



Aerospace Issues from the Iraq War: Imponderables and Pointers

by Sanu Kainikara

FOREWORD

The latest Iraq War has once again seen the employment of aerospace power in a number of innovative ways. While the details of the campaign still remain classified, it is possible to carry out a broad analysis of the air campaign and aerospace issues that have emerged. This paper attempts to put together issues from this latest conflict in a universal and unclassified manner.

The RAAF Aerospace Centre mission is to develop strategic RAAF aerospace doctrine, and educate the defence and wider community on aerospace issues. The purpose of this paper is to focus the attention of aerospace enthusiasts and the broader defence community on the challenges that confront the efficient application of force from an aerospace power perspective and to underline some fundamental doctrinal concepts that have withstood the test of time.

The deductions are merely pointers to larger aerospace issues and emphasise both the unchanging nature of the basics as well as the dynamism and complexity of aerospace operations. This complexity is increased by the need to effectively orchestrate aerospace power capabilities to produce the optimal joint effects. This paper is offered to stimulate interest and debate on aerospace issues that are of relevance and concern to the broader security paradigms.

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INTRODUCTION

The spectacular success and the unprecedented media coverage of the 1991 Gulf War graphically demonstrated the capability of air power to paralyse an enemy force. As a result of its capability to optimally combine historical and doctrinal concepts to contemporary strategic and tactical application, air power was elevated to a pre-eminent position in the concept of joint warfare. In the twelve years that have passed since then air power had started to be viewed as a panacea to the vexing problems of mass casualties, both enemy and own, as well as the damage caused by collateral damage in any large-scale war. This perception had transformed into a risky trend of trying to employ air power in isolation of other combat arms as an assured war-winning force.

The latest Iraq War has mercifully mitigated that risk while unequivocally placing air power competencies at the vanguard of warfighting capabilities. Perhaps this clarity of vision regarding employment concepts was needed to ensure an unbiased understanding of the central role of air power in force projection with absolute clarity. The twelve-year-gap between the two wars also saw a quantum leap in the efficacy of the employment of air power, especially in terms of response time, greater discriminatory capabilities and increased precision and magnitude of weapon effectiveness. In 1991 it took almost three days to target a cruise missile to hit a specific target after it had been identified. In this war, the interval between target identification and precision strike was just about 45 minutes! Technological innovations and tactical adeptness has combined to improve air power competencies in these twelve years as no other similar time frame has ever witnessed.

The war in Iraq is almost over and the rebuilding of the country is commencing in earnest. The details of the campaign, however, are still not available in open forums and it can be safely assumed that the situation will not change for some time to come. There will also be a great deal of analysis and debate in the future regarding the entire campaign and particularly the single service roles and the 'jointness' that was achieved. There will also be acrimony regarding the importance or otherwise of certain arms in the context of the campaign. Official accounts and analysis will also be forthcoming over a period of time, each with its own particular interest base and bias.

This paper attempts to put together the aerospace issues that emerged through the progress of the war in a universal manner, ie. looking at air power in an unclassified and academically detached way to try and glean the way forward based on its utilisation in the campaign. The following points need to be reiterated as caveats to understanding the issues discussed:

- The information analysed in this paper has been gathered purely from open sources and the deductions arrived at are not tailored for the assimilation of any one air force.
- The deductions are not meant to be universally accepted as 'Lessons Learned' but merely as pointers to emerging aerospace issues that are live and debatable, while also reinforcing certain timeless air power fundamentals.
- Most importantly, no claim is being made to the infallibility of the deductions but it is stressed with a great deal of conviction that neither can they be completely discounted as aberrations.

AEROSPACE ISSUES

History alone never provides a complete guide to the way wars turn out, although in this case it came close to repeating itself. One of the basic differences between the two wars fought against Iraq is that in 1991 the coalition forces were almost unaware of the kind of superiority that they had over the Iraqi forces and also they anticipated strong resistance from those forces. In the latest war it would seem that the margin of superiority enjoyed by the US led forces was more clearly understood; in hindsight it would seem by both sides. The coalition was certain of victory, but was not sure about the time frame or the opposition that it would face, particularly in terms of the kind of warfare that the Iraqi forces would resort to. In any conflict, there are some factors that can never be accurately predicted and these were the unknowns in this conflict.

The emerging and significant aerospace issues have been grouped under generic titles that are then briefly elaborated on.

Control of the Air

Air Supremacy. A major part of the Iraqi Air Force and ground-based air defence elements were destroyed in the 1991 Gulf War. Residual ground defences have been continuously whittled down by the enforcement of the No-Fly Zones in the south and north of the country. Under these circumstances there was reduced requirement for dedicated SEAD missions to be flown at the start of the campaign. Air supremacy was assured practically from the outset of the conflict. This control gave the coalition the decisive advantage of allowing the ground forces unimpeded freedom of movement and force disposal while at the same time denying them to the enemy. This unmitigated freedom extended beyond the mere absence of enemy air attacks to the impunity conferred by the complete lack of enemy aerial reconnaissance capabilities. On a precautionary note, while accepting the advantages of complete air dominance, the difficulty in achieving such a scenario, even for the formidable USAF, when there is the slightest air opposition must also be factored into the planning of the air campaign.

Airbase Security. The absence of air activity by the Iraqi Air Force and the inadequacy of the surface-to-surface missile capabilities assured complete security of airbases for the coalition, which is an absolute prerequisite to obtain air supremacy and thereafter maintain it. Ground security of these bases will, however, start to become more prominent in operational planning considerations as forces become more expeditionary in nature.

Airbase Availability. Access to the desired airbases as well as air space was largely dependent on political considerations and in today's world cannot be assumed in any practical planning. This factor puts added pressure on the air force to be able to carry out rapid adaptation of basing and support plans. Non-availability of bases would place a greater reliance on long-range aircraft and also further stretch the air-to-air refuelling capabilities. It will also considerably reduce the flexibility and overall mission effectiveness of range-limited assets like attack helicopters and tactical aircraft.

Imponderable

Control of the air is still the primary prerequisite for any successful operation.

Pointer

Expeditionary forces will have to take increasing cognisance of political constraints when planning the air superiority campaign.

Battlespace Control

Saturation. There were a number of coalition aircraft, mainly helicopters, which were lost during the conflict. Barring two acknowledged losses to enemy action, the rest were lost in accidents or brought down by friendly fire. This lends credence to the belief that saturation of battlespace control capabilities has become a distinct possibility. In any future conflict, there will be a further increase in air assets in theatre with the probable large-scale induction of uninhabited aerial vehicles, particularly those with combat capabilities. Autonomous operations of integral air assets would further burden the airspace control facilities. The need to streamline battlespace control has never been stronger. This situation will be further complicated in a scenario where there is heavy enemy opposition to the ground forces leading to an unclear Forward Line of Own Troops (FLOT) and the increased need for dedicated close air support missions.

Interoperability. The friendly fire instances brought to the fore interoperability issues in terms of equipment, communications and tactics. Even forces that have long operated in conjunction with each other, as have the

RAF and the USAF, faced the problem of foolproof identification in this instance. Enemy countermeasure activities can be expected to further degrade an already fragile situation.

Pointer

A combination of control saturation, increasing air assets and challenges of interoperability will increase the probability of friendly fire incidents in future conflicts.

Intelligence, Surveillance, Reconnaissance (ISR)

Intelligence gathering before and during the campaign was heavily reliant on air and space based assets. The coalition forces had sufficient intelligence assets in place for close to twelve years to monitor Iraqi dispositions, which greatly improved the situational awareness of the forces before the commencement of the conflict. Uninhabited Aerial Vehicles (UAVs) played a vital role in the timely gathering of both strategic and tactical intelligence, significantly enhancing the already well-established capabilities offered by JSTARS, AWACS and satellite-based intelligence gathering equipment. Space-based assets further facilitated the near real-time dissemination of this information, which was primarily responsible for the unprecedented and exemplary use of air power's strike capabilities in a timely manner.

UAVs were able to mount surveillance missions of unusually long duration almost completely restricting the enemy capability to move as much as a single vehicle without being detected. While UAVs have been used before in similar roles, the employment concept came of age in terms of enmeshing the UAV capability within the rest of the surveillance spectrum.

The importance of Battle Damage Assessment (BDA) capability to follow the principle of minimum force application as well as to ensure the complete neutralisation of targets was reinforced. The necessity of adequate BDA competency to assess extant enemy capabilities was re-emphasised. The inherent loiter time advantage of the UAV, and its comparative expendability makes it ideally suited for this role while also ensuring timely repeat strike missions on critical targets.

Imponderable

Aerospace assets are the best suited for intelligence gathering, long-term surveillance and reconnaissance.

Pointer

UAVs will become the preferred tool for ISR missions, operating in conjunction with space-based assets.

Targeting

Target Selection. Strategic target selection clearly indicated the efforts being made to segregate the regime from the general public. Continuing the recent trend, air attacks were optimised to clearly demarcate the leadership and the populace in an attempt to psychologically demoralise the official infrastructure. Precision attacks to break the cohesiveness of the leadership within itself were undertaken, demonstrating a completely new capability and a somewhat different approach to target selection. Selectiveness of strategic targeting throughout the campaign leads one to believe that strike approval was done at a very high political level, although it has repeatedly been said that there was no political interference in the 'running' of the campaign.

Employment of Air Assets. There seems to be a growing demarcation between the use of organic air assets (attack helicopters) and more conventional fixed-wing attack capabilities. At the same time there is a blurring of the previously clear demarcation in utilisation between purely strategic aircraft (B-52, B-1, B-2) and tactical attack aircraft. In the prevalent air dominance environment, almost all combat aircraft carried out missions that could in conventional terms be classified as strategic. The campaign highlighted that all combat aircraft are therefore capable of at least limited strategic application under benign conditions. Even more remarkable was the remarkable and decisive tactical capability displayed by platforms hitherto considered purely strategic in nature when employed with appropriate precision weapons and under effective coordination with the ground forces.

Organic Air Power. Organic air power did not achieve the desired effectiveness because of the constraints of their operations in the autonomous mode. The lack of coordination with joint air power was a limiting factor in their efficient employment. The growth of organic air and their autonomous deployment will complicate command and control infrastructure in a future battlefield.

Responsiveness. It was comprehensively demonstrated that only air power has the inherent capability to effectively engage and positively neutralise time-sensitive targets over longer ranges with adequate destructiveness and discrimination. This is further enhanced by air power's capability to obtain precision intelligence as opposed to the normally available area intelligence. The strategic and tactical responsiveness of air power has come to be relied on to produce the necessary asymmetry in the battlefield.

Pointer

Time-sensitive, precision air strikes on strategic and tactical targets will become more of a norm in future conflicts and may even be employed in punitive actions.

Collateral Damage

From available information it is fairly certain that this conflict saw the least amount of collateral damage ever inflicted by aerial strikes. The effect in terms of humanitarian outcry was however, as in recent conflicts, disproportionate to the damage, injury and loss of life caused, compared to the broader experience of 20th Century warfare. This could be because of the following reasons.

- Statements from the top leadership, both political and military, of weapon capability have biased the public expectation of the accuracy of air attacks.
- The questionable tendency of some to declare even the slightest collateral damage as morally and ethically unacceptable.
- In a real-life media-covered conflict that was repeatedly broadcast around the world, the graphic images of even a small injury to a child or the slightest damage to sensitive assets tends to coalesce people's antipathy.
- Aerial attacks tend to bring out more emotional responses than the same damage caused by other means. For example, damage caused by artillery shelling does not generally seem to create the same extreme reactions.

The psychological impact of collateral damage to the human victims has probably remained unchanged but the televising of graphic images of the innocent victims of aerial attacks has a disproportionate effect on the psych of the people. There seems to be the beginning of a tendency to bring air power as a whole into disrepute as being barbaric akin to the general opinion regarding air power after the 1937 German attack on Guernica in Spain. Collateral damage by actions of ground troops also has psychological effect, but these effects seem

to be transitory and more readily accepted as genuine mistakes. This trend to overplay the impact of collateral damage in a war zone can be expected to increase.

Pointer

The pressure on intelligence for targeting and precision for attack to be practically infallible can be expected to be very intense in any future major conflict.

Air Defence Systems

Even the most sophisticated and state-of-the-art air defence systems can be jammed or saturated and beaten by the fog of war at some stage in a conflict. This point lends itself to an interesting corollary that offensive air power can be expected to achieve mission goals provided there is a willingness to accept even large-scale attrition and also a capacity within the force to absorb such losses. This brings into focus the vulnerability of airbases and the impact of their neutralisation on air operations. Perhaps more important would be the possible degradation of battlefield air defences because of their operations in extreme conditions and increased vulnerability to enemy countermeasures. The case of a fairly primitive Iraqi missile getting through the Patriot batteries in Kuwait demonstrates the vagaries of air defence systems that will become even more pronounced as the technological gap between the opposing forces reduce.

Imponderable

There is no unbeatable air defence system that can be deployed either in the battlefield or in the defence of vital areas/points.

Extened Logistics Lines

Vulnerability. The campaign demonstrated the newfound concept of lighter forces advancing at faster paces than ever before as opposed to the earlier accepted concept of overwhelming force. This made the fighting forces reach far out into enemy territory while the logistics forces were hard pressed to keep pace. In desert and other open terrain this would make logistic lines extremely vulnerable to asymmetric warfare, especially when tactics such as encirclement of built up defensive positions further enhance the speed of advance. In these circumstances, only air power will have the responsive capability to secure the extended logistics lines. It is envisaged that gunships will be used in the scout and escort role to secure supply lines.

Airlift. The alternative to slow-moving supply columns escorted and secured by gunship detachments is the direct supply of the advancing forces by the establishment of air bridges on an as required basis. Air bridges themselves are fragile in their assured sustainment capability since they are dependent on a number of external factors for their effectiveness. Effective control of the air, availability of appropriate in-theatre airlift assets corresponding to airbase availability in relation to the advancing ground forces, security of both rear and forward airbases, weather, NAVAIDS and the pace of advance are some of the factors that directly affect the efficacy of such an operation. Another drawback of complete dependence on airlift to sustain the momentum of advance is the extreme vulnerability of airlift assets to Man Portable Air Defence Systems (MANPADS) while operating close to the forward lines. Countering MANPADS is perhaps the most difficult air defence mission at present.

Pointer

The new concept of lighter forces advancing at a faster pace will bring air power into a new role to ensure the security of extended logistics lines.

Space

Space has conclusively and undeniably become part of the warfighting arena. It is now a fact that in order to maintain cutting edge competencies the assistance of space-based assets is vital. Without adequate space capability no air force can aspire to field and operate a first-rate air power element even for a minor campaign. Since a number of space capabilities are commercially available it may also become necessary to secure them for exclusive use, thus denying the enemy access to these assets. This requirement may trigger the first step in taking physical warfare into space. As a corollary it will be in the interest of the larger efficacy of air power employment to ensure the availability of dedicated space capabilities by having own resources in space. Satellite communications and imagery systems maintained indigenously could become the start of a concerted space focus for future aerospace power projection capabilities. No air force can afford to ignore space-based capabilities and hope to remain relevant even in the near-term.

Imponderable

An articulated space doctrine is of cardinal importance for an air force to remain a viable, valid and potent force.

Tempo of Operations

Concept. One of the basic war-winning concepts is the necessity to select and maintain a tempo of operations that simultaneously maximises own capabilities while being unacceptable to the enemy from the beginning of any conflict. This campaign more than any other exemplified this concept with the ground forces advancing at an average speed of 25-30mph. In comparison, the famed 'left hook' in Operation *Desert Storm* to liberate Kuwait in the 1991 Gulf War was a ponderous advance at an average speed of less than 10mph.

Tempo of Air Power. Air power is swift, agile and decisive in the use of technology to bring relentless yet measured violence to bear against a number of target systems simultaneously. It therefore becomes the primary force that can accelerate the tempo of operations beyond the enemy capability even if the ground forces are unable to do so for any reason. Air power can also deny the enemy the capability to increase their own tempo of operations and can gradually attrite their capability spectrum thereby increasing the asymmetric advantage to own forces. Sustaining the required tempo will require complete and on-going adequacy of air base infrastructure as well as the assured availability of force multipliers like AAR and AEW&C for the duration of the campaign.

Pointer

Air power will be one of the prime movers in facilitating the selection and maintenance of the optimum tempo of operations.

Rules of Engagement

In the last decade employment of air power in the attack role has come under greater public scrutiny. There is now increasingly open and sometimes acrimonious debate regarding the legitimacy of target selection and the application of existing rules of engagement. International perceptions regarding the correctness of targeting, both in selection and in operational application and the probability of collateral damage have changed radically in the recent past.

Historical precedents of the 'civilian' casualties of strategic bombing have biased the opinion of the larger public against aerial attacks. The tendency to play up the probable effects of air attacks compounds the general

perception that these attacks are something beyond the ordinary and that the resultant attrition will be much larger than what will accompany a normal conflict. Comprehensive and lethal air attack capabilities are resident more in the air forces of developed than developing countries since they are expensive to acquire and operate. Accompanied by other factors like media presentation this concept of effective air attacks being the preserve of developed countries is gradually perpetuating the perception that the stronger (developed) nations are callous in their application of air power against weaker adversaries.

Pointer

Application of air power in the attack role is going to become even more contentious in terms of target selection, rules of engagement and acceptance of collateral damage.

Role of the Media

An Army War. The role of the media in shaping public opinion has been paramount in this conflict. From an air power perspective the media 'embedded' with the ground forces had both advantages and disadvantages. The main advantage was the capability of air force personnel to present their point of view direct to the public without intervening 'analysis' by reporters with only superficial professional knowledge of military matters. The disadvantage was that, because it is impossible to embed media in air combat missions, the entire campaign has been seen as completely planned, fought and won by the army to an extent where the role of the air force before, during and after the conflict has been relegated to footnotes.

Public Opinion. The media was able to manipulate public opinion to a certain degree, but the availability of conflicting reportage of the same episode eroded the credibility of the media as a whole. As the conflict progressed the media's ability to shape public opinion waned almost completely. An unexpected outcome of constant and direct reporting was the emergence of cultural sensitivities to acts of war and its aftermath. Not only was the reporting of the same episode vastly variant, the public reactions were also equally varied. Biased media reporting played an important role in fuelling public outrage at certain actions even if they were factually not controversial.

Pointer

All kinds of force projection capabilities will have to become more attuned to cultural sensitivities in any future conflict.

A CONCLUDING FORWARD VIEW: THE 'PAY OFF'

In the history of mankind, yet another conflict has been fought. The right and wrong of the conflict, and even the necessity or otherwise of having fought it at all will be issues that are debated for a long time to come. There is also a point of view that the entire campaign should be analysed as one of overwhelming military capabilities prevailing over a mediocre regional force. There is still a continued need to study the conflict from a different angle in order to make the correct deductions so that the paradigms that constitute cardinal principles in the application of force can be either reinforced or properly adapted. The achievement of this goal even though elusive at times is of primary importance to a force in being, because these are the deductions that will facilitate its proper and holistic growth to become a viable force of the future.

The Iraq War has once again demonstrated without ambiguity that the absolute basic fundamentals of air power will remain unchanged as universal truths. The contrast is that the integration of air power fundamentals, other combat power elements and new technologies produces concepts of employment of its assets that are dynamic and living, altering content and fashion dependent on a number of factors. It is almost certain that air power will not be applied in the same manner repeatedly, but applied in new and novel ways, its future usage being dependent almost entirely on the context of operations.

Imponderable

Fundamentals of aerospace power doctrine are universal truths.

There is a certain assurance that national security imperatives, while staying constant at some basic level, will also change with global and regional convulsions that occur from time to time. Air power being the most flexible of power projection capabilities will have to adapt to a future wherein its employment, targeting and the effects to be achieved will constantly change. The core competencies of adaptable flexibility and concentrated firepower will be called in with increasing frequency to bolster the nation's security commitments.

Imponderable

Aerospace power will be the preferred tool for force projection.

Air power has been transformed in its application against ground forces. In this campaign it denied the power of manoeuvre to the enemy forces in an overwhelming fashion, facilitating the uninterrupted advance of own troops. With assured air supremacy, air power was able to degrade the entire spectrum of Iraqi combat capabilities to an extent where they became operationally ineffective. All weather day and night precision attack and reconnaissance capabilities ensured that enemy ground forces were denied even minimal movement capability. When the inability to manoeuvre was combined with the effective neutralisation of its command and control infrastructure, the Iraqi forces were reduced to absolute paralysis. This denial of manoeuvre capability limited the enemy capacity to concentrate mass at its point of choice as well as the cohesion of its reinforcement tactics. Own forces have the freedom to apply selective force at points of their choice in order to achieve maximum benefit. In the case of ground forces that have lesser capability than the enemy, but the capability divergence is minimal, the effective employment of air power can bridge this gap and offer the prospect of disproportionate success. New joint mixes of air-ground-sea power tailored to fit emerging situations and applied emphatically will be decisive to the outcome of any engagement.

Imponderable

Effective application of air power to the land engagement is the only way to win a ground campaign.

In an increasingly uncertain battlefield where quick reaction and high tempo of operations will be the norm, the only certainty will be the necessity to have rapid and accurate information access. Future combat power will be measured not in terms of platform availability but the ability of the force to deliver specific effects. By virtue of its operations in three dimensions and the extensive use of space as a force multiplying enabler, aerospace power is ideally suited to assuming the lead and coordinating role in Network-Centric Warfare of the future. The inherent characteristics of air power are well suited to being quickly adaptable for optimised use in Effects-Based Operations. Since these are two of the key future warfighting concepts, the primacy of aerospace power as the lynchpin in any future operations has been well and truly established.

Imponderable

Aerospace power is the moulding and binding element in a Seamless Force.