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IMPLEMENTING UAVS IN THE MALAYSIAN ARMY INFANTRY PLATOON

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IMPLEMENTING UAVS IN THE MALAYSIAN ARMY INFANTRY PLATOON

AIM

1. This paper's aim is to illustrate the capability of real-time intelligence, surveillance, and reconnaissance (ISR within the Malaysian Army and to recommend the implementation of tactical uncrewed aerial vehicles (UAVs employed at the Infantry platoon level, to reduce this risk and improve situational awareness (SA. This paper investigates the role of UAVs in providing SA, improving ISR capabilities, and improving operational effectiveness in infantry operations in the Malaysian Army.

INTRODUCTION

2. UAVs have become increasingly common in military operations in recent years. UAVs are outfitted with sensors and payloads that allow them to provide critical ISR capabilities in various environments. The Malaysian Armed Forces (MAF) started investing in UAVs through the UAVs development project in December 2005 to enhance ISR capability for the Royal Malaysian Air Force (RMAF).¹ The interest went further when the then-Malaysian Minister of Defence gave a speech during the Fourth Plenary Session of the Shangri-La Dialogue in Singapore in June 2012. He emphasised that UAVs are a critical ISR system for the MAF to increase awareness even though the procurement is expected to be gradual due to the modest defence budget.² However, things have changed since the Lahad Datu incursion in 2013; the increased defence budget helped the MAF plan the modernisation of the forces and speed up equipment procurements for all the services, the army, the navy and the air force.³

3. The Malaysian Army has used UAVs for several years, and the budget increase gave the Malaysian Army opportunity to invest in UAVs. In the early stage, the UAVs were procured as ISR assets at the strategic level belonging to one of the Malaysian Army Troops, the Intelligence Battalion. In 2021, the Malaysian Army procured UAVs for the Infantry Battalion and produced the doctrine on implementing UAVs in military operations.⁴ The UAVs are assigned to the Infantry Battalion's Reconnaissance Section and deployed as battalion assets in any operations.⁵ This asset is beneficial when deployed during conventional warfare scenarios when the battalion can operate within the accessible distance between the companies and the battalion headquarters supporting each other. However, the nature of the current infantry operation in the Malaysian Army requires the platoon to be deployed decentralised. The distance is sometimes more than hundreds of kilometres from the companies and the battalion headquarters. With the advancement of technology, there is a growing interest in deploying UAVs at the platoon level to provide more comprehensive ISR support to ground troops. This paper investigates the

¹ Wong, Dennis. "Armed Forces to Acquire Unmanned Aircraft Vehicle." *New Straits Times*, (Sep 06, 2006).

² Ahmad Zahid Hamidi, "New Forms of Warfare: Cyber, UAVs and Emerging Threats", *Fourth Plenary Session of the Shangri-La Dialogue, Singapore*, 3 June 2012.

³ Mahadzir, Dzirhan, "Malaysian Defence Reorganisation Underway and Some Procurements Moving Ahead." *Defence Review Asia*. April 2018. 12.

⁴ Malaysia, Malaysian Army Doctrine, MP 3.1-0-2.1A TD, Pengoperasian Unmanned Aircraft Systems (UAS) Tentera Darat, (2021). 1-3.

⁵ *Ibid*, 1-4.

advantages of using UAVs at the platoon level and why they should be implemented in the Malaysian Army Infantry.

DISCUSSION

Benefits of UAVs at the Platoon Level

4. The Malaysian Army Infantry is an essential component of the MAF, responsible for the nation's security and protection of national sovereignty. Infantry units carry out a variety of missions, including border control, counterterrorism, and disaster relief. Despite the Malaysian Army infantry's strength on the ground, they face several challenges, including the need for improved SA and ISR capabilities to ensure the effectiveness of operations. In Malaysia, an infantry platoon regularly operates under challenging environments such as dense jungles, mountains, coastal areas and urban areas, resulting in limited situational awareness if traditional methods are used. It is difficult for soldiers to comprehensively understand their surroundings in these environments, leading to tactical disadvantages. UAVs provide the opportunity to gain better SA about threats while reducing the risks associated with traditional reconnaissance methods. Soldiers can get a bird's eye view of the environment in real-time with the help of UAVs, which can be especially useful in obtaining a clear picture of the situation. A study by Defence R&D Canada (DRDC) on UAV employment in platoon operations resulted in improved SA when the UAVs were deployed at this lower level than using the traditional reconnaissance method.⁶

5. The limited ISR capability is another challenge for the infantry platoon conducting the operations. Foot patrols and observation posts are standard ground-based surveillance and reconnaissance used by the infantry. However, these methods are limited in scope and can be dangerous, particularly in areas where traditional or non-traditional threats may exist. UAVs can be outfitted with various sensors and payloads, including cameras, thermal imaging systems, and other sensors that provide critical ISR capabilities for the infantry platoon.⁷ This is particularly useful for detecting potential threats and providing early warning to troops on the ground. Using UAVs for ISR can improve the platoon's ability to detect and track potential threats such as enemy combatants, improvised explosive devices (IEDs), and other hazards. This data can be used to design a better plan to execute missions and tasks and increase the operation's overall effectiveness.

6. Successful plans and execution require threats intelligence at all levels. Therefore, commanders regard ISR assets as valuable assets capable of providing critical information. UAVs are the Battalion's Commanding Officer assets in the current system and are distributed to subordinate commanders based on their level of need.⁸ However, this places a significant burden on these assets, and if given to one subunit commander, other subordinates are denied access to them. The current system's major flaw is that subunit commanders must bid for the use of UAVs

⁶ Woodill, Gerald, Bassindale, Steve and Chan, Jim, "Nickel Quarrel (U) Platoon and Section UAV Study (U)", *Land Forces Operational Research Team, Defence R&D Canada, Centre for Operational Research and Analysis*, 2009. 25.

⁷ Malaysia, Malaysian Army Doctrine, MP 3.1-0-2.1A TD, Pengoperasian Unmanned ..., 2-6.

⁸ *Ibid*, 1-4.

prior to a mission, and if denied, changes to the plan may be required. This is not ideal when conducting a decentralised operation.⁹ Pushing tactical UAVs to platoon level would significantly reduce the burden on existing unit ISR collectors. This would allow platoon commanders to conduct UAVs reconnaissance without having to request it, allowing commanding officers to keep their assets and use UAVs for their purposes. As a result, the platoon could utilise their UAVs for ISR independently when conducting decentralised operations.

7. The improved real-time SA and increased ISR capabilities will contribute to a higher mission success rate and the platoon's effectiveness. In the same study by the DRDC on UAV deployment at the platoon level, the study in simulated scenarios shows that UAV deployment enhances the effectiveness of the platoon and aids in the completion of a successful mission.¹⁰ An example of the success of UAV deployment at platoon level by the 6th Battalion Royal Australian Regiment was in a major exercise conducted in 2018. Due to the UAVs' effectiveness in identifying and destroying enemy ambush positions; observing enemy ground troops using delay tactics; and establishing defensive positions without risk of direct fire contact, the method of advancing, pausing and clearing with the UAVs essentially became a standard operating procedure to the platoon. The platoon's ability to rapidly deploy and recover the system and minimise delayed information transfer resulted in shorter decision-making cycles, higher tactical tempo generation, and superior results.¹¹

8. The Malaysian Army also recorded higher success missions when deploying UAVs during the ongoing border control operation. There are 30 to 40 illegal immigration activities that were successfully arrested in two month-long operations when the UAVs were deployed.¹² However, the UAVs used in that operation belong to the Defence Intelligence Staff Division, an organisation under the MAF Headquarters, which is a high level for use at the infantry platoon level. Infantry platoons deployed scattered in the area of operation, and if they have their UAVs that can be deployed at any time, the arrest rate could be higher. Another common success of the Malaysian Army in border operations is the seizure of illicit goods such as drugs, cigarettes, exotic animals and subsidised petroleum. However, there was always a seizure without capturing the person responsible for the goods, and the smuggling continued after a few weeks. For example, the operation conducted at Thailand- Malaysia border is separated by a river. The smugglers can always sneak into Thailand using small boats when they sense the presence of the Malaysian Army troops.¹³ This can be avoided if the platoon in the operation area has UAVs that can detect the activity earlier and catch the smuggler with a well-planned plan. These two examples of platoon operations conducted in Malaysia could be more successful if the UAVs were employed at the Platoon level. Hence, acquiring UAVs at this level would increase the effectiveness of the operation.

⁹ Grubb, Benjamin, "UAV at Platoon Level" *The Cove*, 12 September 2018.

¹⁰ Woodill, Gerald, Bassindale, Steve and Chan, Jim, "Nickel Quarrel (U) Platoon...", 25.

¹¹ Grubb, Benjamin, "UAV at Platoon Level" *The Cove*, 12 September 2018.

¹² Amron, Firdaus, "Op Benteng: 'Mata di Udara' kesan PATI", *Air Times News Network*, 20 January 2021.

¹³ Idris, Siti Rohana, "ATM Rampas Syabu RM 16.1 juta Dalam Bungkus Teh", *Berita Harian*, 8 Feb 2021.

Drawbacks

9. There are a few counterarguments to the proposal to deploy UAVs at the platoon level in the Malaysian Army Infantry. While UAVs provide some benefits regarding situational awareness and improving ISR capabilities, there are challenges and drawbacks. The cost of implementing UAVs at the platoon level is one of the primary concerns. UAVs are expensive equipment, and deploying them to every Malaysian Army Infantry platoon would require a substantial financial investment.¹⁴ Malaysia has a modest defence budget of USD 3.9 billion for 2023, which may divert resources away from other areas of the military and impact overall readiness.¹⁵ To address this, UAV deployment in the infantry platoon could be prioritised and phased in over time. This would allow the Malaysian Army to prioritise acquiring UAVs for platoons that would benefit the most from them. Additional platoons could be outfitted with UAVs as funding becomes available. This strategy would help reduce the initial financial investment required while allocating resources efficiently.

10. Another issue is that UAVs are vulnerable to various threats, such as jamming, hacking, and physical attacks.¹⁶ As a result, using UAVs at the platoon level may increase soldiers' risks in the field. It could also lead to the platoon's reliance on UAVs for SA and ISR gathering, which could be dangerous if the technology fails or is compromised.¹⁷ Therefore, while UAVs can provide valuable SA and ISR capabilities, they should not be relied upon as the sole ISR source. Instead, to provide a more comprehensive picture of the battlefield, the Malaysian Army could consider using various other methods, such as ground-based sensors, human intelligence, and satellite imagery. This would reduce the risk of over-reliance on UAVs and provide soldiers with backup if the UAVs failed or were compromised.

CONCLUSION

11. UAVs have been identified as a potentially game-changing technology for global military operations. The Malaysian Army Infantry has the opportunity to improve the effectiveness of its platoon operations under challenging environments by leveraging UAV technology. Implementing UAVs at the platoon level in the Malaysian Army Infantry can significantly improve SA, ISR capabilities and operational effectiveness. The infantry platoon operates in diverse and complex environments where traditional reconnaissance methods are limited, making it difficult for soldiers to understand their surroundings, leading to tactical disadvantages. By providing a real-time bird's eye view of the environment, detecting potential threats, and providing early warning to troops on the ground, UAV integration can help overcome these limitations. UAVs can be equipped with various sensors and payloads, such as cameras, thermal imaging systems, and other sensors that provide critical ISR capabilities to infantry platoons.

12. The current system of distributing a battalion's UAVs to subordinate commanders based on their level of need is a significant burden on these assets, affecting the operation's overall

¹⁴ Sanchez, Wilder Alejandro, "How Will Drones Affect Infantry Tactics", *Defence IQ*, 14 March 2019.

¹⁵ Anwar Ibrahim, "Malaysia 2023 Budget Speech" *Parliament of Malaysia*, 24 February 2023.

¹⁶ Urchick, Daniel, "Advanced ISR sensors and their impact on 'Military Power'", *Defence IQ*, 16 March 2023.

¹⁷ Sanchez, Wilder Alejandro, "How Will Drones Affect Infantry Tactics", *Defence IQ*, 14 March 2019.

effectiveness. Pushing tactical UAVs to the platoon level would significantly reduce the burden on existing unit ISR collectors, allowing platoon commanders to conduct UAV reconnaissance independently, even in decentralised operations. Implementing UAVs at the platoon level in the Malaysian Army Infantry would result in higher mission success rates and increased effectiveness. The Malaysian Army Infantry should continue to invest in developing and procuring UAVs and provide adequate training and resources to ensure this technology is successfully integrated into infantry platoon operations. Overall, the use of UAVs at the platoon level in the Malaysian Army Infantry can provide significant benefits in improving operational effectiveness. It is an area that should be further explored and developed to fulfil the National Defence White Paper vision on long-term investment to build future forces that can detect, deter and deny traditional and non-traditional security threats.¹⁸

RECOMMENDATION

13. The first recommendation is that the Malaysian Army acquire tactical UAVs capable of operating effectively in challenging environments such as dense jungles, mountains, coastal areas, and urban areas. The type and quantity of UAVs required will be determined by the specific needs of the Army's operations. To identify these requirements, a thorough needs assessment should be performed, including the number of UAVs required, the range and endurance of the UAVs, and the types of sensors required.

14. Once the Malaysian Army has acquired suitable UAVs, infantry soldiers should receive appropriate training on how to operate the UAVs. The basics of UAV operation, such as flight controls and navigation, as well as the use of sensors and other payloads, should be covered in this training. In addition, a clear policy for deploying UAVs in platoon operations should also be developed. This policy should address issues such as when UAVs should be used, who is authorised to operate them, and how data collected by UAVs should be managed.

15. The Malaysian Army should also allocate sufficient resources to maintain and repair UAVs. This includes physical resources like tools and spare parts and human resources like mechanics and technicians. In addition, an effective system for managing UAVs at the platoon level should be established, including procedures for tracking their usage and ensuring their availability for operations.

16. Finally, regular evaluations of the effectiveness of UAV operations in improving platoon operations should be conducted. This assessment should include both the technical performance of the UAVs as well as their impact on platoon operations. Lessons learned from these evaluations should be used to improve UAV technology implementation in future operations.

¹⁸ Malaysia Ministry of Defence, Defence White Paper: A Secure, Sovereign and Prosperous Malaysia, 2020. 44-47.

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