be able to participate more effectively in defence related discussions especially with regards to the Malaysian DWP. The public must also learn to accept that it is the responsibility of the civilians which means every Malaysian citizen, either directly or indirectly, in deciding the kind of defence force our country needs and the roles it should perform.

Let us hope that the Government does their best to honour what will be laid down in the forthcoming Malaysia DWP, which is also a strategic plan that upholds the National Defence Policy (NDP) and National Defence Strategy (NDS).

Disclaimer: This article reflects the author's personal views and it have no intention to represent or to be assumed as the official views or policy of MINDEF, the MAF and the RMAF.

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THE ROLE OF THE MILITARY AGAINST RADICALISM AND TERRORISM: ISSUES, CHALLENGES AND WAY FORWARD

by BRIG GEN DR KWONG FOOK WEN (IJTD)

INTRODUCTION

In the current global security landscape, radicalism and terrorism have been threatening the security of nation-states and hogging the limelight. The phenomena of conflicts and violent extremism has taken center stage in the present world politics. Consequently, many countries are currently facing immense challenges on deradicalisation and counter-terrorism efforts. Though law enforcement and national security agencies are responsible in building deradicalisation and counter-terrorism programmes, the military as the backbone of a nation's security has to be able to face the challenges posed by these imminent threats.

These threats expose nation-states to dilemmas on how to fight effectively against the wide spectrum of threats with its inherent systemic and structural resources. Thus, the dominant issue of the paper is whether the military can play a role against the threats posed by radicalism and terrorism. There are grey areas in deriving at the role of the military against radicalism and terrorism. Foremost, what constitutes radicalism and terrorism? Next, how can radicalism be associated with terrorism? Finally, how does radicalism lead to terrorism? The answers to these questions form the basis in identifying the role that the military has to perform for counter-radicalism and counter-terrorism.

Thus, this paper addresses four main dimensions. First, an understanding of radicalism and terrorism involving what constitute radicalism and terrorism and how radicalisation leads to terrorism. Second, the roles of the military in facing the evolving threat of radicalism and terrorism. Third, the issues and challenges faced by the military in its counter-radicalism and counter-terrorism efforts. Lastly, the way forward for the role of the military in counter-radicalism and counter-terrorism.

AN UNDERSTANDING OF RADICALISM AND TERRORISM

Radicalism originates from the Latin word *radicalis*. In political science, radicalism implies the notions that changes in society can be attained by revolutionary means. On the other hand, terrorism has been described to include various contexts, factors and actors that relates to issues such as human rights,

pluralism democracy, development and globalisation. The definitions of terrorism have been expanded extensively beyond state sovereignty and international-global security. Interestingly, radicalism has often been associated with terrorism in which terrorists are often associated with those radicals who seek to advance their political agenda through the use of violence. Thus, an understanding on what constitutes radicalism and terrorism is important because both occurrences are severe physical threats to the security of a nation-state, its people and society.

CHARACTERISTICS OF RADICALISM

Radicalism is commonly linked to attainment of targeted political goals and behavioral change instituted by an increased use of violence against others who are not in the group (Doosje et al., 2016). Whereas, radicalisation can be comprehended as processes that lead to escalation of violence (Porta & LaFree, 2012). It is important to note that radical groups have different characteristics (Doosje et al., 2016).

The first characteristic is that all radical groups pose serious threats to society and each radical group has different problems or grievances. For example, the main concern of Nationalist or Separatist Groups (such as IRA in Ireland and ISIS in Syria and Iraq) is securing a territory for its own group. On the other hand, Religiously Motivated Groups (such as Al Qaeda) are concerned with observing a very stringent version of their religion to support their violent acts. The second characteristic is the dissatisfaction of radical groups on the ways problems are handled by the institution as they do not recognise the legitimacy of authorities and has little trust on institutions. The third characteristic is that the radical groups perceive other groups as inferior to its own values and norms leading them to acts of violence. While the fourth characteristic of radical groups is that they adopt an ideology that authorizes the use of violence to resolve their problems. Finally, the fifth characteristic is that radical groups have great conviction in the effectiveness of using violence and it is the most efficient way in achieving their ideological aspirations. Clearly, radical groups or terrorists operating in different countries are of different types and have different motivations. Hence, every nation-state has to take cognizance of the characteristics of radical groups in its country to be able to deal with it effectively.

CHARACTERISTICS OF TERRORISM

Terrorism is often construed as a political motivated term involving an act of violence perpetrated on non-combatants aiming to obtain a change in behaviour and political objectives through the creation of fear in the population (Doosje et al., 2016). Though terrorism has existed since historical times, the form of terrorism has transformed drastically recently into an intrinsically new kind with different characteristics. Since the mid-1990s, scholars and analysts are using concept of “new terrorism” that entails diverse actors, motivations, aims, actions and tactics which differ from the “old” concept of terrorism (Spencer, 2006). The “old terrorism” has a few characteristics. It is mainly secularly motivated and the reasons for their terrorists’ acts are politically driven. For example, ethno-nationalist terrorists demand for independence, separation of territory, own state or merger with another state. It is also equated with acts of terrorism that are in proportion to the pursued political objectives so that they do not alienate their supporters because of indiscriminate use of violence. Additionally, “old terrorism” is associated with support or state sponsorship whereby states use terrorists groups to attack and damage other country without starting a full-scale proxy war. “Old terrorism” has a pyramid hierarchical organisation with established command and control attributes. At the apex of the pyramid is leadership and at the bottom layers are active terrorists, active supporters and passive supporters.



Conversely, “new terrorism” has different characteristics. Foremost, the terrorists have unbending outlook of the world based on their religious belief and they decline all other views. They are characterised by religious fanaticism inspired motivation that lead to radically different concepts of morality and value systems (Borum, 2011a). Also, they have inclination to use extreme indiscriminate violence producing as many casualties as possible. They are prepared to die for martyrdom (Silke, 2008). Another characteristic is that it is not concerned with state backers for financing and does not rely on state sponsors’ fund. Instead, they solicit fund from illegal sources such as fraud and drug trafficking as well as legal investments in business and from donations. The “new terrorists” often operate part time and are mostly amateurs but possessing better operational and technological competence. They are still a part of the society who would only come together to carry out their act and then disband. Last but not least, it has loose network and less hierarchical organisational structure but is supported by advanced telecommunications technology.

From a more recent perspective, Gunaratna (2016) highlighted that in the 20th Century, the ethno-political and left/right wing terrorism were the main cause of political violence. However, terrorism is now spearheaded by distorted religious-pseudo politics groups such as Al Qaeda and ISIS that use violence without constraint. Therefore, it is difficult to speculate and manage the current threat. Nevertheless, it is important to have an explicit perspective on the characteristics of radicalism and terrorism to form views on whether employing military against radicalism and terrorism is beneficial or counter-productive for a nation-state.

RADICALIZATION PROCESSES LEADING TO TERRORISM

The complex radicalisation processes and terrorism have to be comprehended to prevent over-simplification as well as to account for reality and policy discourse. The prevalence of Islamist terrorism involving Westerners inspired by militant Islamist ideologies clearly indicate the relationship of radicalisation and terrorism (Wilner & Dubouloz, 2011). There are many models of the radicalisation process that leads to violent extremism and terrorism (Borum, 2011b).

Thus, knowledge of the process of radicalisation would help develop a better understanding and more effective policies for preventing and countering violent radicalisation and terrorism. Hunter & Heinke (2011) identified that extremists hold many diverse starting points. They followed numerous varied ways that result in their eventual immersion in terrorist activities. The three main components of radicalisation process depicted by models are grievance, ideology and mobilisation (Hunter & Heinke, 2011).

First, the component of grievance. The precondition of the radicalisation process is discontentment. Examples of grievances of individuals include perceived persecution of Muslims, discrimination, lack of acceptance or dissension. The second component is on ideology. Ideological framing uses the feeling of discontent and lead the followers to a defined direction. It provides the followers with their “true purpose” and sense of belonging. The unsure follower then accepts the diverged view and set of rules and ideology of the terrorists. In the case of Islamist terrorists, the movement and ideology are promulgated by intensifying the discernment of Muslim suppression; the portrayal of Islam being threaten, prompting idea that the radicalised individual and Muslim community are under threat that necessitate violent response.

The third component is mobilisation. Extremists become radicalised through increasing group social interaction that results in a common drive toward violence as they have shared belief. The group interaction provides emotional and psychological rewards enhancing the ideological drive. New values and moral practices substituting existing ones are developed through mutual affirmation of the righteousness of shared beliefs. Consequently, group members consider violence as acceptable to achieve their common goals. During this process, individual and extremist group recruit potential operatives to form small groups and terrorist cell.



Undoubtedly, it must be acknowledged that there is no single, "one size fits all" reason for turning to terrorism. This can be seen in Gunaratna & Hennessy (2012) who explored the motivating stories and narratives for those who commit acts of extremist violence. The understanding of the radicalism processes leading to terrorism would help to bolster knowledge of the phenomenon and to be better able to counter the terrorists' motivations. The ultimate goal is to eliminate the actors, the organisations as well as the resources associated with radicalisation and terrorism to prevent them from becoming a threat to security in the future.

THE ROLE OF THE MILITARY AGAINST RADICALISM AND TERRORISM

Traditional Role of The Military. Armed Forces are entrusted with the role of protecting and defending the sovereignty of their nation-states. They are formed, trained, and organised to combat a state-based opponent. The additional role of the military to act against radicalisation and terrorism is debatable as any democratic nation-state that utilises its military to fight terrorism is contentious both locally and globally. This controversy is clearly demonstrated by historical and contemporary examples such as the events in Northern Ireland the Israeli-Palestinian conflicts (Hughes, 2011).

Roles of The Military Against Terrorism. It is the obligation of democratic nation-states to use its military for protecting their citizens against the threat of terrorism from domestic or transnational terrorist network such as Al-Qaeda. Military forces have been caught up in concentrated, protracted, complex, armed conflicts with adversaries who use terrorist tactics. Similarly, military intelligence services have also been used in monitoring indication of terrorist attacks that might be directed against their nation-state and national interests (Borum, 2011c). Furtherance to this, Hughes (2011) advocated explicit roles that military can accomplish. For example, Special Forces can be used to storm hijacked aircraft and for hostage rescue. As for military aids to the civil authority, military can be employed for certain responses to a mass casualty due to terrorist attack. The military can also take on preventative role at public venue (e.g. recent 29th SEA Games and DSA 2018) to deter possible terrorist attack. Another specific role is pre-emptive intervention whereby military's clandestine units can conduct operations to stop terrorists from launching an attack. The military can also be used in the interception of arms shipments and terrorist personnel. Similarly, it can be used to conduct retaliatory attacks or raids another nation-state that has assisted terrorist group, or against a non-state actor. Importantly, military can employ undercover units for intelligence gathering.

Last but not least, it can be used to train security forces and military of friendly countries for counter-terrorism.

The execution of the said roles would require clear distinction of responsibility between the military and the other state actors involved in overcoming radicalism and fighting terrorism. The sources and categories of violence resulting from radicalism and terrorists' violence acts have to be explored that include militarisation, armed conflicts, terrorism, economic, cultural and religious as well as

transnational organised crime. Next, it is also pertinent to examine the military's organizational / institutional frameworks and its strategies and mechanisms for countering radicalism and terrorism. These assessments include looking into initiatives of other international/regional agencies and civil society organisations and movements for resolving radicalism and terrorists' violence at local, national, international and global levels.

ISSUES AND CHALLENGES FACED BY THE MILITARY FOR COUNTER-RADICALISM AND COUNTER-TERRORISM ROLE

Nation-state can use their military when the existing judicial and police framework is unable to tackle the threat posed by terrorists. Using military means to fight terrorism domestically or transnationally entail strategic, political, diplomatic, and ethical challenges. The use of military has to be incorporated into a comprehensive strategy that could suppress terrorism and restrict their attacks against citizens. However, civilian decision makers should resolve several issues prior to handling counter-terrorism missions over to their military counterparts, be it for domestic or international commitment.

There are issues evolving from military participation in counter-terrorism in the national perspective. Foremost, on use of resources. The government has to know if their armed forces possess the manpower and assets necessary for involvement in a counterterrorist campaign. Next are on chain of command i.e. the problems of disagreement over procedures, departmental roles, and responsibility when the military works within the bureaucratic government departments and agencies. Another is the challenge of inter-departmental animosity on the way needed to gather information and its dissemination. Also, there is the issue of the unsettling sight of soldiers in public on the streets. The involvement of military in counter-terrorism to save lives can also be disputed in occasions when a military involvement affects considerable casualties. Aggravating this issue is the employment of troops antagonises the civilians, especially when they are seen as being brutal and repressive that will negate hearts and minds campaign. Finally, the issue of Jus in bello. The Laws of Armed Conflict (LOAC) emphasises that military actions must be proportionate and discriminate if there are to be lawful in war (in bello). Hughes (2011) said that the complexities of using these principles can be observed in the arguments surrounding view points where the military has been involved or will be possibly involved in counter-terrorism. For example in the case of targeted killing or preemptive intervention.

In addressing the issues and challenges faced by the military in counter-terrorism, it is necessary to differentiate between the situations in which the military option has a prospect for success or liable to create problems instead of solving it. It is advocated that the focal point on the employment of military in counter-terrorism to revolve around the concern of effectiveness i.e. how effective is the military organisations against terrorism and when can the military be successful against the different terrorist groups. The military role in counter-terrorism should also be viewed from a policy perspective that is on how the military could act against terrorism but remain within the democratic values and rules of law founded by the governments.

WAY FORWARD

Preventive Measures. Deradicalisation is viewed as a practical counter-terrorism and anti-extremism tool for policy makers in reducing the violent radicalisation of terrorists (Köhler, 2015). It is a step of disengagement characterised by a change of behaviour leading to a stop in using violence and people leaving the radical group (Doosje et al., 2016). For deradicalisation to work, a few important elements for deradicalisation have to be established involving the loss of belief and confidence in the politics, ideology and movement of the group; negative social sanctions; the perception that 'things are going too far'; the disillusionment with the inner workings and activities of the group; the 'push factors' relating to status and position within the group; and/or exhaustion to end a radical or criminal career and the 'pull' factors' regarding age, career prospects and personal future, family and responsibilities to end a radical or criminal career.

In an international context, some issues may arise from military involvement in deradicalisation and counter-terrorism efforts. First, on cooperation with local security forces. A nation-state runs the risk of its own soldiers becoming targets for attack when their military personnel are deployed to support allied forces in counter-terrorist activities. Next, a lack of host nation-state patronage and support may hinder counter-terrorist operations. Also, on ethical aspect, military response or retaliation can arouse domestic and international criticism alleging indiscriminate and disproportionate violence used by the nation-states. Last but not least, the diplomatic consequences issues when other nation-state treats the military measures as a threat to their own national interests.

Contrariwise, the use of military power in deradicalisation and counter-terrorism can have adverse ethical, political and strategic effects. The terrorist groups can exploit local resentment caused by the state and accuse them of using military force to kill or maim civilians. Additionally, it can encourage human rights abuses. For example, torture and maltreatment of detainees are adversative in the norms of a democratic nation-state. This could cause non-compliance of the constitutional order and substitution by authoritarian rule.

Unilateral, Bilateral and Multilateral Measures as well as Strategic Partnership among the Military. The Universal Declaration of Human Rights, the Charter of the United Nations (UN) and other international human rights instruments have laid down principles and values in their commitment and obligation for preventing violent extremism (United Nations, 2015). Therefore, strategic partnership among the military could be established to counter-radicalism and terrorism by establishing strategy that take into account the different human rights and rules of law at the respective nation-states. Annulling discriminatory legislation, consolidating the rule of law and applying laws and policies that combat discrimination, exclusion and marginalisation in law and in practice must be a vital part of any reaction to the threat caused by violent extremism. Joint efforts, bilateral, multilateral or partnership can also be established to identify the best approach to overcome radicalism and terrorism.

Based on the above, strategic partnerships could be established for deradicalisation and counter-terrorism efforts. Nevertheless, the bilateral and multilateral arrangements for deradicalisation and counter-terrorism efforts between militaries from different nation-states have to consider a few matters. First is regarding human and civil right whereby the state's sovereignty and human rights of the populations must be adhered to. Next, a clear command and control structure has to be established to avoid conflict among the partners and agencies involved. Delegation of power must also be spelt out to allow effective decision making process at the different level involved in the partnership. Importantly, information and intelligence sharing requires transparency, trusts and strong leadership. The understanding of each other cultures would ensure effective partnership and joint efforts. The institution of positive perception among partners must be established to prevent the occurrence of undermining each other efforts which could lead to conflict. For partnership to work, there is a need to establish a clear understanding and knowledge of different policies and Standard Operation Procedure (SOP) of the participating nation-states to avoid difference in opinion during the implementation of joint plans that could lead to ineffectiveness. Pertinently, the participating nation-states must be committed in the sharing of assets and intelligence in conducting deradicalisation programmes and counter-terrorism plans with an emphasis of optimisation of resources. Concomitantly, partners have to integrate well in the joint planning process so as to produce effective deradicalisation and counter-terrorism plans.

Collaboration Effort between Military and Non-Military Actors in Dealing with Radicalism and Terrorism.

Military has to collaborate with non-military actors by integrating into national and international mechanisms as part of the national security capability for counter-terrorism activities and for greater cooperation, collaboration, integration and interdependence in the area of security provision. There are little terrorism-related information within the enormous volumes of data surging into the government's counter-terrorism and intelligence agencies that require collaboration efforts (Serfaty, et al., 2004). For effective domestic information sharing among agencies; the local, state and federal entities engaged in counter-terrorism endeavours must know each other's contributions, responsibilities and roles particularly the participation of multiple agencies involving the Police, Immigration, Customs Maritime and others. Establishing or updating new information sharing agreements would improve collaboration and coordination, reaffirm and formalise the roles and responsibilities of partners in dealing with radicalism and terrorism.

There are challenges in establishing collaboration between military and non-military state actors. First, the challenge of establishing common ground in the fight against radicalism and terrorism. The primary role of the military is to protect and defend the nation-state's sovereignty but the other actors have their own roles to play in carrying out their respective functions. Next, the avoidance of conflict of interest. The military and every agency have to pursue the common objective of deradicalisation and counter-terrorism instead of pursuing objectives of their agencies. The collaboration has to be cautious of the competitiveness of agencies in trying to



out-perform others during their joint efforts in combating radicalism and terrorism. Thus, selflessness must be promoted especially in sharing information and intelligence. Another challenge is that the different collaborating agencies have different work culture which may differ such as comradeship, leadership, cohesion and esprit-de-corps. Effort has to be made to enhance cohesion and improve on common work culture.

For the collaboration efforts to work, foremost, there must be a clear command and control structure to overcome the possibility of conflicts among the agencies involved as to decision maker for different portfolios. Next, the roles must be distinguished clearly between their functions and responsibilities to avoid confusion over the roles of the agencies involved. Also, decision making could be hampered unless clear distribution of power is exercised with a clear command and control organisation structure. Additionally, there must be adaptability. Rigidity in abiding to own roles and function could jeopardise the common objective of combatting radicalism and terrorism. Thus, flexibility has to be practised by all the agencies involved and the willingness to share a common work culture. Finally, there is the possibility of self-interest instead of joint interest could affect the effectiveness and efficiency of the collaboration effort. Transparency, strong leadership and trust have to be established for all the agencies involved.

Information Sharing Networks between the Military and Other Actors Forde-Radicalization and Counter-Terrorism Effort. Transnational terrorism has transformed international intelligence sharing considerably. The terrorist networks are highly mobile, flexible and are undeterred by international laws. Therefore, one of the key institutional responses to the terrorism threat is information sharing and a counter-terrorism intelligence organisation to predict the terrorist acts (Nissen, 2010). It must work in conjunction with affiliated UN bodies involving the Security Council Committee 1540, its Executive Directorate and the UN Counter-Terrorism Committee. For example, NATO has instituted relations and works closely with UN agencies on its Global Counter-Terrorism Strategy. In Europe, the European Union has launched the European Counter-Terrorism Centre in January 2016 to counter terrorism (EUROPOL, 2017).

The development of an information sharing network between the military and other actors is a difficult task, as it requires sharing of data. Sharing of capabilities of the military would unavoidably allow other nation-state to identify the limitations and weaknesses of their organisation. Thus, the establishment of information sharing networks necessitates strong leadership trust and commitment for cooperation and collaboration.

CONCLUSION

Having looked at the issues from different angles and lenses, it can be concluded that there is need to bear in mind a few pertinent points in addressing the role of the military against the threat of radicalism and terrorism. First, nation-states should always keep in-sight the transnational nature of the threats of radicalism and terrorism. Nation-states should realise that this threat is not confined to a single country or

localised within a specific region. The potential of spreading to other countries and regions is very high. Thus, the military and nation-states have to work together in overcoming this transnational threat. Next, there is a need to find answers to why amicable solutions could not be attained in overcoming or minimising the incidences of radicalism and terrorism, although we have seen countries collaborating in joint efforts successfully in other matters such as Human and Disaster Relief measures. Finally, as the saying goes "Unity is Strength", the military and nation-states must work together to overcome the threats of radicalism and terrorism. Cooperation, collaboration and joint effort could be best attained through enhanced military diplomacy and intelligence sharing. Though every nation-state is fully engrossed with her own national interests, nation-states should not be unwilling to share valuable intelligence to resolve the threats and overcome radicalism and terrorism that capitalises on weak link. Nation-states must work together against radicalism and terrorism and cooperate for better security and a safer world.

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THE RISE OF CHINA MILITARY ACTIVITIES IN SOUTH CHINA SEA: MALAYSIAN DIPLOMATIC APPROACH

by COL MOHD SANI BIN OMAR RMAF

INTRODUCTION

The South China Sea (SCS) is experiencing complex conflicting claims in terms of territorial waters and sovereignty. There are three areas in the SCS that are currently having conflicting claims, the Spratly Islands, The Paracel Islands and the Scarborough Shoal. The Spratly Island are been contested by six claimants i.e. China, Malaysia, Taiwan, Vietnam, Brunei and the Philippines.¹ The main issue between all the claimant states are more on retaining Exclusive Economic Zone (EEZ) or acquiring the rights to fishing areas, the exploration and potential exploitation of crude oil and natural gas in the seabed of various parts of the SCS, and the strategic control of important shipping lanes access. The SCS is one of the busiest shipping routes in the world and is estimated to accommodate half of the world's oil tankers and merchant vessels.² The disputes started when China published a map in 1947 that covers SCS territorial claims based on the nine-dashed line, a U-shaped water area that covers about 3.5 million squares kilometres or approximately 90% of SCS. Currently the nine-dashed lines cover the Spratly and Paracel Islands.³

THE MAIN ISSUE

Lately there have been indications of interest from China in expanding its military capability and showing their aggressiveness within the SCS. There were a few military incidents that occurred between China and among the claimants especially Vietnam and Philippines. There were no incidents involving Malaysian agencies or vessels with China authority within the conflict area; however it is vital to examine the approaches and measures that have been adopted by Malaysia in managing its sovereignty within this territorial dispute. Malaysian perception and policies are shaped by a long-term geopolitical consideration

especially being a comparatively smaller and weaker state. The geopolitical closeness and power asymmetry has a deep impact on the political masters' belief that, China could help and at the same time may hurt Malaysia much more than any other actors within the region. Malaysia is keen to learn more about China's success in economic development especially after they managed to overcome the global financial crisis in 2008. Malaysian PM, Tun Dr Mahathir Mohamad is seen to continue the previously friendly Malaysia-China relations, while keeping the long-standing balancing strategy in place.



Malaysia has always been pursuing a policy of peaceful resolution to any dispute, in order to ensure a maritime order of peace and tranquility without them escalating into political or military conflicts. In managing the controversial claims, Malaysian government has been using a combination of diplomatic, military, and economic measures to secure its claims in SCS while, at the same time being careful not to disrupt its bilateral relationship with China.

This paper focuses to examine each component of Malaysia's approach and how it is related to its interests in the respective area.



POLITICAL MEASURES

Malaysia was among the first non-communist countries in the region to establish a cordial relationship with China in 1974. The relation started to improve when the Communist Party of Malaya (CPM) laid-down their weapons in 1989. The economic ties between Malaysia and China became stronger. China's crucial role in political and economic security on a global scale cannot be understated. Like-wise, other South East Asian states developed similar relations with China, which in turn helped to improve security and stability in the region. Generally Malaysia's past and present positions on territorial disputes show a combination of unilateralism, bilateralism, multilateralism, and third party adjudication. In the case of Spratlys, the way Malaysia has dealt with the disputes was highly unilateral.

Malaysia's policy towards China is generally recognized as being accommodative and warm, compared to other claimants especially Vietnam and the Philippines. Besides, Tun Dr Mahathir has declared that Malaysia sees China as an opportunity rather than a threat. Tun Abdullah and Najib Tun Razak also had chosen China as their first country outside ASEAN that they visited upon assuming their premiership. Both countries, have signed a bilateral joint document to upgrade the relationship towards "Comprehensive Strategic Partnership", and since 2002, Malaysia started to play an active role on arbitrating an agreement of the SCS disputes within the ASEAN region.

Declaration of Conduct (DOC) has been designed specifically to deal with the actions taken by the claimants in symbolizing their determination to maintain regional security as well as restricting the use of force. Although Malaysia expressed shock on China's move to extend her territorial sea in the Spratlys, the frustration was carefully worded and quietly shared with ASEAN to ensure the issue can be discussed and monitored by other ASEAN members. Malaysia still stands firm with her claims of the territorial waters by bringing the subject to United Nation (UN) and hope for support from other international actors.

MILITARY MEASURES

Defence Cooperation. The first defence attaché office in China was established in 1995 with the aim to enhance further the defence relations through bilateral documents such as Framework for future Bilateral Cooperation in 1999, the 2005 Memorandum of Understanding (MOU) on Defence Cooperation as well as Joint Communiqué 2014 and 2015. Basically though these series of agreements both sides agreed to strengthen defence cooperation to enhance rapport, understanding and coordination between the defence agencies.

Mutual Visits by Defence Officials. Since 2005, several MOUs were mutually agreed upon by both countries to enhance trust and build confidence. It had proposed a strategic partnership via information exchanges on non-traditional security issues, consultations in defence and security areas, and military exchanges. The first China-Malaysia defence and security consultation was held in Kuala Lumpur in September 2012. It was co-hosted by the Secretary General of Malaysia's Defence Ministry and the

Deputy Chief of Staff of the People's Liberation Army. This meeting agreed to continue high-level exchanges and cooperation in training and non-traditional security issues.

Exchange of Military Students Program. The most senior-level military institution in China is the National Defence University (NDU) in Beijing. Beginning in 2008, every year it has received three senior Malaysian officers, usually one from each service. NDU sits at the apex of the PLA's vast system of higher education and admits senior PLA officers at the rank of Colonel and above. Since 2007, a minimum of one military officer from China has attended a one year programme at the Malaysian Armed Forces Staff College and Malaysian Armed Forces Defence College. The exchange of military students program is one of the 'soft power' efforts taken by the Malaysian Government to build a strong foundation in fostering positive connection through one common ground for a dynamic military long term relationship.

Combined Military Exercises. Combined military exercises were proposed by China in 2003, but during that time Malaysia was not really enthusiastic. The first combined Table-Top Exercise (TTX) was conducted in December 2014 for five days at the Joint Warfare Centre in Kuala Lumpur, codenamed "Peace and Friendship 2014" to develop a common framework for humanitarian and disaster relief operations. This first joint exercise showed the level of Malaysia's commitment in building defence cohesion.



Latest Military Equipment. Malaysia continued to strengthen and improve its defence capabilities by providing the Royal Malaysian Navy (RMN) and the Malaysian Maritime Enforcement Agency (MMEA) with the latest equipment to patrol within the disputed areas and secure its claims within the SCS. The RMAF, equipped with latest aircraft monitors and secures its claims in the SCS. Traditionally, to safeguard its claims, Malaysia has maintained several military outposts in the Spratly Islands. It uses warships and submarines to conduct patrols within the EEZ and disputed areas to monitor and shadow foreign vessels, if needed, using standard procedures. The military conducted exercises periodically in or near its portion of the SCS to reaffirm its presence there and to test its operational readiness. In order to further enhance its defence capability, Malaysia is planning to build a new naval base in East Malaysia near the conflict area and it will form a new marine department to provide more maritime capability in the SCS. The RMN is focused on security in the SCS and placing the area under key radar surveillance amid the ongoing sovereignty disputes.

In October 2011, the People's Liberation Army (PLA) Navy of China vessels arrived in Port Klang, Malaysia. It was the first visit ever conducted between both navies to further enhance defence relations. The aim of the visit was a defence diplomacy initiative that would strengthen bilateral cooperation between China PLA Navy and RMN and at the same time learning from each other. History was again recorded when China submarines the CNS Chang Cheng and CNS Chang Xing Dao of the PLA Navy made a diplomacy visit to Sabah, Malaysia. This visit showed that a significantly high level of trust has been given by Malaysia towards China.

ECONOMIC MEASURES

Economic diplomacy plays an important role to strengthen the relationship between Malaysia and China. For the past two years the economic growth indicates both countries continue to mutually enjoy economic prosperity without any one taking advantage of the other.

During Tun Abdullah's tenure, Malaysia's trade with China grew at a rate faster than that between the United States and Japan, the country's two traditional major trading partners. Bilateral trade doubled from US\$20 billion in 2003 to US\$39 billion in 2008, making China the fourth largest trading partner of Malaysia. More government-linked companies (GLCs) made their presence in China. Sime Darby, for instance, has since 2005 expanded its ventures in China by investing mainly in the utilities and infrastructure sectors.

Tun Dr Mahathir opined "I prefer to see China not as much as an economic threat as it is an economic opportunity" (Mahathir 1995). He conceded that China could pose a threat to Southeast Asia's trade with the world with the growing inflow of FDI to China (Zha 2002:57-58) while Malaysian FDI dropped from 6.4% of its GDP between 1990 and 1996 to 1.2% in 2002 (BBC-News 8 October 2003).

As a small state with a comparably weaker economy vis-à-vis an emergent China with a huge population of 1.3 billion, it is logical to argue that Malaysia is constrained by the lack of economy of scale when competing directly with China. In fact, China's entry into the WTO made the economic competition more intense between itself and ASEAN states (Shee 2004:77). In September 2016, a Malaysian special trade delegation to China proposed an initiative to resolve the SCS dispute between China and Malaysia along the China's 'One Belt One Road (OBOR)'. The OBOR has become China's regional economic diplomacy policy using negotiations. 14 MOUs were signed when Malaysian Prime Minister visited China in November 2016.

CHARTING THE WAY FORWARD

Thus far, special relations and diplomacy approach has been taken by both governments. Currently, it appears that the diplomatic approach continues to be accepted by Malaysia and China. However, if China threatens Malaysian oil and gas, then Malaysia needs to decide on a stronger and more effective approach. The effect of losing control is simply detrimental to Malaysian economic well being.

The Malaysian people need to be assured that the Government of the day will keep Malaysia safe by planning strategically and implementing proactive incremental actions.

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In conjunction with LIMA'19

AIR CHIEFS' CONFERENCE



AIR CHIEFS' CONFERENCE 2019

by MAJ AHMAD AZWAD BIN AHMAD AZALI RMAF

During the recent Langkawi International Maritime & Aerospace Exhibition (LIMA '19), the Royal Malaysian Air Force organised the Air Chiefs' Conference (ACC'19). This event took place on 27 Mar 19 and concluded with great success.

The event was held in the Mahsuri International Exhibition Centre (MIEC) in Langkawi with the theme, **"Information Operations (IO) and UAS in Complementing the Evolution of Air Power – A Future Regional Strategy"**. The conference was attended by 8 Air Force Chiefs' and 18 Heads of Delegations from international and regional air forces.

The ACC'19 was also witnessed by Deputy Minister of Agriculture and Agro-based Industry YB Sim Tze Tzin, Former RMAF Air Force Chiefs, MAF Senior Officers, RMAF Senior Officers and defence industry leaders.

During the opening speech, YBhg General Tan Sri Dato' Sri Hj Affendi bin Buang RMAF, Chief of the Royal Malaysian Air Force reiterated that the Air Forces must evolve its Information Operations (IO) and that Unmanned Aerial System (UAS) are becoming critically important for the Air Force to perform their roles and functions to safeguard the countries' sovereignty and interests. He also further added that IO and UAS, is a viable and potential avenue for development. That being said, Information Operation is the cornerstone of strategy against security threats. Furthermore todays technology must be able to develop sophisticated intelligence systems, that are able to penetrate, analyse and monitor computer networks and telecommunication systems.

Group Captain Mick Jansen, Director International Engagement from the Royal Australian Air Force as first speaker demonstrated the use of Manned and Unmanned Teaming (MUM-T) from the Australian perspective, with special focus on the P-8A Poseidon and MQ-4C Triton capabilities. A large emphasis was on the required capabilities of a UAS operating in conditions within different areas or region based on

environmental conditions for operations as well as required needs of a military operating and using these systems.

Mr Tony Fang Xiao Peng, Deputy General Manager of the Southeast Asia Region, CETC International Co. Ltd. as second speaker shared the technological operational systems on the integration of IO and use of UAS. He also echoed that the use of these systems is highly dependent on the strategic requirements of military forces.

The final presentation of ACC 2019 was delivered by Colonel Jeremy Fields, Chief of Reconnaissance Operations from the United States Air Force. Colonel Fields focused on intelligence gathering and addressed to what degree IO and UAS played important roles in addressing threats especially from terrorism and in urban environments.

The Chairperson of ACC'19, Mr Andrin Raj from the International Association for Counterterrorism and Security Professionals (Centre for Security Studies), summed up the conference by saying "IO is without a doubt vital for command control operations in aiding battlefield commanders and troops to better understand and protect the environment they operate in." He emphasised that IO in use with UAS works better in a combination to the integrated employment of the core of electronic warfare, computer network operations, psychological operations and operational security to better enhance capabilities of militaries to operate in the ever-evolving technological advancement posed today by threats changing constantly around the world.

In a nutshell, today's modern battlefields and operating theatres are ever evolving, and the need for cutting edge technology alongside the increasing digitisation of air power is imperative for mission and operational success. LIMA'19 Air Chiefs' Conference has once again brought together a strong community dedicated to the security and interests of their respective nations.



GLOBAL LEADERSHIP THROUGH SERVICE FOR PEACE: MALAYSIAN PEACEKEEPING OPERATIONS

by LT COL ABDUL AZIZ BIN ABDUL RAHMAN RMAF

"The force alone cannot create peace; it can only create the space in which peace may be built"
(Brahimi Report, 2000)

BACKGROUND

Malaysia's involvement in peacekeeping operations (PKO) began in the early 60s while Malaysia was still in its infancy as the Federation of Malaya. I shall attempt to deliberate on some of the milestones that carved the Malaysian involvement in PKOs and the effects that we managed to foster.

ONSET OF PKO

Tunku Abdul Rahman the first Prime Minister (PM) made a far-reaching move by having Malaysia participate in international peacekeeping mission under the umbrella of the United Nations (UN). The first troops were deployed to Congo under the United Nations Mission (French: Opération des Nations Unies au Congo - ONUC) which lasted for 30 months from July 1960 was an accolade for the country. It was a self-contained, balanced force made up of 613 personnel from all ranks. This mission was important to strategically position Malaya's image and leadership at the international stage. Since then, Malaysia has continued to play a supporting role in PKOs throughout the world, including providing training and expertise for missions as well as spearheading regional peace agreement as seen in the Southern Philippines.

Another milestone that Malaysia can be proud of is where Malaysia's expertise was sought as a member of the International Islamic Peace Committee to deal with Iraq-Iran war and in 1986 to facilitate the readmission of Egypt into the Organisation of Islamic Country (OIC). Then later in 1987, Malaysia was engaged again to find an amicable resolution for the India-Pakistan conflict. Malaysia managed to position itself at the centre stage and has been elected to the United Nations Security Council (UNSC) Non-Permanent Member 4 times, the first was in 1960, then 1988/89, 2000/01, and lately 2014/15. Benefits of being a Non-Permanent Member of UNSC can be seen not just as political and territorial survival but also to serve as the medium for international recognition.

Tun Dr Mahathir Mohamad, in his 22 years of tenure as PM had authorized the most number of peacekeeping mission involvement by Malaysia i.e. 26 out of 43 UNPKO worldwide. Malaysia continue to pledge its commitment to the UN in terms of providing troops to peacekeeping mission and providing peacekeeping training through the Malaysian Peacekeeping Centre (MPC). The MPC located in Port Dickson was his brain child. His vision was to see Malaysia continue to play an active role in support of UNPKO.



ALIGNING TOWARDS NATIONAL SECURITY STRATEGY

Malaysia's foreign policy strategized involvement in PKO and humanitarian activities which are both imperative element to achieve the global recognition as *middlepowermanship*. Middlepowermanship refers to the states with an extensive foreign policy agenda, a wide range of international interests, the ability to project power globally, and to be recognized for it. It also refers to resource-rich and a moderately high level of military capability and hardware such as Australia and Canada. Hence, in our national blueprint, Malaysia has set one of its core functions to support the global peace initiatives, which has been the best platform for Malaysia to actively participate in PKOs.

FULFILLING THE NATIONAL DEFENSE POLICY

It is important for Malaysia to align its National Defence Policy to support the global commitment towards peace which is emphasized on the following principles: **Diplomacy as the first line of defence and Commitment to the UN and its instruments for promoting peace, security and development.** Malaysia continues to reaffirm its commitment towards UN. In the recent announcement by Defence Minister, YB Mohamad Sabu, Malaysia will continue to beef-up its troops capability in Lebanon in ensuring its effectiveness in carrying out duties. This was substantiated by the recent delivery of 9 units of Guardian Armoured Personnel Carrier (APC) replacing its old Radpanzer Condor for Malaysia troops at MALBATT 850-5.



STRATEGIC POSITIONING

Malaysia has emerged from a mere peacekeeping participant to a power house that produces competent peacekeepers who serve in various missions throughout the world. Malaysia was among the earliest to establish peacekeeping training alongside other developed nations such as Australia, Netherlands and Canada. Since 1996, Malaysian Peacekeeping Centre (MPC) has trained over 3800 personnel from all over the world under the Malaysian Defence Cooperation Program (MDCP), though now inactive, had conducted more than 140 courses. The RMAF has chartered history by participating actively during the conflict in Cambodia. The RMAF deployed its Technical Specialist Group (TESPEG), consisting of Air Traffic Controllers, Fire Fighters, and Base Operations personnel. Malaysia proudly contributed eight Sikorsky S-61 helicopters to assist in the United Nations Transitional Authority in Cambodia (UNTAC). Following that, RMAF continue to share their experience and capability to provide Tactical Air Control Party (TACP) towards Implementation Force (IFOR) in Bosnia.

In the future, RMAF must also be prepared to provide troops and assets apart from current arrangement of only deploying staff officers and a small element within the MALBATT 850. Malaysia must view the opportunity and experience gained by participating in the multinational forces and understand the interoperability of other nations.

WHAT WE CAN DO BETTER – A PEACEKEEPING DISRUPTIVE

Traditional peacekeeping mission where peacekeepers just observe and report are no longer sufficient today.

The UN has found itself unable to respond effectively to such challenges in the past. The peacekeeping missions nowadays are no longer safe and casualties are reported from time to time. As of today, there are 3780 fatalities from Blue Helmet since 1948 and Malaysia recorded 29 of it. The demand is that peacekeepers must be able to carry out their mandate professionally and successfully. The peacekeeping mission has evolved drastically due to many factors and one of it is the rapid changes in technology. In recent development, as mentioned in the Report of the Panel on United Nations Peace Operations 2000 (Brahimi Report), peacekeeping missions has evolved with the requirement for a comprehensive peacekeeping operation to restore law and order. It means it has to be bigger, better equipped, and more costly but able to be a credible deterrent. Pursuant to that, Malaysia initiated peacekeeping operations are conducted to support the multidimensional peacekeeping concept embraced by the UN today. Malaysia is capable of participating in peacekeeping mission as a group comprise of its military, police, and other government agencies to facilitate restoring the rule of law and strengthening capacity of the local government. The concept of Security Sector Reform can be emphasized during this deployment as Malaysia has remarkable experience building a nation of multi-ethnics and religions. Malaysia's experience during the First Malayan Emergency 1949–1960 and Second Malayan Emergency 1960–1984 are the two evidence that can be emulated in terms of its success in curbing the conflicts and building peace to the country. The concept of KESBAN (Keselamatan dan Pembangunan) or Security and Development has been well recognized internationally. This valued experience can also be applied in the context of UN Mission where Malaysia was involved.

CONCLUSION

It is important for Malaysia to strategize its position in peacekeeping activities as the demand for peace support not only focuses on troop's contribution but rather many other aspects relating to creating a safe and secure environment. As Malaysia is moving forward with its institutional reforms to achieve a better Malaysia, the same should be embraced by the peacekeeping community. Malaysia will continue to pursue its middlepowermanship and softpower. Peacekeeping and peacemaking are complicated to achieve as the end state shoulders heavily on every member of the UN. For Malaysia, we will continue to play important roles regionally as well as global activities taking along the vast experience in security and development in Malaysia.

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STRATEGIC CONVERGENCE AND DIVERGENCE IN MARITIME SECURITY: TURNING THREAT INTO OPPORTUNITY

by COL HAMIDI BIN HASHIM RMAF

INTRODUCTION

Malaysia has a total of 598,540 square km of maritime area almost double the size of the land area which is 329,750 square km. Bordering maritime nations are interested in retaining or acquiring the rights to fishing areas, the exploration and potential exploitation of crude oil and natural gas in the seabed of various parts of the South China Sea, and the strategic control of important shipping lanes. Protecting the maritime environment has always been an important agenda for Malaysia and protecting these areas of interest requires a lot of resources.

The aim of this article is to highlight the strategic convergence initiatives taken by Malaysia and regional neighbouring countries in strengthening maritime security.

CONVERGENCE AND DIVERGENCE

Strategic convergence is understood as material compatibility and overlap of key interests with regard to long-term developments in world politics, providing the basis for extensive tactical cooperation between two or more states.

Divergence is the opposite of convergence. From an International Relations point-of-view, convergence generally means coming together, while divergence generally means moving apart.

Examples of divergence are like Batu Putih overlapping claims, water and airspace issues that Malaysia and Singapore are facing. Despite all the divergence issues, there are a few areas of convergence that is common to Malaysia and some of our neighbouring countries. The Straits of Malacca (SOM) for example is a common interest for Malaysia, Singapore, Thailand and Indonesia. Convergence or regional cooperation was established in the form of bilateral and multi-lateral cooperation.

CHALLENGES

From Malaysia's perspective there are four main areas of concern or threat. First are piracy and sea robberies. Piracy today is more organised and transnational in nature. The International Maritime Bureau (IMB)

Report from 2012 to 2015 identified that the highest number of cases of sea robberies were recorded in the waters of Southeast Asia.¹

Second is terrorism. Terrorism and piracy are interrelated since both have the objective to raise funds for their operations.² The operators use the seas as their means to transport militants and weapons. These activities are also threats to global supply chain especially in the SOM areas.

Since the Rohingya Crisis in 2014 the influx of refugees has increased drastically, which affected several countries in the region, especially Thailand, Indonesia and Malaysia. This refugee crisis tested the cooperation, security and humanitarian devices of countries in the region.³

The ASEAN region is also prone to major risks from natural disasters such as the Tsunami in 2004 that have greatly affected countries in the region. The risk of such disasters is likely to increase due to global warming, climate change, and disproportionate human activities and urbanization.⁴

Besides natural disasters, maritime and aviation related incidents such as the tragedies of MH370 and QZ8501 have necessitated the need for regional Search and Rescue (SAR) coordination. Lessons learnt from these 2 tragedies, especially in meeting the challenges posed by the vast and deep ocean which require regional and international efforts to work together in locating the wreckages. These tragedies have also demonstrated a greater demand on the Navy to be ever ready to assist in SAR operations.

TURNING THREAT INTO OPPORTUNITY

It is obvious that threats today are no longer one-nation affairs and are often contagious. An issue that occurs in one country can just as quickly become a bilateral, regional or even global problem. The delineation between 'security' and 'defence' is fast blurring. Security, which was once under the domain of Home Affairs, is rapidly becoming a shared concern with those within the defence realm. Improvement in intelligence sharing and practical cooperation, as well as an advancement of inter-agency coordination is crucial to address this.

Malaysia has identified three layers of cooperation in Maritime Security. The layers are International Cooperation, Regional Cooperation and Domestic effort which incorporate the private sectors to work closely with defence.

The Malacca Straits Patrol (MSP). Maintaining the safety and security of the sea lines of communication in the Straits of Malacca, one of the world's busiest waterways is a challenging task. The tremendous growth in international trades has resulted in an increase of the volume of commercial traffic, traversing through these major sea lines of communication.

Nearly 80,000 ships sailed through the Malacca Straits in 2018 and the number is continuously growing. The heavy traffic density and the length of the straits that stretch up to 805 km make the challenges even greater.⁵ The main concern here is the non-traditional threats such as piracy, sea robbery, illegal immigration, illegal fishing, drugs trafficking and human trafficking. Since 2004, when the Malacca Straits Patrol (MSP) was introduced, the statistics has shown significant reductions in the number of cases.

The need to enhance the security of the Malacca Strait and the Singapore Strait has increased, and hence the need for coordinated sea patrols and combined maritime air patrols to be established. Malaysia, Indonesia, Singapore and Thailand have agreed to conduct these patrols in the Malacca Strait and the Singapore Strait, to be termed as Malacca Straits Patrol (MSP).

MSP operations comprise two key activities, namely the Malacca Straits Sea Patrol (MSSP) and "Eyes-in-the-Sky" (EiS) combined maritime air patrols. These operations will be supported by the Intelligence Exchange Group (IEG), which will have access to the Information Fusion Centre in Singapore by way of the Malacca Straits Patrol – Information System (MSP-IS).⁶ The Malacca Straits Patrols (MSP), which commemorated its 10th anniversary in 2017, began with trilateral coordinated sea patrols initially by Indonesia, Malaysia, and Singapore (and Thailand from 2004). It has since grown to include three components: the Malacca Strait Sea Patrols (MSSP), with coordinated patrols done alongside information sharing between ships and the Monitoring and Action Agency (MAA); Eye-in-the-Sky (EiS) air surveillance using maritime patrol aircraft; and an MSP Intelligence Exchange Group (IEG) to support the sea and air patrols which then led to the development of an information sharing platform called the Malacca Straits Patrol Information System (MSP-IS). What began as a set of patrols eventually evolved into something much more robust, leading to a massive decline in the number of piracy incidents.⁷

The Trilateral Cooperative Agreement. The Sulu Sea or more specifically, the one million square kilometer tri-border area in the Sulu-Sulawesi Seas between the southern Philippines, Indonesia, and Malaysia has long been a hub for transnational organized crime and terrorist threats. The three states had agreed earlier this year to undertake trilateral patrols following a recent spate of kidnappings involving Malaysian and Indonesian nationals by the Abu Sayyaf Group, which is based in the southern Philippines.⁸

On August 2016 Indonesia, Malaysia, and the Philippines had reached agreement on limited, coordinated trilateral patrols in the Sulu Sea following a meeting in Bali, paving the way for a slow start to the much-anticipated initiative. Agreements were achieved on the initial outlook of the patrols as well as several issues such as standard operating procedures, communications, and most importantly in intelligence-sharing.



The three countries also agreed to allow military personnel on "hot pursuit" to cross borders to chase kidnappers or terrorists. However, the terms governing these "hot pursuits" are quite strict since they are only allowed in emergency situations and the affected country must be informed of the situation. Additionally for the time being the clause can only be used in the maritime domain and do not cover land-based operations even though the three countries concur that there may be a need to venture that in the future.⁹ The designated sea routes and air surveillance were also discussed and agreed upon.

United Nations Mission. The international community confirms the United Nations significant role in "peacekeeping" activities across the world today. UN peacekeeping forces located in several "hotspots" take the crucial task of preventing and managing violent conflicts or renewed armed hostilities. Malaysia has been involved in UN peacekeeping missions since 1960-64 (Congo) and had become an active participant in various missions in Asia, Africa, Middle East, and Europe where at some points its officers have held leadership positions.¹⁰ Over the years, Malaysia has accumulated a great deal of experience when it comes to peacekeeping operations.

International Monitoring Team (IMT) Mindanao. Malaysia realised that the situation in Mindanao will have some significant effects towards the eastern coast of Sabah due to the geographical location and the tradition of the local population. In this role Malaysia was appointed as the leader of the multinational peacekeepers and also forms as a major contingent in the IMT together with other participants from Brunei and Indonesia.¹¹ The IMT plays a critical role in supporting the current Government of the Republic of Philippines (GRP) – Moro Islamic Liberation Front (MILF) peace negotiations and in continuing the momentum for the resolution of the conflict in Mindanao.

The GRP and the MILF started engaging themselves in peace talks since 1996, but it was not until 2001 that the Government of Malaysia came in as their official facilitator and host to the negotiations.¹² The IMT is not only tasked to monitor the upholding of a cease fire from both camps but is also mandated to monitor the implementation of the above signed agreements

and ensure that the peace process progress to the stage of rehabilitation, reconstruction, and development of the conflict affected areas. These two conditions are equally important for confidence building measures as the peace talks are being pursued and a final peace agreement is yet to be signed.

The entrance of the IMT physically present in the conflict area and having direct access to the GRP and MILF adds another dimension as it further strengthen the peace process on the whole.¹³ In as much as the IMT wants to disseminate information and publish its investigation reports for public interest, it is primarily bound to submit its reports to the GRP and the MILF Peace Panels.

The preliminary engagement of the IMT in Mindanao may have shed some better comprehension of the contemporary dynamics of the armed conflicts and the whole social, religious, cultural, environmental, and political issues of the Mindanao conflict situation that could be helpful to the Malaysian Secretariat of the GRP-MILF Peace Talks as maybe reported by the IMT. Yet, there are opportunities for improvement. The IMT being a good channel for information for Malaysia can be more open and accessible to working with CSOs besides their official linkages with the GRP-MILF. The IMT, besides its peacekeeping mission, can also act as "ambassadors of goodwill" in representing the Malaysian government and increasing its credibility as the third party facilitator.



This diplomacy work is important especially to the local stakeholders since much of the relationships within the peace talks have been primarily limited to the top level-the GRP, MILF, and the Malaysian Government. It is inherent that the bigger local stakeholders are requiring more participation and ownership of the GRP-MILF peace process, especially because this is the second attempt of resolving the conflict in Mindanao even though this is highly unlikely. There should be other ways or mechanisms that top level stakeholders can socialize and champion their efforts across all levels of stakeholders. The IMT-CSO linkage could provide such a potential mechanism in gaining more acceptance and support to the ongoing peacemaking and peacekeeping phases. Conversely, the IMT can take this opportunity in gathering viable ideas in making the Malaysian government a better and more effective third party facilitator in the GRP-MILF peace negotiations.

CONCLUSION

The dynamics in regional cooperation has proven that we are able to find ways and means in ensuring the security not only for us but our neighbour as well. It is easy to find faults and unresolved issues with them. It is better to find the common interest and formulate action plans benefitting both parties. These benefits may not be in dollars and cents but can be seen in how we conduct our daily activities.

The MCP and SSPI are examples of regional convergence and how they are translated into opportunity relevant initiatives that are beneficial for all parties. These regional cooperations paved a way for a better maritime security situation in the area of interest.

Lessons learned from all these co operations do not directly translate into monetary values however one can argue that resources sharing does have its' benefits. The nation can rely on the established network from sharing of resources thus enhancing regional co operations whilst paving ways for more similar regional initiatives. It is hoped that we can put aside our differences and work hand in hand in the future.

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CYBER THREAT IS REAL! WE HAVE TO BE PREPARED

by COL SHAMSUL AFKAR BIN ABD RAHMAN RMAF

INTRODUCTION

Cyber threats are real and they are everywhere, affecting everyone, organisations and businesses, causing grief, including losses and reputational harm to most. One is considered lucky if yet to experience any kind of cyber threat, however, this does not mean they are safe. MINDEF Cyber Defence Operation Centre (CDOC), through security monitoring system, filter hundreds of thousands of cyber events daily from the Malaysian Armed Forces (MAF) i.e. MinDef networks. Cyber analysts have analysed and triaged these events further, and found that some are in a very high risk category. There are many attempts to attack or infiltrate MAF/MinDef networks by various actors every day. Thankfully, CDOC has been successful in neutralising those threats behind the wall.



In January 2017, the Defence Minister had launched a cyber security awareness campaign. Since then, some minor follow-on initiatives were carried out by RMAF. However most of us are still sceptical about the level of cyber security knowledge and awareness within RMAF. Obviously RMAF as an organisation must want to strengthen its cyber capability and security with a well developed programme.

Some possible plans to strengthen RMAF cyber security will be highlighted here with a view of eventually making RMAF a cyber resilient organisation in the near future.

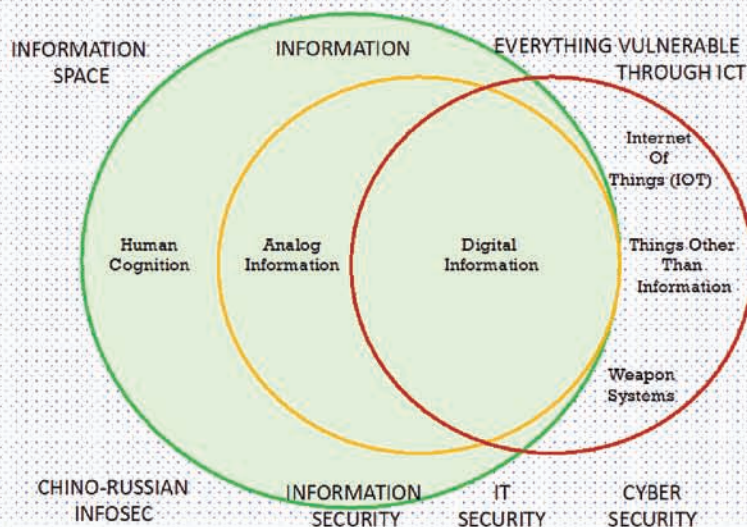
INFORMATION SECURITY VERSUS CYBER SECURITY

Let us look at the difference between information security (INFOSEC), IT security, and cyber security. These terms are often used interchangeably even amongst professionals.

INFOSEC is very broad and goes beyond IT aspects. It is a fact that information is the most valuable asset to any organisation and is the prime critical success factor that has to be protected. It covers, among others, classifications of information, policies and procedures, physical security aspects, legal protections, awareness and retention of information. It is a broad risk management concept.

Threats to information may be threats to quality, effectiveness, and organisational existence. In response to the risks, practitioners introduced INFOSEC tenets, to be adhered to. They are Confidentiality, Integrity, Availability, Authentication and Non-Repudiation. **Confidentiality** is the assurance that information is not disclosed to unauthorised individuals. **Integrity** is ensuring information retains its original level of accuracy, completeness, and protected from any unauthorised modification. It also deals with ensuring computer programs are changed in a specified and authorised manner. **Availability** is timely, reliable access to data and information services to authorised users. It deals with assuring that system users have uninterrupted access to information and system resources such as data, programs, and equipment. **Authentication** is the process of verifying valid users or processes and what level of system resources or process a user is allowed to access. Finally, **Non-Repudiation**, which is the assurance that information exchanges only happen between trusted partners. Neither senders nor receivers can subsequently deny any exchange between them.

Cyber security in essence, is about protecting all things that are vulnerable through information and communications technologies (ICT). This includes information, critical infrastructure, connected devices and Internet-of-Things (IoT) to name a few. The simplified Venn's diagram explains these concepts further:



Russ

Russia-China are concerned about "Information Weapons" as opposed to Euro-Atlantic term of cyber weapons

apons

The diagram also shows Russia's and China's emphasis on human cognition and the effects that human information processing has on individuals and the society as an integral part of their concept of INFOSEC. Both countries have an extended view of INFOSEC, and considered tools and techniques (or information weapons) that act on consciousness and sub-consciousness of population to influence irrational behaviour.

Whereas the Euro-Atlantic pact focuses on cyberspace which is defined by the US DOD as "domain characterized by the use of electronics and the electromagnetic spectrum to store, modify, and exchange data via networked systems and associated physical infrastructures". This simply means that the pact only considers cyber weapons, and does not consider the mind as an aspect of information space and is definitely a concern for INFOSEC.

POTENTIAL CYBER RISKS TO THE RMAF

Now, let us look at cyberspace in relation to the RMAF. Basically, there are open and closed networks and systems. Among others are mindef.net, airforce.mil.my, SPKB, P4 and HRMIS. The fact is that all airmen's social media (SOCMED) and email accounts could lead to a bigger problem to the RMAF cyber security if not managed securely. The other vital cyber space to the RMAF is the weapon systems although mostly are closed systems.

Possible cyber threat risks to the RMAF are information, information networks and infrastructure, and information based processes. Loss of valuable information could occur in many ways. One method of cyber attack could start from what airmen post on SOCMED. According to ISIS manual, 80% vital information could be gathered through Open Sources Intelligence (OSINT). Information posted on SOCMED could be manipulated and used against the owner by cyber criminals or other actors. All airmen, airwomen and their families must be vigilant, and always cautious with whatever they expose in the cyber space. A hacker or a criminal or an intelligence agent could start collecting personnel information to build up individual target profile from SOCMED. This is followed by Social Engineering through a phone call asking for sensitive information that could help hacker gain access to the network or send a phishing email. This could be the beginning of an infiltration into the RMAF cyberspace.

There is also a high potential for attack on organisation critical information, infrastructures, personnel, and components that collect, process, store, transmit, display, disseminate, and act on information. A cyber attack could be launched onto information based processes using any medium and may attack the network. MAF Network Centric Operation (NCO) systems as such could become one of the targets for hackers. NCO consists of a very complex mix of interconnected systems i.e. communications, command and control, sensors down to shooters that have system interfaces through the internet, base and organisational local area networks (LAN), modems, communications systems, satellites, and radios of all frequency ranges - that are vulnerable to cyber attacks. Thus, cyber attacks could infiltrate at many points, and potentially affect a myriad of systems. Furthermore, it is unlikely to trace the full potential of any single cyber attack or infiltration, and the result can be catastrophic.

Modern air power is very dependent on hi-tech weapon systems. Therefore, the RMAF should begin to look into the risks of cyber threats to its weapon systems. More than 75% of the military aircraft's performance and capability is absolutely dependent upon software for its control, and to reach the desired performance capabilities. In some instances, through software, aircraft performance is gaining limited independence from physical configurations. This development is growing especially in modern sophisticated aircraft i.e. fly-by-wire, flight control auto pilot, *Full Authority Digital Engines Control* (FADEC), propulsion systems auto throttles, weapons aiming and delivery controls, radar, master warning, environmental control systems (ECS), navigation and others. Present and future aircraft are no longer a closed system which means external information systems update and integrate aircraft operations system in flight. Through these external connections or data link, not only information systems but also basic aircraft software can be attacked. Any onboard systems that communicate with integrated information systems or a host of other aircraft systems could be manipulated. Cyber attacks could produce any level of systems damage, from shutting off the ECS to overriding the auto pilot software and piloting the aircraft off track.

For example, in 2015, an Airbus A400M crashed in Seville, Spain and killed all of its crew. Investigators believed that the company specialists were aware of the software vulnerability behind the crash. The aircraft relies on data to manage its engines. It is believed that in this event, critical codes had been accidentally



deleted when engineers installed additional software before the test flight. The FADEC should have been tested, to check if everything worked. Sources claimed several test protocols were skipped because Airbus was in a hurry to make up for delays in the delivery of the A400M. RMAF personnel especially the engineers must remember this accident as we also operate the same platform. In future, RMAF engineers should ensure serviceable aircraft does not only mean the common 'serviceable' state but also secured from cyber attacks.

Software dependent systems are no longer a new thing to the RMAF personnel. Some of the systems, such as *Aircraft Maintenance and Spares Information Systems* (AMASIS) allow the management of our EC725AP maintenance activities and logistic provisioning processes. *Pre-Flight Message Support Environment* (PFMSE) for the A400M is a software based planning tool that pre-configures the onboard protection measures in order to ensure that the aircraft is able to respond to incoming threats appropriately. It is the self-protection ground station that creates threat libraries to increase aircraft survivability. RMAF also operates advanced fighter jets like the SU30MKM that is equipped with thrust vectoring engines and fly-by-wire system, and the FA18D with Automatic Throttle Control (ATC), Mission Computer (MC) and Multiplex systems. A cyber attack on RMAF fleet would be catastrophic.

TOWARDS A CYBER RESILIENT ORGANISATION

How to strengthen RMAF cyber security, and become a cyber-resilient organisation? First rule of thumb to keep in mind is that any software-controlled systems that can accept an input can supposedly be attacked. Fundamentally, cyber systems can be infiltrated in two ways i.e. physical and signal inputs. **Physical infiltration** is made through the system hardware devices and removable media e.g. CD, thumb drive or external drives, electronics bugs, spare LAN connection on a hub or routes. **Signal infiltration** comes through existing direct and indirect connections to a system such as LANs, infrared (IR) devices, RF connections (radio), and modems (phone lines). Any system with an external connection can theoretically be attacked. Both types of infiltrations can be protected by physical security and incorporating defences system within the software or hardware itself (passwords, coded signal, firewalls, terminal identifications, isolations, and system monitors). RMAF shall develop a procedure to detect and curb infiltration.

The second rule of identifying cyber vulnerabilities is to expect every software controlled system to be the objective of possible cyber attacks. Even isolated (closed) networks system can experience cyber attacks via a computer virus brought in through contaminated input devices or external drives. Thus, it is imperative that all systems must have some degree of protection and the level of protection must commensurate with the likelihood and consequences of expected attack.

Networks system weaknesses and social engineering techniques are the primary avenue of cyber attacks. They take advantage of computer and human limitations to infiltrate and bypass physical and signal defences, mainly passwords and machine-to-machine (M2M) authentication. RMAF must have reliable defence practices either in terms of inactive or active methods to be used dedicatedly with redundant

security to protect cyber systems. All techniques must be customised, combined, and layered with one another. Zero Trust model is widely practiced by information security professionals. It is a security concept centred on the belief that organisations should not automatically trust anything inside or outside its perimeters, and instead must verify anything and everything trying to connect to its systems before granting access.

FOCUS FOR RMAF ACTION: PEOPLE, PROCESSES & TECHNOLOGY

In order for RMAF to strengthen its cyber security, three main focuses must take precedence - people, processes and technology.

People: Two key aspects to the people element are as follows. Everyone in the RMAF need to be aware of their role in preventing and reducing cyber threats, and this is about common cyber security awareness. RMAF must have an initiative to form a dedicated group of professional Air Force cyber troopers. RMAF must train, maintain and sustain specialised and qualified technical cyber security professionals, and systems administrators. They need to be fully up-dated with the latest skills and qualifications to ensure that appropriate controls, technologies, and practices are implemented to fight the latest cyber threats. Through experience, developing people is the most challenging effort, because of the rigid career path and bureaucracy. It also takes time, and not to forget, additional budget for cyber training. Besides, leadership must understand the importance of developing cyber capabilities; have a clear vision, mission and strong will to support in developing cyber capabilities and security. Cyber professionals are not recognised as an Air Force trade, so each Trade Masters should sacrifice few of their appointments to make a cyber unit a reality.

Processes: RMAF must develop a resilient holistic cyber security plan. Processes are the key implementation of an effective cyber security strategy. Processes are also crucial in defining how the RMAF's activities, roles and documentation are used to mitigate the risks to the organisation information, and these processes need to be reviewed continuously. Cyber security best practices like *Information Security Management System* (ISMS) as promoted by the *National Institute of Standards and Technology* (NIST) should be explored and adopted as a new cyber security culture, similar to how RMAF emphasis on its flight safety. Security Posture Assessment (SPA) audit could become part of the Annual Safety Audit carried out by the RMAF Inspectorate. All these ensure every aspect of cyber security is addressed within the RMAF.

It is time for the RMAF to have a dedicated cyber unit. Establishment of the RMAF *Computer Emergency Response Team* (RMAFCERT) could be a starting point. This is a team of cyber experts who are first to respond to any cyber security incidents, giving assistance to the system administrators, and a link with MAFCERT. USAF for example created a unit called Cyber Resiliency Office for Weapons Systems (CROWS) to assess how the USAF fields and sustains its weapons systems, and analyse any vulnerabilities that might exist. Another important role is to mitigate critical vulnerabilities in already fielded weapons, and also to ensure that cyber resilience is a major part of the soul of all airmen and service members. CROWS also focuses on ensuring that weapon systems have a resilient ability to execute

their mission despite a cyber event. Ultimately, USAF wants to have cyber resilience ingrained in their Air Force culture so that everybody understands it and not just left to the IT guys. Cyber resiliency is the ability to prepare for, and adapt to changing conditions and to withstand and recover from rapid disruptions.

Technology: The use of technology is obviously crucial to protect against cyber attacks. By identifying the cyber risks that RMAF face, cyber security personnel can then start to look at what controls or protections to put in place, and what technologies are needed to do this. Enhancing the organisational digitalisation of information, and having a complete information network infrastructure require significant budget to strengthen cyber security as it involves sophisticated technology. Latest technology is essential in order to overcome the attacker's capabilities.

CONCLUSION

In conclusion, the RMAF must pay greater attention to further strengthen its cyber capability and security with a structured plan and well supported program. Three focus areas are people, process and technology. RMAF must enhance knowledge and awareness on cyber security amongst its personnel. Cyber resilience shall be ingrained in the Air Force culture so that all personnel understand the importance. It is time for the RMAF to have a dedicated cyber unit. Besides protecting information infrastructures, networks and systems, RMAF should begin to look into the risk of cyber threats to its weapon systems. RMAF operations depend on hi-tech weapon systems, necessary steps to protect and secure its arsenal from cyber attacks are essentials.

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THE IMPORTANCE OF SPACE PROGRAMME FOR SOUTHEAST ASIA (SEA)

by COL WAN AZWAN AZWARI BIN WAN ALI RMAF

INTRODUCTION

Space power is defined as a nation which possesses the space technology and capability, and are able to employ those capabilities for its national interest and security. With the arrival of space technologies, national interest now includes space. By virtue of this, the developing countries have evidently been venturing into the space programmes after the Cold War ended, since the opportunity for collaboration with those superpowers are more accessible and encouraging with less political constraints from either of the two blocks. It is estimated that there are 70 nations with space programmes, of which 35 of them have space agencies including Malaysia. Out of eleven countries in SEA, at least three of them have dedicated space agencies, and those do not at least own a satellite.

GEOGRAPHICAL AND ENVIRONMENTAL FACTORS AFFECTING SEA'S SPACE CAPABILITY REQUIREMENTS

The SEA is generally divided into 'mainland' and 'maritime' zones. The land area covers 4.5 million square kilometres. Its waters cover an area about three times larger than its land. Indonesia alone comprises approximately 17,000 islands. Most of the interior of these islands were jungle covered and dissected by highlands. This vast area of SEA requires an efficient means of communication. Virtually all of SEA lies between the tropics and longitude of 090°E to 140°E, where the Equator is generally transecting in the middle of the region. Nevertheless, most importantly is that the Equatorial geo-location gives SEA an advantage for space launch and operations.

However, certain areas of SEA are susceptible to natural and environmental disasters like earthquake, typhoon and haze pollution. These natural phenomena will affect the terrestrial space activities in this region to a certain extent. Earthquakes normally occur in Indonesia and the Philippines where the 'Ring of Fire' lies. When seismic activities occur in the ocean, the risk of tsunami is obvious⁴, as was evident in Aceh, Indonesia in 2004.



Fig. 2 – Southeast Asia's 'Ring of Fire'⁴⁵

Though the seas in some areas are rough, the region as a whole is generally free of hurricanes and typhoons, except for the Philippines. The most frequently impacted areas of the Philippines are the northern and eastern archipelagos especially in September.

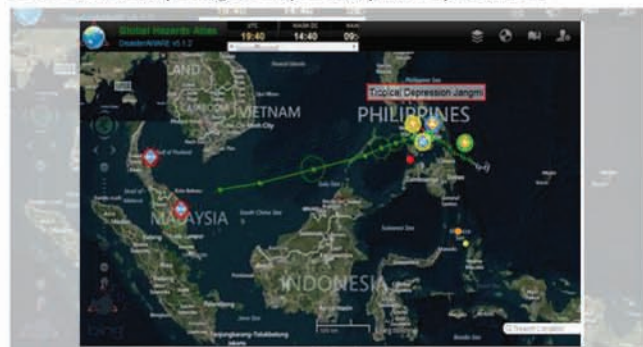


Fig. 3 - Tropical Cyclone Positions and Segments for Tropical Cyclone 'Jangmi' crossing the Sulu Sea, 2014⁶



Fig. 1 - Physical geography of Southeast Asia³

Haze has affected most of Southeast Asian during the dry seasons mainly from July to October.⁷ Besides the natural forest fire, the haze is largely caused by illegal agricultural fires due to slash-and-burn practices.⁸ Several economic sectors have crumbled and caused severe health impact on the population of the affected countries.



Fig. 4 – 'Hotspots' during Southeast Asia haze pollution in October 2015⁹

SEA'S NEEDS FOR SPACE CAPABILITIES

SEA realises that the application of communication, navigation or earth observation satellite capabilities will provide an edge to the country's science and technology development,¹⁰ economy and security. Following are discussion on the reasons for the needs of space technologies by SEA nations.

Communication. Given the wide and dispersed landmasses and archipelagic environment of SEA, the terrestrial and conventional cable connections seem unviable to provide communication throughout the region. Satellite communications play a vital role in providing efficient connectivity especially to the remote and inaccessible areas. Being located at the Equatorial region, it gives an advantage to SEA to enjoy uninterrupted and constant connectivity provided by geo-stationary satellites as exemplified by Direct-To-Home (DTH) satellite television services. Realising this potential with its growing economy, communication satellite operation in SEA is expected to grow with the increased needs for communication infrastructure. Malaysia, Indonesia, Thailand, and Vietnam are increasing their presence by operating multiple satellites.

Marine Fishery. Many SEA countries are among the highest producers of fisheries and aquaculture products in the world. SEA marine fishery production contributed to the world's total fishery production of approximately 9% with the value of US\$ 20 billion. Statistics indicates that there are more than 740,000 boats inclusive of all types and tonnage registered in SEA.¹¹ Because of the increasing demand for fishery products and the need to exploit marine resources in a cost-effective manner, the introduction and application of modern techniques of remote sensing have become important considerations. Remote observations of the sea surface can provide significant information needed to assess the potential yield of the fishing area.

Disaster Monitoring and Weather Observation. As mentioned earlier, SEA is susceptible and suffers great damage due to typhoons, earthquakes tsunamis, forest fires and haze. Thus, earth observation satellites are a major area of interest for SEA. With the possession of such space technology, it will provide timely warning and prediction of the disaster. Thailand is proposing to have ASEAN earth

observation satellites (EOS) in the ASEAN meeting and the discussion is going on with ASEAN-SCOSA.¹²

Maritime Traffic Monitoring. As SEA maritime zone is located in the middle of the international sea line of communication (SLOC) linking the shortest route between Indian Ocean on the west and Pacific Ocean on the east via the South China Sea, makes Strait of Malacca the busiest strait in the world for the maritime traffic. There were 79,344 transits of the strait by vessels in 2014,¹³ showing an increment of 11% in traffic density since 2009 and it is forecasted to keep growing in years ahead. Other maritime economic activities that contribute to the traffic density are the intra state sea communication services and marine fishery. Therefore, an efficient maritime traffic monitoring and tracking system is very crucial in this region. This system may be very useful in the event of an emergency, anti-piracy, and search and rescue mission. The latest technology available currently is the Satellite - Automatic Identification System (S-AIS) which is very viable to be used in this region.

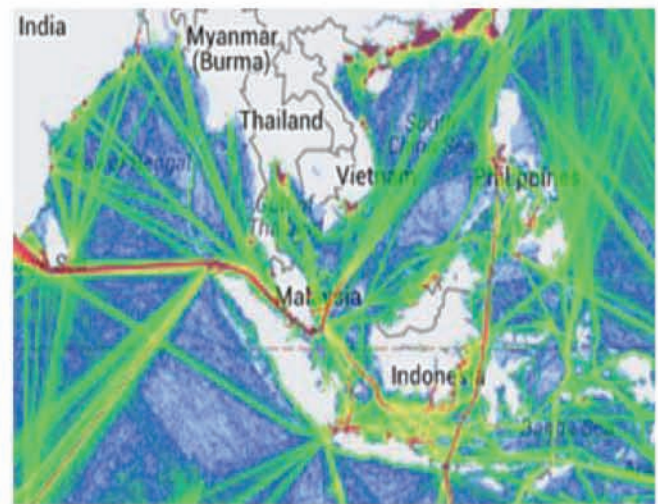


Fig. 5 – Maritime Traffic Density in Southeast Asia

Other Applications. Other space technology is that applicable to SEA environment is the applications of EO satellites for remote sensing data. These data include inventory of irrigated rice field, forest mapping and monitoring, mangrove forest inventory, coral reef mapping, mapping of sea surface monitoring, forest fire detection and monitoring, drought monitoring, inter-tropical convergence zone monitoring and cloud cover mapping, outgoing long-wave radiation mapping and monitoring, flood monitoring and flood susceptibility assessment and identification of a potential fishing zone.¹⁴

THE POTENTIALS OF SEA FOR REGIONAL SPACE PROGRAMME COLLABORATION AND SPACE LAUNCH HUB

In some developing countries including in SEA, financial affordability is the main constraint in possessing of these necessities. Some SEA countries have to sacrifice the development budget of other sectors or receive financial and technical assistances from advance space faring nations in order to venture into this field. Therefore, SEA nations should cooperate in broader sustainable space programme development in order to preserve the present peace and harmony of intra-regional relationships without extra-regional influence.



Coherently, The United Nations (UN) has urged the developing countries to share the benefits from space projects so that the disparities in space development between the developed and developing countries shall be minimal.¹⁵ It will benefit all the countries in this region if the regional space capabilities can be formed such as tsunami prediction, disaster relief, and climate monitoring operations.¹⁶

Equatorial Advantage for Space Launch. The widest point at the same longitudinal angular on earth's hemisphere is at the Equator. Hence, a place at Equator rotates at greater speed compare to a place near the pole, which is moving at 1670 km/h. That means, launching at the Equator provides an additional 1,670 km/h of speed once the vehicle reaches orbit. Since the earth rotates from west to east, launching an orbital spacecraft in that direction at the Equator maximizes the effect of the rotational speed bonus. This bonus speed means a rocket needs less fuel to launch into orbit and that freed space can be used to carry more payload. Thus, SEA being at the Equatorial region will provide a natural advantage for the launch of orbital spacecraft.

Launch Site Options. Since maritime SEA is composed of archipelagos and surrounded by seas, it will offer two options for the launch site selection; land launch site (on island) or sea basing launch platform. Borneo Island for example, may provide vast unpopulated area for safety corridor in case of falling parts of the failed rocket. In the South China Sea, sea basing launch platform may be deployed. Since the South China Sea is the centre of security issue in region, having SEA launch capability as regional collaborative in this area may be seen as a measure to demonstrate the exclusiveness of the South China Sea for SEA. This will further encourage cooperation among SEA nations in denying other foreign power influence in the area.

Cost of Man Power and Land. Compared to the developed countries; SEA with the vast land area, ample human resource, low cost of labour and low cost of living will be an advantage for the regional space programme to be established, thus producing cheaper solution for space services especially the space launch.

BENEFITS OF SPACE PROGRAMME COLLABORATION FOR SEA

Regional Sustainable Economy Development. When countries in the same geographical region cooperate in space utilization and exploration, they gain substantial benefits and it will spread to other cooperating countries equally. These include reducing natural resource consumption,¹⁷ increasing employment capacities, increasing economic development, building knowledge of space together and decreasing competition among the cooperating countries.¹⁸ Satellite manufacturing and space services are now an industry with companies located around the world. In order to compete in globalization space market, SEA nations need to have a single collaborative body in promoting the space services. For the start, this space services can be offered within the SEA for the benchmark, then to other developing countries outside the region.

Eliminate the Disparity in Acquiring Space Technology. It is more convincing for the MTCR members to transfer the launch vehicle and other

space technology for the peaceful purpose of space technology when the space programme is initiated through single regional space programme collaboration rather by an individual state. As mentioned earlier, declaration of peaceful purpose of space technology can be obtained among the regional space programme members.

Catalyst for Leaping Into Developed Nations. The regional space programme might be a catalyst for SEA to leap into developed and progressive nations. Prevalent ASEAN may be the initiator for the borderless SEA nations, similar to European Union (EU) in future. In parallel, this regional space programme collaboration in turn will result in increased job opportunities and distribution; subsequently will nurture the development and building of knowledge in the field of space technology whilst simultaneously decreasing competition in similar fields of space¹⁹ among the members.

ASEAN'S INITIATIVES: SUB-COMMITTEE ON SPACE TECHNOLOGY AND APPLICATIONS (SCOSA)

SCOSA is a sub-committee to formulate the framework for enhancing collaboration in space technology and its applications, and to implement programmes and projects towards employment of these technologies for sustainable development in the ASEAN region.²⁰ SCOSA is the point of contact for space activities inside ASEAN and currently focuses on educational activities, training course and a workshop in cooperation with other space power nations and organization. The ASEAN itself does not have an individual space policy nor any appropriate space institutions to develop space activities for sustainable development within the SEA region.²¹ Its grand ambition remain resource-constrained and its practical achievements have been relatively subdued. However, it is agreed that SCOSA has brought ASEAN member states together in working on several satellite application training workshops and a few earth observation programs.²²

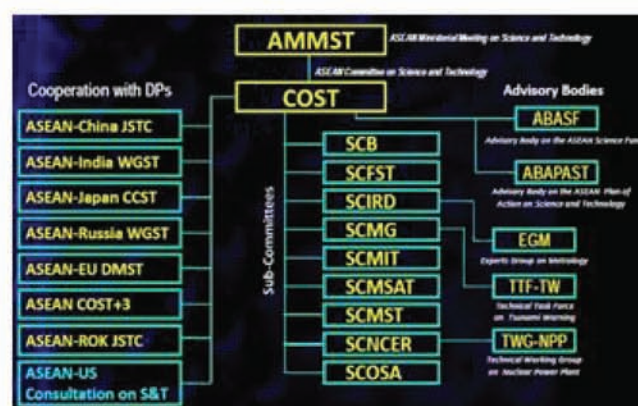


Fig. 6 – Structure of ASEAN's Committee of Science and Technology

ASEAN-SCOSA can be the spearhead if ASEAN decides to move to the next level to form a single space agency for the region. Follow on will be the formation of the space launch service consortium through member's government funding and/or Public Private Partnership (PPP)-type special purpose company that specializes in the launch site operation. State member's military involvement would not be an option in order to accommodate foreign launch spacecraft thus abiding MTCR terms and to avoid dispute with non-ASEAN members.

CONCLUSION

Although the collaboration is still a vision, the ASEAN community has to realise that this strategy is a measure to limit and balance the influence of more hegemonic states in the region and maintain regional stability. The regional space programme collaboration can be taken as one of the Confident Building Measures (CBM) for regional stability among the ASEAN members in which benefiting SEA region.

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⁹"Global Forest Watch Fires", http://fires.globalforestwatch.org/#v=map&x=114.83&y=2.44&l=5&lyrs=Active_Fires&b=Imagery

¹⁰Sean Treacy, "The New Space Age," 4-9.

¹¹"Fishery Statistical Bulletin of Southeast Asia 2013", Southeast Asian Fisheries Development Center SEC/ST/47 (September 2015), accessed 17 February 2016.

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¹⁴Chukeat Noichim, "The ASEAN Space Organization: Legal aspect and feasibility", *The International Institute of Air and Space Law, Leiden University* (2008): 83, accessed 08 October 2015.

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¹⁶Raong Du, "Space Cooperation in Asia: a Mystery", *65th International Astronautical Conference* (2014), IAC-14.E3.1.4, accessed 06 November 2015. http://swfound.org/media/187608/rong_du_paper_iac_2014.pdf

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CAP55

The RMAF Blueprint

by MAJ GEN DATO' MUHAMAD
NORAZLAN BIN ARIS RMAF

The complexities of future air warfare will continuously present great challenges especially for a small Air Force like RMAF. Evidently, the constant advancement in military hardware and software technology are coupled with a constantly growing price tag. This has forced the RMAF to re-look into the approaches towards a more realistic air power development.

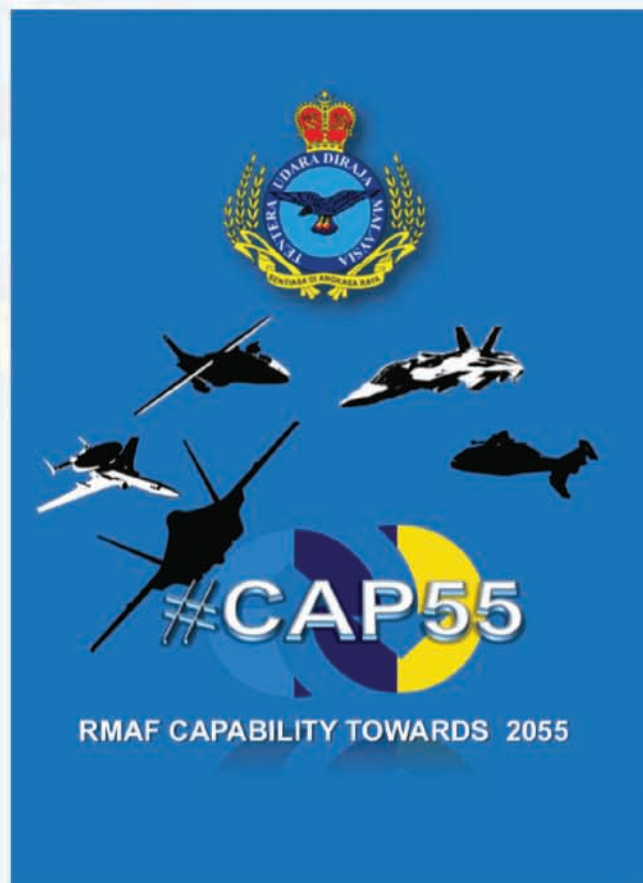
The RMAF must ensure that its air power capabilities remain relevant with current regional and extra-regional developments. Taking into considerations the 'trifactor' - evolving technology, exponential price tag of military equipment and defence budget constraints, it is only by shaping its force structure to a manageable and capable one, will the RMAF be able to deter any external threat and safeguard national interests effectively. Hence, the RMAF's capability development shall allow maneuverability with absolute fluidity and without restrictions. Only then the RMAF may capitalize on its air power domain to be a dominant air power.

The RMAF is aware that its development plan shall commensurate with the national affordability and priorities. The undeniable fact is that any form of development in the organization must take the Man-Machine-Method trilogy into cognizance.

To accommodate the increased spectrum of responsibilities, close harmonization of these three elements are essential.

It is imperative that the RMAF planners recognize the highest priorities in operational readiness requirements. They need to analyse the challenges and opportunities and align them with strategies and acquisition plans. Accordingly, the RMAF has decided to adopt a Capability Based Development approach to attain optimal functionality in all facets of its roles. CAP55 is a strategic plan that figures out all the threats and challenges in the air force domain. The plan covers procurement of assets and systems apart from upgrading existing capabilities.

Concurrently, it investigates the casting policy on the service-life of aircraft. CAP55 focuses on reducing aircraft types to deal with the issue of obsolescence and increased cost of maintenance.



RMAF need to constantly review its capability requirements, exploring further upgrades or procure new systems. This is necessary to ensure the RMAF remains capable of meeting Malaysia's security needs. CAP55 will give more flexibility in the management of assets, implementation of operations and will provide further advantages to the RMAF. However, the RMAF needs to overcome existing challenges that hinder its effectiveness and efficiency. This is especially needed in view of the inherent defense budget cuts.

The key planning in the development of CAP55 are realistic, affordability, right time and effectiveness. The planning shall take into consideration the 3S concept, which is Streamlining, Standardization and Simplification, with focus on reducing the types of asset. This is for better management, effective employment and meeting operational challenges. Lack of system commonality has always hampered the effectiveness of combat capability.

The CAP55 plan shall address the challenges of operational equipment and looks towards streamlining the roles and functions of its operational units. Logistic expenditure escalates especially to maintain and operate obsolete equipment.



The goal of the CAP55 plan is to have a lean and mean machinery that continues to perform optimally even with limited funding and resources. New systems brought into the service must be able to allow expansion of capability through an open architecture and must conform to requirement of interoperability with existing systems.

CAP55 is a long term RMAF Capability Development Plan which begins from 12th Malaysia Plan in 2020 and culminates at the 18th Malaysia Plan in 2055 to help propel the RMAF to complete its quest in attaining the much desired full spectrum Air Force capability as stipulated in the RMAF Air Power Doctrine.

CAP55 outlines a set of strategic change vectors that will shape how the RMAF transforms itself over the next decade and beyond. CAP55 is formulated to enable RMAF to sustain operational capabilities especially to survive during a period of increasing strategic uncertainty, rapid change and face complex challenges.

RMAF Capability Development (CAP55) Graphics





SUSTAINING CAP55: THE FORCE AND THE PEOPLE

by MAJ PATRICIA YAPP SYAU YIN RMAF

INTRODUCTION

RMAF Transformation Plan - Air Force Next Generation (AF-NG) was a 10-year program spanning from 2010 to 2020. It focused on 4 main pillars: The Doctrine; The Force; The People; and The Organisation. This plan falls within the evolution of the Fourth Dimension Malaysian Armed Forces (4D-MAF). Then in 2018, RMAF initiated its Capability Development Plan or **CAP55**.

The AF-NG, intends to transform RMAF into a **full spectrum Air Force**, capable of performing multi-roles during peace, war time and post-war. Whereas, CAP55 is a development plan to eliminate the redundancy in roles and functions, to better manage and utilize resources and budget. CAP55 foresees the need to shift the force architecture in order to meet the regional and global strategic outlook. This allows RMAF in shaping towards an optimum Air Power capable to meet its vision and mission.

One important question raised is how will CAP55 sustain the RMAF operational capabilities through the year 2055. To assure the success of RMAF long term development plan, it has to revamp and restructure current organisation and assets.

In this article, I would like to expound on **The Force** and **The People** to further analyse the bridge between AF-NG and CAP55. The maturity in these two pillars would act as important platforms for RMAF to go through another development plan and bring greater achievements to the organisation beyond year 2055.

THE FORCE

In a time of history, RMAF has evolved from a defence force that provided support during the insurgency in the 1960s, and now has become the air power in defending the sovereignty and integrity of Malaysia.

In AF-NG, the 'force' was marked as the backbone of transformation. Similarly, CAP55 molds 'force' as a realistic, affordable, timely and effective force based on the challenges faced in national defence budget constraints. The need for the force to be transformed into a fully integrated and multi-mission capable in

maximizing the effect in **three operating domains** namely airspace, space and cyberspace conforms to a full spectrum Air Force as envisaged in AF-NG. In conjunction with CAP55, the force needs to be optimized for RMAF's war fighting capability with a new diligent approach in managing the assets and budget. The capabilities of the force in the 3 domains is a major factor to support the national strategic interests and utmost flexibility in conducting air operation. The dynamics of this force will allow RMAF to employ its Air Power to its advantage. Thus, in resonance with CAP55's focus, **'Air Power: The Pillar of Sovereignty'**.

THE PEOPLE

Besides the 'force', having **well-trained work force** is the key to success in any organisation. Highly motivated and skilled RMAF personnel can ensure the effective implementation of CAP55. With the correct process of recruitment, effective instillation of core values in personnel and knowledge building through joint operations, RMAF shall prepare a force structure that enables it to integrate training, education, skill and experience to fulfil CAP55. Additionally, developing the human resource to build professional skills are essential to shape the work force and uphold healthy working culture in RMAF. Along with that, the leaders play an important role in maintaining morale and fighting spirit of all RMAF personnel. With the correct mindset of future leaders bring the best out of the personnel. **The people** are an important agent in any development plan. By engaging the right people for the right job will prepare the RMAF to become a full spectrum Air Force, capable of executing any given mission and task.



CAP55 IMPACT FOCUSES

CAP55 correlates the 'force' and the 'people' in various ways to ensure the readiness for future operating environment. Examining the past decades, RMAF has achieved positive results through its roles in AF-NG. In order to sustain its operational capabilities through 2055, RMAF shall tailor its essential capabilities through the following main four focuses:

Optimum Number of Assets. With the CAP55 framework, the number of aircraft types shall be reduced. Obsolete technologies shall be replaced. In the long run, this shall greatly reduce associated operations and maintenance costs and as an outcome, improve readiness.

Effective Financial Management. The financial resource management needs to be tailored towards sufficiently funding cost of military flight training and operations. Budget shall include Total Life Cycle Support (TLCS) of weapon systems. This approach shall give a realistic estimate for operations and support costs related to defence systems acquisition.

Focus on Roles and Task. The implementation of CAP55 shall provide a concentration of force in the RMAF. Platforms that are too diversified increases the operating costs and may not be the right fit to address regional threats for Malaysia. RMAF shall be looking at trends, environment and geographical aspects when procuring new assets. With CAP55, the new platform shall be tailored to meet RMAF roles in facing threats within the region.

Human Resource Management. No doubt, the architecture of CAP55 requires constant review in light of the ever-changing strategic and operational environment. The ultimate aim towards a fully capable Air Force can only materialise through effective training of personnel coupled with experiences gained from exercises, both domestic and international.

SUSTAINING OPERATIONAL CAPABILITIES

In enhancing the operational capabilities through 2055, RMAF shall engage in a few methods to deliver the four impacts. First, RMAF designed the **training requirements** to achieve its strategic objectives (enhancing Air Power and Information Security). Some training has been substituted with computer based tools, which can facilitate effective learning environment such as the usage of the simulator and the advanced computer-based systems that are Live, Virtual and Constructive (LVC).

The second method, RMAF believes it would be beneficial to have the dialogue such as **Air Staff Talk**. This grounding dialogue between the respective Air Commanders and leaders from various nations, in a specified issue harnesses the interoperability. In essence, the strategy is to blend the expertise and, in a way, facilitate each other when facing a threat or disaster.

Thirdly, accrue from the interoperability networking, **engagement with the international mission** would enable experts to guide and train RMAF personnel, and serve as a mechanism for bilateral and multi-lateral missions. RMAF engages in **bi-lateral exercises**, like Joint-Combined Exercises Thamal (JCEX THAMAL) with Royal Thai Armed Forces aiming to train

personnel in peace enforcement operations (PEO) and HADR operations. For **multi-lateral exercises**, RMAF actively participates in Ex-Cobra Gold, Ex-Pitch Black and Ex-SUMAN Protector. These exercises involve large force employment of air exercises and ground forces between many nations such as Australia, Indonesia, Japan, Singapore, South Korea, Thailand and the US that enables the RMAF to harness regional relationship and network co-operation. 'We train the way we fight; we fight the way we are trained'

CONCLUSION

To conclude, the two pillars in AF-NG (the 'force' and the 'people') shall remain as the dominant factors in CAP55. Every capability within the force relies on the skills and intellect of its people. Attention to improving their professionalism and skill mastery will remain as the foundation for the generation and sustainment of Air Power. Evidently, training and development remain as RMAF's priority to mitigate any gaps between the current and future plans. The end state of the RMAF force structure is to be a Full Spectrum Air Force.

In summary: RMAF CAP55 aspiration in reducing training cost shall in **no way** consider 'reduced training quality'. Our operational training and mission readiness shall be focused to meet RMAF roles and functions.



With further enhanced regional interoperability and cooperation through **bi-lateral and multi-lateral exercises**, CAP55 shall be able to bring Air Force personnel abilities to be at par with international standards. With the training design and exercise participations, RMAF shall be able to **sustain operational capabilities through 2055**, and thus maintain as the defender of national sovereignty, integrity and interests.

The caretaker of CAP55 shall explicitly define specific plans and corresponding process owners; then monitor and report progress; and relay directions from higher echelon towards ensuring the success of the plans.

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LOGISTICS MANAGEMENT CHALLENGES: THE ROYAL MALAYSIAN AIR FORCE PERSPECTIVE

by BRIG GEN DATO' DR. MOHD YUNUS BIN MASJUKI RMAF

INTRODUCTION

Logistics Management is seen to be one of the most important enabler in ensuring Operational Readiness and Sustainability in the RMAF. Logistics support for modern assets require employment of advanced logistics management approaches and techniques. Despite having highly qualified, trained and experienced logistics personnel, the RMAF Logistics Branch is constantly struggling to provide support. This is especially attributable to the inherent budget constraints. People often use the phrase "do more with less", but there is a limit to how much we can stretch our financial allocations. Immaterial of the constraints, the logistic support that enables the RMAF to perform all its roles is expected to be provided.

Air Force, means "the part of Armed Forces that fights in the air", and for that it needs planes that can fly and are capable of performing operations. It is feared that without sufficient allocation, fighter jets, transport planes and helicopters will soon remain on ground and radars will be off the air. RMAF Operational Readiness needs to be maintained at a high level and it acts as a deterrent to any possible threat to the nation. Although it is an uphill task, the best effort is made in all areas of logistics management to sustain the RMAF and keep it relevant in defending the sovereignty of our Nation.

Just to share some knowledge with the readers, some of the challenges faced by the RMAF Logistics are summarised in the following paragraphs.

RMAF LOGISTICS CHALLENGES

Some of the significant challenges faced by RMAF logistics management today may be summarized into four areas i.e. Financial Allocation Constraints; Procurement Processes and Financial Structure (mismatch); Implementation of Performance Based Contract (PBC); and Defence White Paper - RMAF Capability Development 2055 (CAP55).

Financial Allocation Constraints. RMAF has been in existence for sixty years and expected to maintain and operate modern war fighting weapon systems, with considerably low budget allocation. In the past 13 years, Operating Budget has only shown a yearly

increment of merely 3% i.e. from RM1.8 to RM2.5 billion. The RMAF requires a financial allocation of RM 1.7 billion for Logistics Activities alone, instead have been allocated between RM800 to RM900 million, which is about 47% of the actual need. This budget allocation does not commensurate with the actual operational needs especially with new strategic assets in the inventory.

Inclusion of new assets i.e. Su-30MKM fighters in 2007, the EC725 helicopters in 2010 and the A400M in 2015 is not supported with sufficient amount of financial allocation for maintenance, spares and technical services. This is further compounded with having to maintain and operate various ageing aircraft, radar and support systems. As a result, the level of operational readiness and preparedness has been affected and continues to decline. It is expected to further deteriorate in the years to come if nothing is done in terms of financial allocation.

Procurement Process and Financial Structure. The procurement system by tender is designed to utilize a fair and transparent process that delivers the best fit in accordance to the user specifications, best delivery lead time and value for money. However, the activities involved in a tender process take a long time from initial procurement request until final delivery, be it assets or services.

The allocation provided in the Operating Budget may only be utilized in the current year due to its 12-month cash flow basis. In an accrual basis accounting system, the financial commitment of the users may be accounted for and retained with the financial manager for payment upon final delivery. This is currently not permitted by the Ministry of Finance. Procurement of Specialist Vehicles and equipment replacement programs are effected as most of its suppliers or Original Equipment Manufacturers are from abroad and have an apparent longer delivery lead time. Some even take up to 18 months for delivery.

As mentioned earlier, financial policies employed currently do not fully support the implementation of tender process and there is an apparent mismatch. There has to be a way for the Operating Budget allocation to be either brought forward into next year's allocation (as commitment) or parked into the Development Budget where accrual accounting is possible.

Performance Based Contract (PBC) Implementation.

PBC, sounds good and may be the in-thing employed currently by many organizations. Implementation of PBC is however another matter altogether. First of all, PBC will primarily cost much more than the conventional method. This is due to the fact that all forward commitment of fixed and variable costs plus procurement of spares will be loaded onto the users. This is expected if the contractor wants to ensure they perform, and avoid penalties. Benefits of PBC definitely outweigh the Cost but we need to be mindful that the cost is not going to be low. It is impossible to implement PBC without additional financial allocation. Financial approval uses the term "using current allocation (menggunakan peruntukan sedia ada)", and it has to be implemented. There are many equally important activities that require financing, and it is incredibly tough to implement all of them with the same budget allocation, especially once PBC is implemented for some.

PBC should only be implemented and limited to new systems or equipment where a certain level of in-house capability and expertise are maintained by the users for strategic reasons. This is to safeguard the interest of the users especially when there is a non-performance by the contractor. Without which, the contractors will always have the upper hand.

PBC implementation definitely requires extensive discussion and detailed documentation on Statement of Work (SOW) to outline specific contractual obligation of various parties. Additionally, Performance Work Statement (PWS) must clearly define the work to be done and the performance standards expected (quality, quantity, and timeliness).

All of these translate into the cost of the contract, and using the same allocation is simply not possible both for the contractors and the users. Currently, PBC related policies and guidelines remain unclear and any order to implement PBC without proper guidelines is simply callous, in my opinion.

Defence White Paper – RMAF CAP55. The Malaysian Armed Forces is entrusted to formulate a comprehensive National Defense Policy in the form of a White Paper. The RMAF has already formulated a Strategic Plan namely Capability Development 2055 (CAP55) which is a holistic development plan for a period of 35 years from 2020 to 2055. The purpose and wisdom of this framework is to reduce the present multi-type flying assets to a sensible and manageable number.

Once this plan is firmly accepted, subsequent budgeting and procurement plans for the supportability of the RMAF assets shall follow through. If these plans are implemented, the issues of obsolescence and un-supportability of systems shall be systemically eliminated. This will assist in increasing the level of readiness and preparedness of the RMAF to a desirable high state. CAP 55 has to be clearly defined in the Defence White Paper and accepted by the government; only then all asset acquisition plans for the RMAF will be aligned towards making the RMAF a credible fighting force. Everything sounds good on paper, but if any deviation from plan occurs, it would cause the logistics management to fall into the abyss of uncertainty again.



THE WAY FORWARD

Arguably, RMAF logistic management challenges are anchored on the tenets of finance and budgeting. It is strongly recommended that annual Defense Budget be based on a percentage of national Gross Domestic Product (GDP). The rate of 1.3% to 1.7% of GDP for the RMAF shall be a suitable figure to balance the defense capability comparable to regional nations. In monetary terms, annual budget of RM2.5 billion for RMAF should be increased to RM3.4 billion to enable the RMAF to operate and maintain its assets effectively.

Proper budget allocation shall address many constraints in the RMAF and enable us to improve and sustain Operational Readiness. It shall also enable us to implement PBC, which will in turn improve Operational Readiness.

PBC guidelines for implementation in Malaysia should be properly formulated and issued as Treasury Instructions for all agencies to comply. These instructions need to address the changes in financial implication and how to cater budget for the changes.

CAP 55 shall remain as the RMAF main road-map document or source of authority for the development of RMAF and shall be adhered to regardless of any other influencing forces. In future, after 5 years, revisions may be in-order for it to be aligned with technological advancements and national needs at that time.

If these few issues mentioned earlier are addressed, then you can be rest assured that the RMAF Material Division shall strive to work effectively and efficiently to overcome all other logistics management challenges under the existing Armed Force and RMAF leadership.

Materiel: We Make Them Fly. Sentiasa Di Angkasa Raya.



THE EFFECTS OF DEPLOYMENT TO MILITARY FAMILIES

by COL (DR.) ZULKEFLEY BIN MOHAMMAD



INTRODUCTION

Family separation is part and parcel of military life. The temporary absence of a family member due to deployment brings unique stress to the family. A systemic review conducted by Trautmann et al. (2015) regarding the impact of military deployment to their family revealed findings that were associated with increased stress to the parents, child behaviour problems, more health care utilisation and child maltreatment.

Stress can be experienced in three different stages; pre-deployment, survival and reunion. Most families can adapt to these stresses well. For families without adequate coping skills, however, these stresses can lead to problems which the family presents to the health care system.

Studies show that the majority of family health problems secondary to deployment occurs in the enlisted group (Allen et al. 2011; Gibbs et al. 2007). This may be associated with low education level and less financial support among enlisted personnel as compared to the officer group.

MALAYSIAN ARMED FORCES DEPLOYMENT

Currently, Malaysian military personnel are involved with United Nation (UN) Peacekeeping Operations in Lebanon named as UN Interim Force in Lebanon (UNIFIL) and International Monitoring Team (IMT) in Mindanao, Philippines. There are approximately 1000 personnel deployed to these countries on a yearly basis. Apart from that, a number of Malaysian Armed Forces (MAF) personnel are also currently being deployed to operate at a Military Field Hospital at Cox's Bazar Bangladesh as a part of Humanitarian Assistance and Disaster Relief (HADR) program.

Based on previous and current MAF's experience on missions abroad, the minimum length of time for these deployments was six months, and the maximum was one year. Extended involvement of our military personnel in United Nations program is a major concern compared to the short duration deployment in Malaysia itself.

A study conducted on the United States Army population showed the longer the deployment, the more likely the military member's family would experience a range of difficulties affecting their dependent children and to the spouses that eventually lead to marital stress and divorce (Negrusa & Negrusa 2014; Tanielian 2008). Although there is no published data from the MAF, issues regarding family health in MAF including divorce and child maltreatment as stated above have happened and will continue to occur if no action is taken.

THE STRESSOR

Pre-deployment stress. The onset of this stage begins with the warning order for deployment. This stage ends when the person departs from home station. The pre-deployment time frame for MAF personnel is usually three to four months as the personnel need to undergo integration training. During the integration training, they will undergo medical examinations

including mental health screening. They will also be attending lectures and discussion of mental health delivered by a military psychiatrist.

In this initial stage, most of MAF personnel are keen and motivated to serve under the UN. Based on the author's experience (UNIFIL - July 2008 till April 2009), one of the motivations was the extra allowance. Apart from the salary paid by the Malaysian government they also get US\$1,428 per soldier per month by the UN at a standard rate. This was the latest figure as approved by the UN General Assembly on 1 July 2018 (Peace Keeping, Nov 2018). This motivation may reduce pre-deployment stress considerably. However, to those who were not keen on going for deployment, the pre-deployment stage might be difficult for them and their families, and it would be characterised by denial and anticipation of loss. School-age child and teens showed more mental health issues as they presented separation anxiety and depressive symptoms (Blount et al. 1992). This may be due to anticipation of increase in responsibility such as babysitting younger siblings and doing more household chores. At the same time, they may know that there are inherent dangerous aspects of the deployment to their parent.

Survival or Deployment Stress. During the deployment, family members usually experienced a range of emotions. Overly concern, worry or panic, loneliness and sadness, added family duties and responsibilities, learning new skills and making new friends, fear for their service member's safety, feeling overwhelmed, financial difficulties, dealing with problems on their own, understanding what your loved ones have been through, and concern over being needed and loved.

Children's reactions to a parent's deployment varies depending on age, maturity and any other behavioural or mental health problems the child might have. Creech et al. (2014) did a systemic review regarding the impact of military deployment on children. She measured emotional and behavioural outcomes on three age groups; early childhood (ages 0-5), school age (ages 6-12), and teens / adolescent (ages 11-18). Overall her review showed significant psychological problems in all groups.

For teens/adolescents, they may have to shoulder more responsibilities, such as babysitting younger siblings and doing more household chores. Anticipating the increase in responsibility may cause some children to feel concerned and overwhelmed. A study revealed that teenagers from military family have more depressive symptoms, suicide thought and lower quality of life compared to children in the civilian family. They also face higher risk of substance abuse such as marijuana use and binge drinking. When comparing academic performance Nicosia et al. (2017) found that significant decline in academic performance for adolescents can be attributed to long deployment of a parent compared to those parents on short deployments or not being deployed.

Several studies also found that children in all age groups whose parents have been deployed had an increased overall outpatient visit especially to the mental health clinic (Creech et al. 2014; Eide et al. 2010). However, this study was unable to determine whether deployment creates a greater need for medical care for children or whether the increase in

visit rates is an expression of stress felt by the remaining caregivers.

Some reports revealed a high rate of maltreatment occur to children while their parent was deployed. It was up to 42% higher than the rate was not deployed (Gibbs et al. 2007). The common maltreatment suffered by the children was emotional abuse, physical abuse and negligence. Gibbs et al. (2007) also found that the majority of the cases occurred to children who come from families of enlisted personnel (lower rank or non-officer). They also found that most of the perpetrators of maltreatment were a non-military caretaker, civilian female spouses or non-family member caretaker.

Some caretakers or spouses especially wives will have traumatic experiences. The wives have to face new situations in their husband's absence while dealing with anxiety about their wellbeing. They might also feel annoyed because of the need to handle so much on their own while the husbands are away. Allen et al. (2011) reported that wives have higher levels of stress, and the stress was associated with more children behaviour problems. The spouse with younger children was also reported to have greater parenting stress (Everson et al. 2013). They also may have trouble with in-laws and financial difficulties, such as cash flow problem especially if the mother is unemployed.

Deployed mothers also reported to have symptoms of depression and anxiety and greater difficulties in emotional regulation compared with non-deployed mothers (Gewirtz et al. 2014). They have higher anxiety about future of their relationship with their husband. However, Gewirtz et al. (2014) found these were not statistically significant. This is probably since deployed mothers are usually more resilient and emotionally strong.

Deployed father or husband is motivated to develop and maintain a positive relationship with family through available electronic resources such as WhatsApp, Face Call or Skype. Studies showed that deployed fathers were emotionally more stable. However, they are very prone to PTSD and depression if they are exposed to bad experiences or injury from the deployment (Bonde et al. 2016; Seal et al. 2009).

Another stressful factor following deployment is the cases of couples being unfaithful to their partners. In Malaysia there are reported cases of marital disharmony and divorces associated with deployment. However, from the previous studies there was little evidence to support the hypothesis that stress related to deployment contributes to the demise of marriages, but deployment may impact marital satisfaction and children's wellbeing (Karney & Crown 2007).

Another significant stressor associated to deployment is financial issues. Deployed personnel usually receive extra stipend. However, there are cases where this extra income was not managed properly and the families in the home country still faced financial difficulties.

There are also reports that spouses at home misused their deployed partner's money lavishly. Studies showed that families of lower income and lower rank are more susceptible to greater economic strain and marital conflict (Allen et al. 2011). This study also

suggests that such problem probably stem from low responsibility and low education level among the lower rank group.

Reunion / Post Deployment Stress. Reunions can be happy and stressful even for military families that have experienced deployment more than once. They may encounter new and different challenges with each reunion. There is usually a "honeymoon" phase shortly after the deployment, but it will probably be temporary. The short term happy phase may be attributed to the reunion itself and the pride of being able to accomplish many things while they were separated.

The stressful situation may arise if the deployed military personnel, sustained injury either physically or mentally or even killed in action. The most troublesome issues for junior military personnel following deployment in combat zone seems to be sleeping disorder, dissociative symptoms (problems with knowing who or where you are) and sexual problems, that eventually if left untreated may developed to PTSD (Seal et al. 2009).

THE COPING STRATEGIES

Coping strategies can be divided into three stages namely pre-deployment (before separation), deployment (during separation) and post-deployment (after separation).

Pre-deployment Strategies. Personnel shall prepare their children for separation. This will help the children to become a part of the decision-making process and build trust within the family. Parents are encouraged to:

- Start a conversation with the children about their concerns and respond with information that is easy to understand.
- Set clear expectations for how the family will keep in touch while the father/mother is away. Discuss ways for children to share important information such as report cards and major life events.
- Schedule quality time together as a family and alone with each child before separation. Consider making a list of activities that can be done together before the deployment. Example, make a voice record of favourite books that the children may listen to, or mark a calendar with birthdays, holidays and the homecoming day, or create a picture collage of family.

Dr Ellen Devoe, an Associate Professor at Boston University School of Social Work and principal investigator for the program Strong Families Strong Forces, recommends service members to give their children two messages before deployment. The messages are: Firstly, tell them that you have an important job to do and you are going to make the sacrifice to be away from your family for a certain amount of time. For example, kids might like hearing that you are helping the children of Afghanistan (or some other mission that applies to your situation). Then tell them that you love them, you will miss them, and you'll be thinking about them while you are gone.

Reassure them that their mom/dad is going to make sure that they are safe while you are gone. Dr Devoe has found that families often give the first message but not the second. Families usually over emphasise the importance of the job as a way of explaining the separation. This leaves some kids to wonder why the children of Afghanistan are more important than they are (Devoe et al. 2017).



Parents or deploy person and spouse need to create a family care plan. By having a blueprint in place that designates back-up caregivers and outlines responsibilities, it can help position the family for emotional, physical and financial well-being during the deployment stage. It is important to make sure to keep the plan up-to-date as family changes, and transitions occur. Before deployment, it is also essential to identify any problems and try to solve or mitigate before leaving for deployment. If the issues are too big, the service members have to see their higher officer and request to delay or find a replacement.

During Deployment Strategies. In MAF there is an association for military wife's known as Badan Kebajikan Keluarga Angkatan Tentera (BAKAT). The primary objective of the association is to take care of the welfare of the family members of active military personnel, and this is important during the deployment stage. However, during the deployment, some of the families may choose to stay at their kampung, instead of at the military quarters and this sometimes makes it difficult for the monitoring of the family's wellbeing.

The parent or any caregiver at home can take steps to help children to cope during a separation. They themselves should be strong and need to encourage the children to overcome the separation. Examples of steps:

- Continue talking about the parent who is away and answer any questions that children have.
- Keep a routine and continue family traditions.
- Create a strong network of extended family, friends and members of the military community for support.
- Work with the children's educators to respond to any behaviour changes at the school.

The parent / service member who are deployed also are encouraged to:

- Stay in touch as much as possible. Be clear about when you need to write or talk on the phone.
- Share positive stories about the mission and avoid stressful topics.
- Send home mementoes such as pictures, letters, videos or small gifts.
- Celebrate important dates such as birthdays and holidays with your children.



Post-Deployment Strategies. The time taken to fully reintegrate after a separation varies depending on the stressors, and coping mechanisms stated above. The family are advised to take their time to rebuild family connections. They are encouraged to:

- Discuss how tasks were done at home during the separation and decide which routines, rules and discipline methods will now be in place.
- Be patient and respect the children's privacy while giving them time to readjust.
- Ask the children what the separation experience was like for them and listen carefully to their responses.
- Find out about the new things in the children's lives and praise their successes.

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TRAINING AND DEVELOPMENT IN RMAF AIR TRAFFIC MANAGEMENT

by MAJ RICHARD A/L BIZIKUMARIN RMAF

INTRODUCTION

Employees are the main asset of any organisation, and how they are trained determines their efficiency and effectiveness. Organisations are facing tremendous competition due to forces of globalisation, advancement in technology, as well as the ever changing political and economic environment. One of the strategies to cope with these challenges is to improve employee Training and Development (TD), which is apparent in most successful organisations.

TRAINING & DEVELOPMENT (TD)

Training is a program that helps employees learn specific knowledge or skills to improve performance in their current roles. In order to achieve effective training outcomes, organisations should identify types of training that is in accordance with the job scope and needs of its employees to perform that job. Type of training refers to the degree to which the training has been designed and delivered in such a way that provides trainees the ability to transfer learning back to the job (Holton, 2002).

Development on the other hand is more expansive and focuses on employees' future performance that deals with general enhancement and growth of individual skills and abilities through cognisant or explicit learning; as well as subconscious / implicit learning.

Organisations could benefit from TD through winning the "hearts and minds" of their employees to get them to identify with the organisation, to exert themselves more on its behalf and to remain loyal with the organisation (Armstrong, 2009).

The TD process in RMAF begins upon entry for officers and other ranks with initial basic training. Then there are the specialist operational training and later on extending to joint and combined force training. The training process is continued throughout their service career. RMAF personnel learn the skills and knowledge necessary not only to recognise the interdependence of RMAF roles and missions, but also to understand how to apply the RMAF forces as a component service within the framework of a joint / combined force.

The combination of skills and knowledge of a person forms their talent. Talent is intellectual property of

every organisation, and a source of strength for gaining competitive advantage. TD is the foremost way of developing organisational talent. Therefore, there is a need to design TD in ways that fit the organisational structure to achieve their goals and objectives.

TRAINING NEEDS

According to Wognum (2001), training needs may occur at three organisational levels namely; (1) Strategic Level where needs are determined by top management while considering organisations goals, mission, strategy and problems, which need to be resolved or fixed, (2) Operational Level where needs are determined with middle management while considering development needs to the coordination and cooperation between organisation units, and (3) Tactical Level where needs are determined with lower executive management and other employees while considering issues related to operations such as performance problems.

In order to enable an organisation to formulate a comprehensive and rigorous TD, proper coordination as well as proper incorporation of the needs within the three levels is imperative. With properly defined training needs, TD shall be designed to sharpen personnel skills and motivate them to achieve their full potential, ultimately enabling RMAF to meet the requirements of its vision and mission.

SELECTION OF TRAINEE

Selection of trainees is the process of searching the best candidates for the job, which involves a chain of screening processes. There is significant and positive correlation between selections of trainee and employee performance (Khan, 2012).

There needs to be a stringent selection process for ATCO / ATCA candidates. RMAF could study and adopt FAA approach using similar Air Traffic Selection and Training (AT-SAT) scores to select suitable candidates. Selected candidates shall then undergo basic, intermediate and advanced training at INSPRA according to the pre-determined time frame. Upon completion of these training, the ATCO and ATCA shall form competent work force at RMAF ATM. If we are unable to select suitable candidates, then whatever TD program we embark on will be a futile effort.

EMPLOYEE & ORGANISATION PERFORMANCE

Employees' performance within an organisation can be defined in a variety of ways including their behaviour, attitude and motivation to achieve goals. Organisational Performance Measures may be used to define what an organisation has accomplished with respect to the process, results, relevance and it relates very much to the success of TD. Afshan (2012) define performance as the achievement of specific tasks measured against predetermined or identified standards of accuracy, completeness, cost and speed.

The complexity and dynamic nature of modern warfare have placed airpower as the most important element in any military operations. Only through comprehensive and rigorous TD can individual capabilities be expanded to match these demands.

Therefore, RMAF personnel must be fully integrated into a continuous TD program with the goals of gaining and maintaining occupational skills and will surely enhance the effectiveness of the forces in order to increase the effectiveness of RMAF defence management in the long run.

SCHOOL OF AIR TRAFFIC CONTROL (SATC) - INSPRA

It is worth noting that much is known about the TD and personnel performance in the Civil Aviation ATC sectors, nevertheless researches on issues associated with TD and personnel performance in military ATC sectors are rarely found.

In RMAF Air Traffic Management (ATM), the mandate to manage TD is given to School of Air Traffic Control (SATC), namely *Institut Pengurusan Ruang Angkasa* (INSPRA) located in Kuantan Air Base. The school had its humble beginnings in the mid-1980s as part of an ATC Radar upgrade project. This training centre is responsible specifically to train and produce Air Traffic Control Officers (ATCO) and Air Traffic Control Assistants (ATCA). INSPRA currently offers a wide variety of courses suited for the demanding needs of airspace management. This include specialist and operational courses such as Basic Air Traffic Control Officer Course (BATCO - Officer); Basic Air Traffic Control Assistant (BATCA - Enlisted), and Team Resource Management (TRM) for Officers and Enlisted Other-ranks.



INSPRA has carved its name as a leading institution of education under the RMAF Air Education and Training Command (MPPLU). It has even gained international recognition for its ability to produce skilful, disciplined ATCO and ATCA of the RMAF who are competent in the field of airspace management.

GROWTH IN DEMAND FOR AIR TRAFFIC SERVICES

Based on the 2018 report by Malaysian Aviation Commission (MAVCOM), the annual air travel operating statistics shows that number of aircraft movement in 2010 to 2017 had increased from 623,337 to 907,436 (45% increment). The rapid growth in Malaysian and international air travel projected for the next decade will dramatically increase the demand for air traffic services.

This will tremendously increase workload onto ATCO and ATCA in both civilian and RMAF ATM system that are already nearing their maximum capacity. There must be a way to mitigate the expected capacity problem, and apparently TD is one of the logical solutions.

CONCLUSION

In context of military, training provides the means to practice; develop and validate the practical application of a common doctrine. A comprehensive and rigorous TD program should be stimulating, rewarding, and able to inspire employees to achieve greater heights. A valuable by-product of comprehensive and rigorous TD is the fostering of teamwork, improved leadership, increased motivation and the generation of the confidence in commanders, organisations, and in the doctrine.

Accordingly, in the RMAF environment the ultimate aim of TD shall be to ensure operational success, and derivatives of TD in achieving high morale are necessary pre-requisites that shape personnel commitment towards achieving that same operational success.

In the interest of RMAF ATM, it is strongly recommended that INSPRA take stock of where we are and where we want to be. INSPRA shall take on a structured determination of training needs, formulation of effective criteria for selection of Air Traffic candidates, and the promulgation of a comprehensive and rigorous TD program for Air Traffic Management in the RMAF.

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DGTA

Directorate General Technical Airworthiness

DGTA: THE MALAYSIAN TECHNICAL AIRWORTHINESS AUTHORITY

by BRIG GEN DATO' DR. MD ZAKI BIN MD ZAIN RMAF

START-UP

Technical Airworthiness may sound like a buzz word from space; the fact is airworthiness does concern all the men and women in the Air Force. It is simply about aircraft flight safety and involves the processes that starts off from ground level activities in the aviation sector. Basically, it is about all elements to make an aircraft safe to fly, from the people responsible for the work i.e. the manager to a technician as well as the tools needed to perform and complete a task. Aviation is a well-structured and regulated sector or environment that stipulates detail requirement for all related activity to be performed on an aircraft according to approved regulations and standards. These requirements range from the organization setup, authorized person and document records for accountability, control and traceability of activities in aviation engineering, aircraft maintenance and training of authorized personnel.

Besides the civil aviation sector, military aircraft also need to be managed according to an acceptable level of authorized airworthiness standard in compliance to international aviation regulation that has been set upon by International Civil Aviation Organization (ICAO) way back in 1944 during Chicago Convention. The whole objective is to ensure flying or air travel is safe globally; hence countries including Malaysia need to ensure the safety of flights by having a system to manage the military aviation environment which is categorized as state aircraft.

DGTA AS THE AUTHORITY

The Malaysian state aircraft are the military, government enforcement agencies aircraft and all associated aeronautical products that make an aircraft fly. The state aircraft are regulated and governed by the Directorate General Technical Airworthiness (DGTA) as

the Malaysian State Technical Airworthiness (MSTA) authority for related aircraft design, maintenance and technical training. MSTA regulatory framework is shaped by the international civil aviation and military airworthiness regulations. DGTA as a national agency was formally established in 2010 from a simple beginning based upon Royal Australian Air Force structure and function as Technical Airworthiness office at RMAF HQ in 1996.

REGULATION

Since then, DGTA has managed compliance and certification to Malaysian state aircraft operator comprises the military services, Fire & Rescue Department and Maritime Enforcement Agency, as well as associated government agencies and including the local aviation industries providing MRO services to the government operators. The regulatory framework and associated regulations to govern and manage the state aircraft technical airworthiness are stated in the publication PU 2103 Technical Airworthiness Management Manual, commonly referred to as TAMM. The technical airworthiness of an aircraft or associated products following task performed by the squadron or MRO is managed through annual audit activities using a structured process to ensure the design, production and maintenance of aircraft has been carried out to an acceptable authorized standard.

REGULATORY DEVELOPMENT

DGTA regulates and manages airworthiness compliance by the state aircraft operator and the local aviation industries through TAMM which is in accordance with recognized international aviation regulations and military airworthiness standards. From the initial Royal Australian Air Force framework,

there has been significant development in the Malaysian technical airworthiness regulation management and activities. In particular following the procurement of new assets i.e. EC 725 AP helicopter and A400M transport aircraft, where both have been certified by the OEM with European civil and military authority regulation. Consequently, this has influenced the development and revision of Malaysian regulation with the release of TAMM Second Edition in 2015.

INTERNATIONAL RECOGNITION

Malaysian state aircraft technical airworthiness framework and management is in compliance with ICAO and at par with other national military airworthiness authority. The standing of DGTA as the national Military Airworthiness Authority (MAA) has been enhanced with recognition by the United States Department of Defence (DoD) in 2017, which also carry the recognition from other military airworthiness authorities. The latest climb in international recognition for DGTA and Malaysian state aircraft is the bilateral airworthiness recognition between the Malaysian and French MAA with the exchange of certificate for mutual recognition between both parties on 26 March 2019 held during LIMA '19 after programs in 2018.

International recognitions mean MSTA regulatory framework and DGTA certification is recognized and accepted internationally. As such Malaysian state aircraft can fly in international and foreign air space in compliance to ICAO requirement and operate with foreign military or state aircraft in accordance with the country airworthiness regulation and state law. Further to that, the recognition also adds value with a significant spin-off to the services and products for DGTA certified local industries. DGTA certification does carry a standard with international standing and recognition tag for Malaysian MRO to venture in international market.

CHALLENGES

While flight safety is one of the utmost important components in the whole system of an Air Force, the real environment factors such as operational needs, economics and political drivers do shape the flight path of technical airworthiness management. Annually DGTA organises a conference participated by all operators and industries to raise awareness and enhance compliance. The first State Aircraft Operator conference involving the service chief representatives was held in 2017, primarily to advise on the international regulatory compliance and legal requirement. On managing those challenges, DGTA approach with the strategy of "engage and facilitate" with all state aircraft operator and interested parties. Although such approach takes up considerable DGTA primary staff time, it has delivered many successful programs with aircraft upgrades and assists new industry player into the environment.

NEXT FLIGHT LEVEL

Changes are constant and DGTA continue to strive with ongoing development in international aviation regulatory framework and foreign military authorities. An active initiative is ongoing in reviewing the TAMM with cooperation from the French MAA, where since 2016 there has been a France DSAE officer attachment in Malaysia. Besides that, a draft Malaysian State Airworthiness Act (Rang Undang-Undang) has been forwarded early this year to establish a robust legal basis for the governance and management of Malaysian state aircraft environment. Hence DGTA existence and responsibility is important to Malaysian state aircraft airworthiness and also act as a catalyst to local industries to venture in aviation sector.





TUDM MERENTASI ZAMAN

by MAJ GEN HJ TOHARUDIN BIN ABD RASID RMAF

PENDAHULUAN

Sejarah TUDM bermula dengan penubuhan Straits Settlements Volunteer Air Force (SSVAF) pada tahun 1936 dan kemudian ditukar kepada Malayan Volunteer Air Force (MVAF) pada Ogos 1940. Pada bulan Disember 1941, anggota MVAF mula digerakkan dan turut menyertai Tentera British dalam Peperangan Dunia II.

Bermula dengan sebuah organisasi kecil bernama Royal Federation Air Force (Tentera Udara Di Raja Persekutuan - TUDP) yang dianggotai oleh bekas pegawai dan anggota Tentera Udara Di Raja Britain (Royal Air Force) - sama ada rakyat tempatan atau rakyat British, TUDM telah meniti perubahan demi perubahan sehingga mencapai kedudukan sekarang.

Semasa Royal Malayan Air Force Ordinance diluluskan oleh Parlimen pada 2 Jun 58, ia dipimpin oleh pegawai-pegawai yang dipinjamkan dari RAF. Mereka menggubal dasar-dasar Tentera Udara bersesuaian dengan keperluan operasi udara pada masa tersebut. Sejak penubuhan di tahun 1958 hingga 1967 Ketua Turus Tentera Udara adalah dipinjamkan dari RAF, bermula dengan AVR Johnstone, diikuti oleh N.C. Hyde, J.N. Stacey, C.S. West dan M.S. Steedman.

Seorang pemuda yang dilahirkan di Singapura bernama Sulaiman bin Sujak telah menyertai Malayan Volunteer Air Force di Singapura sebelum diserapkan ke dalam RAF. Seorang juruterbang pesawat pejuang, Sulaiman pernah bertugas di beberapa pangkalan udara British di UK, Afrika dan Cyprus. Pada tahun 1966 ketika berusia 32 tahun, Sulaiman telah dijemput oleh Tunku Abdul Rahman (Perdana Menteri Persekutuan Tanah Melayu) untuk menyertai TUDP dan dinaikkan ke pangkat Squadron Leader dan menjawat jawatan Komandan Pangkalan Udara Alor Setar.

PANGLIMA-PANGLIMA TENTERA UDARA

Marsyal Muda (Udara) Sulaiman Sujak menempa sejarah sebagai anak Melayu pertama menjawat jawatan KTTU (sekarang dikenali sebagai PTU) ketika berusia 33 tahun. Pada masa itu, TUDM telahpun

mempunyai pangkalan udara di Kuala Lumpur, Alor Setar, Kuantan, Kuching dan Labuan.

Sepanjang tempoh 10 tahun Sulaiman memegang jawatan KTTU (1967-1976), TUDM dalam proses *transition* dari sebuah *small Air Force* yang diurus secara langsung oleh pegawai RAF kepada sebuah organisasi yang ditadbir sepenuhnya oleh anak-anak tempatan. Bermula dengan pesawat-pesawat second hand seperti jet Tebuan dan pesawat angkut Caribou kepada permodenan angkatan udara dengan perolehan helikopter Nuri, C130H dan pesawat pejuang F5 Tiger II. Pada tahun 1969, TUDM mengungkap sejarah apabila mengambil-alih pentadbiran pangkalan Udara Butterworth dari RAAF (Australia).

Era pengukuhan sistem pertahanan udara juga bermula di zaman pimpinan Sulaiman Sujak apabila kerajaan membuat perolehan beberapa sistem Radar Marconi diikuti dengan pembukaan tiga buah Pusat Pertahanan Udara (PPU) di Butterworth, Kuantan dan Bukit Jugra.

Sebahagian besar peranan TUDM di zaman Sulaiman adalah membantu operasi Tentera Darat dalam *counter insurgency* untuk menghapuskan ancaman pengganas Komunis serta Kempen Ganyang Malaysia oleh Presiden Soekarno di Indonesia. Bersesuaian dengan keupayaan aset TUDM pada masa itu, tumpuan operasi TUDM bertumpu di kawasan Semenanjung Malaysia dan dikawal oleh Markas Udara (MARUD) di Kuala Lumpur.

Leftenan Jeneral Datuk Seri Mohamed bin Taib TUDM (allahyarham) atau popular dengan panggilan Mat Taib mengambil-alih pucuk pimpinan TUDM pada 1 Jan 77 setelah Sulaiman Sujak meletakkan asas yang kukuh untuk membolehkan TUDM melonjak ke persada yang lebih tinggi. Mat Taib seorang juruterbang pesawat angkut.

Mat Taib membuat penstrukturan organisasi TUDM dan MARUD dinaiktaraf menjadi Markas Besar Operasi Udara (MABES). Operasi di Semenanjung Malaysia di bawah kawalan Markas Wilayah Udara Satu (MAWILUD I) dan di Malaysia Timur, Markas Wilayah

Udara Dua (MAWILUD II). Markas Bantuan Udara (MABANUD) ditubuhkan bagi menguruskan dokongan logistik dan pelaksanaan latihan dan pendidikan dalam TUDM. Pada tahun 1985 Markas Grup Latihan Udara (MAGLAT) ditubuhkan di bawah naungan MABANUD.

Semasa pimpinan Mat Taib juga (1979), gelaran pangkat dalam TUDM telah bertukar dari menggunakan panggilan pangkat Tentera Udara British kepada panggilan pemakaian pangkat Tentera Darat. Contoh: Pilot Officer kepada Leftenan Muda (Udara); Squadron Leader kepada Mejar (Udara) dan Komodor Udara kepada Brigadier Jeneral (Udara).

Mat Taib yang dalam Rejimen Askar Melayu sebelum menyertai TUDM juga membawa perubahan penukaran tatacara pemakaian pangkat TUDM. Amalan pangkat berbentuk embroidered bar telah ditukar kepada pemakaian paku (pips), mahkota (crown) dan bintang (star) yang sama seperti pangkat Tentera Darat Malaysia.

Selain dari perubahan struktur organisasi, semasa Mat Taib memegang tampok, jawatan ini telah KTTU telah ditukar kepada Panglima Tentera Udara (PTU). Taraf jawatan PTU telah dinaikkan dari pangkat Mej Jen kepada Lt Jen. Di zaman pimpinan Mat Taib, TUDM menerima beberapa pesawat baru seperti Pilatus PC7, Aermacchi MB339A dan A4 Skyhawk.

Leftenan Jeneral Tan Sri Mohamad bin Ngah Said TUDM (allahyarham) memangku jawatan PTU pada 24 Ogos 83 dan terus mengambil-alih jawatan pada 1 Jan 84 sehingga beliau bersara pada tahun 1989. Beliau lebih dikenali sebagai Mat Ngah juga memulakan kerjaya dalam Rejimen Askar Melayu Diraja.

Mat Ngah memulakan kerjaya sebagai juruterbang angkut sebelum bertukar kepada juruterbang helikopter. Mat Ngah membuat perubahan penstrukturan organisasi dengan mengasingkan fungsi operasi, bantuan dan latihan. Markas Pemeritahan Pertahanan Udara (MPPU @ Markas HANUD) ditubuhkan bagi mengendalikan operasi pesawat pejuang, maritim dan radar pertahanan udara. Markas Pemerintahan Bantuan Udara (MABANUD) mengendalikan operasi pesawat angkut dan helikopter serta dukungan logistik. MAGLAT diganti dengan Markas Pendidikan Udara (MARDIK) ditubuhkan secara mandiri dan beribu pejabat di Pulau Pinang.

Mat Ngah telah membuat perubahan pelarasan panggilan pangkat dalam TUDM seperti Kapten (Udara) kepada Kapten Nama TUDM. Pemerintahan Mat Ngah diakhiri dengan penutupan bab perang *insurgency* apabila Perjanjian Damai antara Kerajaan Malaysia, Kerajaan Thailand dan PKM ditandatangani.

Leftenan Jeneral Tan Sri Mohd Yunus bin Mohd Tasi TUDM mengambil-alih jawatan PTU pada 19 Mac 90 dan meneruskan legasi PTU sebelumnya. Yunus Tasi seorang juruterbang angkut, dan sebahagian besar kerjaya terbangnya membawa pesawat di No 1 dan No 4 Skn.

Perubahan budaya yang dibawa oleh Yunus Tasi semasa pemerintahannya ialah pertukaran pakaian warga TUDM dari warna 'light tan' kepada warna biru yang ada sekarang. Rekabentuk pangkat juga dari memakai 'pip/crown' dan kembali semula kepada 'embroided bar' seperti sebelum tahun 1982. Projek perolehan beberapa pesawat baru seperti MIG29, F/A-18D, B200T dan Hawk dalam pakej pemodenan skuadron tempur TUDM bagi menggantikan pesawat Skyhawk dan Tebuan.

Leftenan Jeneral Tan Sri Abdul Ghani bin Abdul Aziz TUDM mengambil-alih jawatan PTU pada 19 Ogos 1993. Abdul Ghani memulakan kerjaya TUDM sebagai seorang juruterbang helikopter sebelum bertukar ke pesawat pejuang menerbangkan pesawat F5E.

Abdul Ghani yang terkenal dengan ketegasannya telah membawa perubahan besar-besaran dalam organisasi TUDM. Dari organisasi berbentuk decentralised power kepada centralised power. Semua kawalan operasi dan bantuan operasi TUDM di pusatkan di Markas Tentera Udara diketuai oleh Ketua Staf Operasi (KSO). Semua Pegawai memerintah Skuadron Penerbangan / Pertahanan Udara bertanggungjawab terus kepada Panglima Divisyen masing-masing.

Empat buah Divisyen Udara dibentuk: No 1 Divisyen Udara: Kesiapsiagaan tempur dan pertahanan udara; No 2 Divisyen Udara: Kesiapsiagaan bantuan tempur dan latihan (semua skuadron angkut, helikopter dan lathan); No 3 Divisyen Udara: Bantuan logistik dan senggaraan dan No 4 Divisyen Udara: Assigned Forces yang ditempatkan di TUDM Labuan. Semua pentadbiran pangkalan ditadbir terus oleh MTU (Bahagian Bantuan). Peranan Komander Pangkalan hanyalah seperti Komandan Kem/Stesen sahaja.

Abdul Ghani juga memperlihatkan banyak pertukaran jenis (material/warna) dan perubahan tacara berpakaian dalam TUDM yang melibatkan Bush Jacket, Pakaian Istiadat, Mess Kit dan Service Dress. Zaman Abdul Ghani, TUDM menerima pesawat-pesawat baru seperti Hawk, F/A-18D, MiG-29, B200T dan Radar Martello.

Jeneral Tan Sri Ahmad Saruji bin Che Rose TUDM mengambil-alih jawatan PTU pada 10 Ogos 96. Semasa pimpinan beliau taraf jawatan PTU telah dinaikkan ke pangkat Jeneral penuh (empat bintang). Ahmad Saruji seorang juruterbang helikopter dan terlibat menerbangkan pesawat Nuri dalam operasi insurgensi dalam tahun 60an dan 70an.

Ahmad Saruji meneruskan agenda PTU sebelumnya dengan memantapkan lagi struktur organisasi yang baru dilaksanakan. Beliau membuat beberapa pelarasan di beberapa bahagian bagi memastikan ia lebih efektif dan efisien. Beliau juga membuat perubahan penyesuaian semula tatacara berpakaian untuk pegawai khususnya pemakaian Pakaian No 1 (dari peak cap kembali memakai songkok) dan No 2 (dari gaya service dress dengan beret kembali kepada Pakaian No 2 yang asal sebelum 1994).

Dalam usaha untuk memperkukuhkan organisasi TUDM di semua peringkat anggota, Ahmad Saruji menekankan konsep '**Back to Basic**' dari aspek pengamalan dasar dan budaya kerja. Salah satu pelaksanaan konsep back to basic ini ialah tiada tanaman tambahan di atas tanah di dalam kem selain pokok kayu asal (yang ditanam di bawah projek Pangkalan) dan rumput.

Di zaman pimpinan Ahmad Saruji, TUDM mula melaksanakan program Kontraktorisasi ke atas beberapa sistem senggaraan aset 'special to air' TUDM mengikut 5 kategori teras: iaitu Senggaraan Sistem Mekanikal dan Aeronautikal Pesawat oleh AIROD Sdn Bhd; Senggaraan Sistem Avionik dan Elektronik Darat oleh ZETRO Services Sdn Bhd; Senggaraan *Safety and Survival Equipment* (SSE) oleh Satang Jaya Sdn Bhd (kini Destini Prima); Senggaraan Pesawat Rusia oleh Aerospace Technology System Corporation (ATSC Sdn Bhd); dan Senggaraan Peralatan Simulator dan CBT



oleh Sapura Sdn Bhd (selepas 3 tahun kontrak ini ditamatkan).

Semasa di bawah pimpinan beliau TUDM menerima beberapa pesawat baru seperti CN235 dan Global Express.

Jeneral Tan Sri Suleiman bin Hj Mahmud TUDM - Suleiman Mahmud (mengambil-alih jawatan PTU pada 12 Jun 01 merupakan juruterbang pesawat angkut. Suleiman membuat kajian semula secara menyeluruh penstrukturan organisasi tahun 1993/94 dan seterusnya membuat Penstrukturan Organisasi Alaf Baru. Organisasi yang berbentuk *centralised command* (diperkenalkan di zaman Abdul Ghani) telah diubah kembali kepada *decentralised command*. Markas Operasi Udara mengandungi No 1 Divisyen Udara (Semenanjung Malaysia) dan No 2 Divisyen Udara (Sabah/Sarawak). Markas No 3 Divisyen Udara ditukar menjadi Markas Logistik Udara, manakala Markas Pendidikan Udara diwujudkan semula.

Jeneral Tan Sri Abdullah bin Hj Ahmad TUDM mengambil-alih pucuk pimpinan TUDM pada 4 Mac 03. Pimpinan Abdullah walaupun singkat, beliau sempat membuat banyak perubahan. Beliau meneruskan usaha memperkukuhkan Organisasi Alaf Baru yang baru dilaksanakan.

Abdullah seorang juruterbang helikopter dan kemudiannya bertukar kepada pesawat pejuang, dan pernah menerbangkan pesawat Alouette, Tebuan dan F5E. Beliau dengan nama poplarnya Dolah Nasution juga terkenal sebagai 'devil pilot' atau juruterbang berani mati.

Jeneral Tan Sri Nik Ismail bin Nik Mohamed TUDM menerajui TUDM mulai 4 Apr 04 untuk tempoh 3 tahun. Beliau tidak mencipta legasinya sendiri kerana memberi tumpuan untuk memperkukuhkan keupayaan dan kewibawaan TUDM. Nik Ismail seorang juruterbang pejuang dan angkut, dan pernah menerbangkan pesawat Tebuan, F5E dan Skyhawk serta beberapa pesawat VVIP.

Nik Ismail membuat sedikit perubahan pemakaian apoulette pangkat pegawai kanan berpangkat Brig Jen ke atas daripada cara British (embroided bars) kembali kepada lambang, bintang dan crown. Untuk pegawai berpangkat Kolonel TUDM ke bawah masih mengekalkan apoulette jenis embroidered.

Jeneral Tan Sri Dato' Sri Azizan bin Ariffin TUDM mengambil-alih pucuk pimpinan TUDM pada 30 Okt 06. Azizan ditauliahkan sebagai Pegawai Kawalan Trafik Udara (ATC) kemudiannya menjadi seorang juruterbang angkut, dan sebahagian besar kerjaya terbangnya membawa pesawat VVIP di No 2 Skn.

Dengan penambahan aset tempur yang baru iaitu pesawat pejuang SU30, keupayaan TUDM sebagai 'air superiority' dilihat semakin gah di mata masyarakat. Azizan telah mencipta sejarah tersendiri apabila menjadi pegawai TUDM yang pertama diberi kepercayaan menyandang jawatan Panglima Angkatan Tentera pada 1 Sep 09. Beliau mengambil alih jawatan PAT dari Jen Tan Sri Abdul Aziz bin Zainal.

Jeneral Tan Sri Dato' Sri Haji Rodzali bin Daud TUDM yang lebih dikenali sebagai Rod mengambil alih jawatan PTU pada 1 Sep 09. Rod meneruskan agenda Azizan dengan memperkemaskan sistem pengurusan. Rod seorang juruterbang pejuang, dan pernah menerbangkan pesawat F5E, Skyhawk, Aermacchi dan MiG-29. Rod mengambil cogankata 'Satu

Perkhidmatan, Satu Visi Dan Satu Misi' sebagai landasan kepimpinannya.

Melihat kepada peranan TUDM yang telah memasuki era Dimensi Keempat dalam tahap transformasi ATM serta Program Transformasi Nasional, beliau memperkenalkan konsep Air Force Next Generation (AFNG) bagi menaikkan nama TUDM di mata masyarakat. Bersesuaian dengan perkembangan bidang teknologi dan ICT, TUDM perlu mengambil inisiatif untuk menarik generasi baru.

Di akhir tempoh pimpinan beliau, Rod telah memperkenalkan penjenamaan struktur organisasi baru TUDM bersesuaian peranan TUDM serta ATM masa kini: Markas Pemerintahan Operasi Udara (MPOU) yang mengandungi Markas Wilayah Udara I (MAWILUD I) dan Markas Wilayah Udara II (MAWILUD II); Markas Pemerintahan Bantuan Udara (MPBU); dan Markas Pemerintahan Pendidikan dan Latihan Udara (MPPLU).

Jeneral Tan Sri Dato' Sri Roslan bin Saad TUDM mengambil alih pucuk pimpinan TUDM pada 12 Sep 14. Roslan seorang juruterbang angkut, dan sebahagian besar kerjaya terbangnya membawa pesawat VVIP di No 2 Skn dan kemudiannya pesawat CN235 di No 1 Skn.

Beliau telah memilih 'Kita Adalah Satu' sebagai cogankata kepimpinannya berlandaskan konsep kesepaduan dan kebersamaan dalam setiap pelaksanaan fungsi. Bersesuaian dengan visi dan misi TUDM serta konsep AFNG yang termaktub dalam RMAF Transformation Plan, menyeru kepada kerjasama seluruh warga TUDM untuk menjayakan misi, visi, pencapaian objektif dan KPI serta melaksanakannya mengikut apa yang dirangkakan.

Jeneral Tan Sri Dato' Sri Hj Affendi bin Buang TUDM mengambil alih jawatan PTU pada 21 Dis 16. Affendi seorang juruterbang pejuang, dan sebahagian besar kerjaya terbangnya bertugas di PU Kuantan menerbangkan pesawat Aermacchi, Skyhawk dan MiG-29. Dalam ucapan ulungnya Affendi menjadikan keadilan dan kesaksamaan sebagai asas pentadbirannya yang memerlukan komitmen warga TUDM khususnya warga elemen bantuan yang menjadi tulang belakang kejayaan operasi TUDM.

Affendi memulakan langkan kepimpinannya dengan merangka pelan jangka masa panjang TUDM yang dinamakan Capability Development 2055 (CAP 55). Pelan untuk jangka masa 35 tahun itu bertujuan memperkasakan keupayaan berkhidmat seperti yang termaktub dalam Dimensi Keempat Angkatan Tentera Malaysia (4DMAF), yang lebih fokus kepada pembangunan keupayaan. Ia bagi memastikan TUDM kekal progresif, dari aspek pemodenan aset dan pembangunan modal insan buat negara. Ia juga untuk memastikan pelaksanaan operasi yang sinergetik di antara ketiga-tiga badan ketenteraan iaitu udara, laut dan darat.

PENUTUP

Patah tumbuh hilang berganti. TUDM tidak pernah ketandusan pemimpin. TUDM turut mengalami perubahan mengikut suasana dan keperluan politik, perundangan, ekonomi, teknologi, persekitaran dan sosial negara dan dunia.

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AIRCRAFT SILHOUETTE AND RMAF COLOURS

Signifies RMAF readiness in the employment of Air Power and its quest in achieving a Full Spectrum Air Force.



FIGURE 61 WITH EMBEDDED RMAF ROUNDEL

Signifies maturity and professional commitment of RMAF towards national defence in its 61-years of existence.

MALAYSIAN MAP AND THE GLOBE

Signifies RMAF roles in regional and global commitment through military engagements and convergence programs.

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