Defence Against Terrorism – A Role for Ground Based Air Defence

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ABSTRACT

The asymmetric use of air power featured in several defence planning scenarios through 80s and 90s. The employment of Ground Based Air Defence (GBAD) in support of domestic security and surveillance activities had been an active planning consideration since the early 90s but not until the events of September 11 2001 (9/11) were governments forced to deal with the true impact of such scenarios and the psychological effect that a single air strike could have on a nation. Post 9/11, deployments of GBAD in support of domestic security missions have included the protection of Olympic Games venues, G8 Summits and events involving key State representatives.

The air threat has evolved to one that can be asymmetric in nature - a threat that emphasises the identification of a single or limited number of high value (iconic) and high casualty producing targets.

This paper contends the employment of GBAD in a defence against terrorism role will require a concerted and coordinated effort that calls for a joint inter-agency response comprising air, land, maritime, space, civil and government authorities. Further, the lynch pin of the successful employment of GBAD in the defence against terrorism role will be a command and control system that will see the authority for engagement retained at the highest practical level due in part to the complex legal issues associated with the use of lethal force in a domestic security scenario. This will require an efficient and effective positive control environment vice one of a procedural method of control that is normally employed in ground based air defence operations.

The paper identifies the following as critical requirements for the successful employment of GBAD in a defence against terrorism role: Positive weapon control achieved through a robust C4I system, a clear chain of command, positive air space control and coordination and full integration with other air defence assets. Additionally, the paper examines some practical considerations such as collateral damage, media management, and interagency co-operation.

1. Introduction

The asymmetric use of air power featured in several defence planning scenarios through 80s and 90s. The employment of Ground Based Air Defence (GBAD) in support of domestic security and surveillance activities had been an active planning consideration since the early 90s

but not until the events of September 11 2001 (9/11) were governments forced to deal the true impact of such scenarios and the psychological effect that a single air strike could have on a nation. Post 9/11, deployments of GBAD in support of domestic security missions have included the protection of Olympic Games venues, G8 Summits and events involving key State representatives.

The air threat has evolved to one that can be asymmetric in nature - a threat that emphasises the identification of a single or limited number of high value (iconic) and high casualty producing targets.

The aim of this paper is to demonstrate that the employment of GBAD in a defence against terrorism role will require a concerted and coordinated effort that calls for a joint inter-agency response comprising air, land, maritime, space, civil and government authorities. Further, the paper will show that the lynch pin of the successful employment of GBAD in the defence against terrorism role will be a command and control system that will see the authority for engagement retained at the highest practical level due, in part, to the complex legal issues associated with the use of lethal force in a domestic security scenario. This will require an efficient and effective positive control environment vice one of a procedural method of control that is normally employed in GBAD operations.

The methodology of the paper will be to, firstly, examine the reasons why GBAD should be included in defence against terrorism task. It will then describe the threat and the types of tasks that GBAD can undertake in the context of counter terrorism operation. An analysis of planning considerations will be used establish a set requirements for the employment of GBAD in defence against terrorism role.

2. Why Use GBAD

In Australia, there is still debate concerning the employment of GBAD in a defence against terrorism role and to date the capability has been excluded from counter terror operations. There are two main reasons why GBAD should be included in these types of missions: firstly the capability can effectively deal with "leakers", those air threats that are able to penetrate a layered air defence system, and, secondly, the capability is more persistent and less obtrusive then fighter aircraft.

Major William M. Dowling in his paper, *OPTIMIZING GROUND BASED AIR DEFENSE IN SUPPORT OF HOMELAND DEFENSE: THE CRUISE MISSILE THREAT*, makes the observation that GBAD provides an "in depth" level of air defence that makes targets less attractive to the threat. Use of GBAD optimises the defence and reduces the number of gaps terrorists are able to target. The central thesis his paper is by using GBAD to supplement fighters terrorist are presented with a greater cost verses benefit dilemma. Using game theory and modelling, Major Dowling demonstrates that the addition of GBAD in terrorism scenarios reduces the probability of the terrorist being successful. 1

Unlike fighter aircraft, GBAD can remain "on task" almost indefinitely and in all weather. Beyond the ability to persist, the capability GBAD is less overt then fighters. This is an important benefit, particularly when there will be need in most counter terror missions to operate within an urban environment without causing distress or discomfort to the civilian population. Further the GBAD "footprint" is small, particularly when using man-packable systems. This means they can be deployed virtually anywhere including on the tops of buildings

3. The Treat

From a domestic security perspective, the conventional air threat has evolved to become asymmetric in nature - a threat that emphasises the identification of high casualty producing targets on a limited number of nodes or key areas of impact. This asymmetric threat is comprised of cruise missiles, unihabited aerial vehicles, light aircraft, and airliners, with consideration given to improvised explosive devices, terrorist pilot training, and weapons of mass destruction.

The post 9/11 terrorist is innovative, adaptive and is not constrained by international rules of engagement or political reprisals. This terrorist has demonstrated the capability to seek out and expose security weaknesses through methodical analysis and observation. In addition, the new terrorist uses misunderstanding of their capabilities and intent to their advantage when planning their attacks. Current planning for asymmetric attacks from the air assumes that the terrorists will attack only densely populated areas with major financial, military or industrial infrastructures and major sports events. The terrorist's intent is to cause a mass of casualties and destruction in order to create large scale effects of fear and confusion. This intent can be met by randomly attacking soft targets such as shopping centres or densely populated housing estates.

Terrorist organisations will continue will to look for high payoff soft targets rather than well defended high profile targets. In Operation Iraqi Freedom (OIF), Iraqi militants launched several Ababil-100, and Al Samoud missiles toward its own Southern region and Kuwait. After realising that their high value targets were well defended by US and Kuwaiti Patriot Missile defences, they launched one successful strike at a soft target. According to a CNN report on 29 March 2003 an Iraqi FAW-200, or Seersucker cruise missile impacted the Souq Sharq Mall where civilians were shopping and going to the movies. The attack was executed without detection from friendly forces and thus, no alarm was sounded before engagement. The report went on to quote the Kuwaiti Information Minister, Ahmad Fahd al-Sabah as stating:

> *"This kind of missile usually it (sic) flies between 20-25 meters over the land. For that, there is no defence system that can reach it."*2

An adaptive enemy may choose this tactic to launch an attack undetected from a vessel in the littoral at a non-specific target.

4. Tasks for GBAD

Tasks for GBAD in defense against terrorism role include but are not limited to:

- Airspace surveillance in support of events of national interest – National Special Security Events (NSSE);

- Vital point defence of national critical infrastructure (NCI) (ie. ports of embarkation/disembarkation and major venues);

- Protection of key political figures (ie. Heads of State);

- Airspace surveillance of known gaps in national air defence coverage (ie. National ADGE);

- Counter drug surveillance operations; and

• Area Defence of large public attended activities such as state funerals or other large events.

5. Planning Considerations

The purpose of GBAD in support of defence against terroism missions is to protect against and mitigate the impact of incursions or air attacks on potential targets. GBAD typically comprises a layered system of defence, which begins at long range and/or high altitude. In an effort to successfully counter aerial threats in support of defence against terrorism tasks, the employment of GBAD will require a concerted and coordinated effort that entails a joint force scenario comprising air, land, maritime, space, civil and government authorities.

From a national perspective command and control of GBAD defence against terror activities typically have seen authority for engagement retained at the highest practical level due in part to the complex legal issues associated with the use of lethal force in a domestic security scenario.

There is a requiremnt for an efficient and effective positive control environment vice one of a procedural method of control that has been employed in past operations. The planning authority must assure a seamless integration of GBAD weapon platforms within a mature and well-established national air defence (AD) system comprising networks with defined levels of redundancy throughout. It is essential that early and close liaison be established with the planning authority to provide the advice necessary for effective integration of GBAD sensors and/or weapons into the operation.

There must be an AD system that typically sees operational command at the national level, and operational control designated to the level responsible for the coordination of activities on the ground. A comprehensive AD plan, established and periodically reviewed is required, with consideration being given to airspace exclusion zones, the use of deadly force and the issuance of global advisories in the forms of Aeronautical Information Publications (AIPs) and Notice to Airmen (NOTAM).

Passive AD measures must also be a key consideration for the planning authority. Consideration must be given in the location/positioning of a venue or asset. This is of particular importance when a nation has limited GBAD resources to devote to an operation. Procedural control measures should include consideration for implementation of Restricted Areas of Operation (ROA), which ideally should entail no fly zones. As well, the integration of fixed wing AD, GBAD, and naval assets must all be coordinated within a defined missile engagement zone(s) (MEZ). A balance must be struck as such measures will invariably affect civil air assets in one way or another.

The more mature the AD system the better. Ground based sensor assets must comprise all national AD surveillance systems and the integration of airborne early warning (AEW) assets. In planning for NSSE, there should be consideration to a request for AEW support if such assets do not reside within their inventory. AEW assets provide redundancy and contribute to a single integrated network.

In order to permit the use of active GBAD within the expected time and space constraints, the key enabler is a very reactive command and control system. It is critical that command decisions can be made with the fidelity necessary to justify their employment. This would primarily be

based upon real-time situational awareness so that orders can be relayed to enact the desired effect necessary to assure success. The development of the Australian Air Defence Air Defence System (AADS) has provided such a system for domestic counter terror tasks. The command and control structure that facilitates air defence is integral to the AADS and includes sites stretching from Adelaide to Darwin. These systems integrate various sites that are equipped with modern radars, data processing and display systems linked by modern digital communications. The AADS accommodates the requirement for flexibility, the functional integration of maritime and army air defence capabilities against tactical missiles, enlargement aspects and peace support/crisis response needs. The critical problem for the ADF is that its GBAD capability can not share a common operational picture with the AADS nor can it accept real-time digital messages from the ADDS.

6. Requirements for GBAD in a Defence Against Terrorism Role

6.1 Command, Control, Communications, Computers and Intelligence (C4I).

The C4I requirements for GBAD employment in a defence against terrorism mission are:

6.1.1Chain of Command.

A clearly defined and highly responsive chain of command is essential. The decision process will be time constrained from the moment of target detection until the decision to engage is authorised. Authority to engage must be delegated to the lowest practical level.

6.1.2Positive Methods of Control.

In order to affect a rapid and responsive C4I system, a positive control network employing tactical data nets will facilitate the requirement for a single integrated air picture among air, land and sea based assets.

6.1.3Airspace Control and Coordination.

Airspace coordination measures will need to be widely disseminated to both military and civilian airspace users. Exclusion zones must include a warning zone of sufficient size to allow sufficient time to warn off intruders, intercept with air assets and gain authorization for engagement with GBAD weapons as a last resort. Ideally there should be an inner "no fly zone" where GBAD assets would be employed. An Airspace Control Plan (ACP) must be developed to operate in coordination with the NSSE timetable of planned activities - activating and deactivating measures in a planned and strictly controlled manner. Coordination measures must permit for consideration of medical evacution and VIP transit routes. Communication support should employ commercial assets to limit frequency interference concerns due to the mix of military, civilian and media systems all operating within similar frequency spectrums;

6.1.4Integrated Air Defence System.

GBAD resources must be involved early in the planning process. They must be fully integrated into the AD system and its associated control plan and they must be

provided all relevant intelligence. The AD plan must promote maximum effective employment of GBAD systems with considerations emphasising responsiveness and real time inputs. The integrated air defence system should permit positional data input and output into both the recognised and local air pictures; and

6.1.5Communications.

A comprehensive, reliable, and redundant suite of communications must be in place between the GBAD system expected to deliver an active effect on the target, and the person authorised to initiate this action. The fidelity and speed of the system is very much dependent upon the time and space of the engagement and, thus, it must be a key requiremt for active use of GBAD.

6.2 Practical Non GBAD Considerations.

Consideration must be given to the employment of helicopters to direct slow moving aerial assets away from, or out of, a restricted area. Helicopters can also serve as a back up means of verification in areas of flight operations employing visual flight rules (VFR).

6.3 Public Relations and Media.

Employment of GBAD systems in defence against terror mission will likely spark intense public interest and media coverage. This will be particularly acute in urban areas and will have implications on personnel and equipment security. Close coordination with local authorities and law enforcement agencies is essential. Careful selection of weapon sites must be closely scrutinised to permit for maximum freedom of action for engagement and conduct of support activities, yet limit the influence of demonstrations. The issues can be effectively mitigated through the employment of man portable systems rather then medium systems.

6.4 Political requirements.

The political dimensions of these operations cannot be overemphasised. It is likely that a civil authority or a political entity could be charged with directing operations. Military personnel versed in the tactical use of GBAD must be embedded in the planning process to ensure that requirements and repercussions of their use are fully understood by those in charge.

6.5 Interagency Cooperation.

Clear, reliable working relations between all agencies involved must be sought, with an equally clear system of arbitration for the inevitable conflicts. For GBAD concerns such issues as Command and Control, rules of engagement, deployment areas, potential impact areas, and a host of mundane, but important concerns (ie. environmental issues), the requirement for clear communications is essential to facilitate a resolution to the problem.

7. Conclusion

This paper has contended the employment of GBAD in a defence against terrorism role will require a concerted and coordinated effort that calls for a joint inter-agency response comprising air, land, maritime, space, civil and government authorities. Further, the lynch pin of the successful employment of GBAD in the

defence against terrorism role will be a command and control system that will see the authority for engagement retained at the highest practical level due in part to the complex legal issues associated with the use of lethal force in a domestic security scenario. This will require an efficient and effective positive control environment vice one of a procedural method of control that is normally employed in ground based air defence operations.

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2 CNN.com/World Missile Hits Kuwait City Mall. Saturday March 29th 2003. Retrieved on 4 October 2006, from http://www.cnn.com/2003/WORLD/meast/03/28/sprj.irq.kuwait.explosion/index.html.