

AIR POWER IN LAND OPERATIONS

GURMEET KANWAL

JOINT AIRLAND CAMPAIGN

Given India's unstable external security environment and inimical neighbours who lose no opportunity to exploit internal instabilities, future conventional war on land, though improbable, cannot be ruled out. In the Indian context, such a war is likely to be a point on a continuum that encompasses the present conflict along the line of control (LoC) and the actual ground position line (AGPL) with Pakistan, combined with Pakistan's ongoing proxy war, and a possible "border war" along the line of actual control (LAC) with China that spins out of the unresolved territorial and boundary dispute. Due to the nuclear shadow over the Indian subcontinent, future wars will be limited wars. It will not be possible to conduct a successful land campaign without overwhelming and sustained support from the Indian Air Force (IAF) by way of air-to-ground strikes in the contact, depth and deep battles. The recent wars in Afghanistan and Iraq have conclusively proved that only a skillfully integrated and coordinated joint AirLand campaign can possibly achieve the desired military objectives in a war that is limited in political and military objectives and, consequently, force levels, duration and space.

Also, by now it is well recognised that electronic warfare and 'information operations' in the land battle cannot be conducted successfully without a substantial contribution from the IAF. Operation Desert Storm, the first Information War, highlighted the importance of information operations during limited wars. "The targets of the opening shots in Desert Storm were two Iraqi radars located just inside Iraq's border with Saudi Arabia. Hit

Brigadier **Gurmeet Kanwal**, a former Brigadier in the Indian Army, is Senior Fellow at the Observer Research Foundation, New Delhi. He has authored a number of books including *Nuclear Defence*.

from army helicopters firing Hellfire missiles, these stations went silent. Moments later, a stealthy F-117 launched a 2,000 pound laser guided bomb on an interceptor control station. Those two attacks opened a door in an electronic wall through which 668 aircraft were to streak into Iraq.”¹ In future wars, a few grams of silicon in a computer may have greater effect than a ton of depleted uranium. Under such circumstances, ‘jointness’ in the conduct of operations will be an essential prerequisite. Only the synergised impact of individual Service capabilities will ensure a positive outcome.

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However, it must be clearly recognised that while future wars on the Indian subcontinent are likely to be fought as limited wars, larger conflicts cannot be ruled out. Planning and preparation for war and future force structures must take this reality into account. The nation must remain prepared to eliminate threats across the entire spectrum of conflict. In this context, the US Army’s operational concept, which caters for the entire spectrum of conflict, is relevant:²

- The army’s goal is battlespace dominance: control of the nature, scope and tempo of an operation.
- Its constant aim is to seize the initiative, maintain momentum and exploit success.
- It seeks to defeat an enemy by destroying the coherence of his operations.
- The army will operate at a tempo and intensity that enemy forces cannot match.
- The aim is to force the enemy into a turbulent, steadily deteriorating situation with which he cannot cope.

1. Alan D. Campen, *The First Information War* (New Delhi: Bookmart Publishers, in association with Armed Forces Communications & Electronics Association Press, USA, 1999), p. xiv.
2. “The Army’s Operational Concept,” *FM 100-5, Operations* 1998 (Washington, D.C.: US Army Training and Doctrine Command, Headquarters, Department of the Army, 1998).

The key question is, what will constitute military objectives during offensive operations in a limited war? It is well recognised that the concept of attacking the enemy's centre of gravity is the key to all operational design. In a complex organism like a divisional or corps level field formation, some important components are more vital than others to the smooth and efficient operation of the whole. "If these can be damaged or destroyed, their loss unbalances the entire structure, producing a cascading deterioration in cohesion and effectiveness which may result in complete failure, and which will invariably leave the force vulnerable to further damage."³

The correct identification of the enemy's centre of gravity and the planning and successful execution of actions to expose it to attack and destroy it, are the essence of operational art. Due to the ongoing revolution in military affairs (RMA), the mass of enemy forces is no longer the most vulnerable and operationally important asset of the enemy. At least in the plains, the centre of gravity of field formations is increasingly shifting towards their reconnaissance, surveillance, target acquisition (RSTA), command and control, communications and intelligence (C³I) systems and long-range fire delivery means, particularly rocket launchers and surface-to-surface missiles (SSMs). Logistics bases and lines of communications are also important enemy assets, especially in the mountains. It is these vulnerabilities that are increasingly gaining prominence as prime targets for early destruction. The successful destruction of the enemy's command centres, RSTA and firepower assets and the disruption of his intelligence communications systems will render him incapable of fighting effectively and will, hence, lead to eventual victory. Most of these 'prime' targets can be successfully destroyed only by effective air-to-ground strikes.

MASSING FIREPOWER NOT FORCES

When operations are conducted with a nuclear backdrop, it is axiomatic that field formations must deploy dispersed and fight concentrated. However,

3. "Key Concepts of Operational Design," *FM 100-5, Operations* (Washington, D.C.: US Army Training and Doctrine Command, Headquarters, Department of the Army, 1986), pp. 179-180.

with the advent of revolutionary precision guided munitions (PGMs) and the artillery's ability to rapidly deliver massive fire assaults over a large number of targets with a potent mix of tube and rocket ammunition, the

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concentration of force, even for a short duration of time, is likely to lead to unacceptable damage and casualties. Clearly, in future, the aim should be to mass firepower not forces to achieve military objectives and use PGMs to

destroy hard targets such as tanks and bunkers with surgical precision. PGMs also help to reduce collateral damage and casualties to civilians trapped in the battle zone.

The Tofflers, Alvin and Heidi, have emphasised the progressively greater utility of PGMs and, consequently, the importance of de-massification of forces on the modern battlefield. Their analysis is worth repeating⁴:

To appreciate just how astonishing these capabilities are, it helps to glance briefly backward. In 1881, for example, a British fleet fired 3,000 shells at Egyptian forts near Alexandria. Only ten ever hit their targets.

As recently as the Vietnam War, American pilots flew 800 sorties and lost ten planes in an unsuccessful attempt to knock out the Than Hoa Bridge. Later, four F-4s armed with some of the earliest smart bombs did the job in a single pass.

In Vietnam, an American M-60 tank crew had to find cover, stop the tank, and aim before it could fire. At 2,000 yards, at night, the chances of hitting a target were, according to tank expert Ralph Hallenbeck, "pretty nil". Today the crew of an M-1 tank can fire without stopping. Night-vision aids, lasers, and computers that automatically correct for heat, wind, and other conditions assure that they will score a hit nine out of ten times.

Today, one F-117, flying a single sortie and dropping one bomb, can accomplish what it took B-17 bombers flying 4,000 sorties and dropping 9,000 bombs to do during World War II, or 95 sorties and 190 bombs during Vietnam.

In future, large components of infantry and mechanised forces will be employed to act primarily as deterrent forces and will be ordered to seize

4. Alvin and Heidi Toffler, "Third Wave War," in *War and Anti-War: Survival at the Dawn of the 21st Century* (London: Warner Books, 1994), pp. 90-92.

and hold ground only after the massive employment of all available fire delivery means, including artillery and air power, has completely pulverised the objective and rendered it incapable of any further resistance. It will become an inescapable necessity for friendly forces to achieve such fire supremacy in the battlefield that the enemy becomes incapable of utilising his own firepower means to cause serious damage to friendly forces. In a limited war, which is likely to be governed by various time, space and application of force levels limitations, it will be even more necessary to rely on the destructive potential of massed firepower. In short, future investments must be made to upgrade firepower capabilities by several orders of magnitude.

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The battlespace of the future will be characterised by high intensity conventional operations, particularly in the plains. Sustained and accurate firepower will be a key requirement in the land battle, with greater emphasis on precision and range to maximise destruction in depth and minimise civilian casualties and collateral damage. Fast moving mechanised forces will present fleeting, well-dispersed targets. In defensive as well as offensive operations, targets will enjoy greater protection than was the case in wars in the 20th century. The higher tempo of battle will place heavy demands on firepower as the option of choice to cause prohibitive damage to the enemy's military machine. The experience of the Coalition forces during the Gulf War is a case in point. Robert H. Scales Jr. has written: "There is no doubt that the American employment of firepower in the Gulf War was a success. Practical application of the precision revolution on the battlefield allowed American air and ground firepower to level Saddam's mountain of first-class war material in a well-conceived campaign of attrition by firepower. Victory came quickly and with few US casualties."⁵

5. Robert H. Scales Jr., "Firepower in Future Limited War," in *Firepower in Limited War* (Dehradun, India: The English Book Depot, 1998), pp. 287-296.

AIR POWER IN JOINT OPERATIONS

AirLand Battle

The concept of AirLand Battle is too well known to bear repetition. Its roots lay in the weakness of the North Atlantic Treaty Organisation's (NATO's) ground forces deployed in a linear manner against the Warsaw Pact's overwhelming conventional superiority and "a perceived opportunity offered by emerging technology" to overcome the shortcomings.⁶ The simultaneous destruction of forces comprising the Warsaw Pact ground offensive was visualised over an extended battlefield. General Don A. Starry has written:⁷

The expression 'extended battlefield' was used to denote a three-fold expansion of the defence. First, in depth, "with engagement of enemy units not yet in contact to disrupt the enemy time-table, complicate command and control and frustrate his plans, thus weakening his grasp on the initiative." Second, "the battle is extended forward in time to the point that current actions such as attack on follow-on echelons, logistical preparation and manoeuvre plans are interrelated to maximise the likelihood of winning the close battle as time goes on." Third, the "range of assets figuring in the battle is extended towards more emphasis on higher level army and sister service acquisition means and attack resources."

Subsequently, NATO adopted the doctrine of follow-on forces attack (FOFA), which, according to General Bernard Rogers, differed in some aspects from AirLand Battle. "Although both incorporate some ideas which are similar, AirLand Battle is designed to have worldwide application and carries some features that do not apply to the deterrent and offensive missions assigned to Allied Command Europe."⁸ The new concepts were primarily aimed at exploiting emerging technologies to go beyond traditional

6. Tony Mason, *Air Power: A Centennial Appraisal* (London: Brassey's, 1994), p. 98.

7. General Don A. Starry, "Extending the Battlefield," *Military Review*, March 1981, p. 32, quoted by Mason., *Ibid.*

8. General Bernard Rogers, "Greater Flexibility for NATO's Flexible Response," *Strategic Review*, Spring 1983, p. 12.

interdictions tasks. By harnessing the increased range, lethality and precision-strike capability of modern air-to-surface and ground-based weapons platforms, it became possible to fight the contact, intermediate and depth battles almost simultaneously. More responsive C³I systems and state-of-the-art RSTA technologies enabled commanders to plan well-integrated joint operations. It became possible to achieve the paralysis inherent in Liddle Hart's indirect approach by direct means.

However, it was soon realised that concepts such as AirLand Battle and FOFA required extremely heavy capital investments and were difficult to translate quickly into new force structures. "In 1984, General Rogers had estimated that FOFA could have been implemented with a one per cent increase in the collective budget for alliance members over 10 years. By 1990, that figure had not been raised."⁹ Not all analysts readily accepted the new concepts. Steven Canby wrote: "Throughout the ages, the introduction of a qualitatively new weapon has been heralded by the prognosis that war will never again be the same. To date, these predictions have always proved false. There is no reason to believe that tactics will adjust to precision weaponry."¹⁰

It does not need to be emphasised that "air power will be a crucial factor... on most battlefields... There will be a premium on 'stand-off' precision missiles which can be launched at (ground) targets from long range."¹¹ The concept of AirLand Battle would become more relevant on the Indian sub-continent as RMA technologies gradually come to the forefront. Synchronised,

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9. Mason, n. 6, p.101.

10. Steven L. Canby, "The Conventional Defence of Europe: The Operational Limits of Emerging Technology," Working Paper 55, International Security Studies Programme, The Wilson Centre, April 1984, p.5, quoted by Mason, n. 6.

11. "The Future Shape of Our Forces," *The Strategic Defence Review* (London: The Stationary Office, 1998), p. 22.

simultaneous ground and air strikes would be needed to achieve the greatest impact. The Tofflers have argued: “Deep strikes by the air force would be needed to knock out the adversary’s command centres, logistics lines, communications links and air defences. This, in turn, would require the closest integration of air and ground forces.”¹² It is a well-worn military maxim that integrated and synergised strategic, operational level and tactical strikes against ground targets by ground and air forces produce a cumulative effect on the enemy.

The US Army believes that “the success of both offensive and defensive operations can depend greatly on massing air power at decisive points... Close air support enhances land force operations by providing the capability to deliver a wide range of weapons and massed firepower at decisive points.”¹³ Because of the high density of air defence weapons in the tactical battle area (TBA), air forces all over the world are advocating that battlefield air interdiction (BAI) would provide greater payoffs than close air support missions. Jasjit Singh has written: “In the tactical area at least, the defences appear to have gained the upper hand, leading many serious experts to advocate reliance on means other than tactical air power.”¹⁴ Though not openly acknowledged, this aspect is likely to have been a key factor in the graduation to FOFA by NATO in the mid-1980s. During the Kargil conflict, some IAF aircraft dropped their bombs from distances greater than 15 km after two aircraft had been hit by surface-to-air missiles (SAMs). In almost all modern armies, it is becoming increasingly common for planners in the corps TAC (tactical air centre) to suggest that air force assets should be exclusively utilised for BAI, as the payoffs would be greater.

One lesson that has emerged quite clearly from the recent conflicts in the Balkans, Afghanistan, Chechnya and now in Iraq is that air power alone cannot win a modern war. Employed in a synergistic manner in conjunction with ground forces, air power is a substantive force multiplier that can pave

12. Toffler, n. 4, p. 64.

13. “Operational and Tactical Planning and Execution,” n. 2, pp. 47–49.

14. Jasjit Singh, “Offensive Air Support of Land Forces,” *Air Power in Modern Warfare* (New Delhi: Lancer International, 1985), pp. 162–214.

the way for victory. Interdiction of targets in depth and the provision of close air support to the ground forces, that is, the suppression or destruction of enemy forces in contact with the army troops being supported, is now part and parcel of the tactics, techniques and procedures of conventional combat on land. Land force operations are enhanced by the capability of the air force to quickly deliver a wide range of weapons and massed firepower at decisive points. In the Iraq War, the US armed forces raised close air support to the level of a fine art. Air-to-ground strikes were whistled in more frequently than in any other war and were delivered with alacrity in an unbelievable response time of 15 to 20 minutes, earning for the flyboys the sobriquet “airborne artillery.”

Effects-Based Operations (EBOs)

Due to the asymmetric nature of the Iraqi fightback in the Iraq War and the varying rates of advance along different axes, the fighting was non-linear throughout the campaign. “Effects-based operations” (EBO), talked about loosely for some years now, truly came of age.¹⁵ Nick Cook has written:¹⁶

Major General David Deptula, director for plans and programmes within the US Air Force’s Air Combat Command and a leading proponent of EBO, defines EBO as ‘the end of strategy’ rather than the traditional approach of force-on-force—the attrition approach to warfare that characterised the major conflicts of the 20th century... One of the drivers behind EBO strategy is the ability to wage “parallel warfare”. In traditional “series warfare”... target sets are attacked in a linear sequence in a progressive march on the nerve centre of the enemy’s operations... (EBO) is the defining event of the so-called revolution in military affairs.

The key capabilities that drive EBO include an increasing reliance on PGMs, the ongoing move to an all-stealth air force, the fielding of a new generation of intelligence, surveillance and reconnaissance (ISR) systems with high-bandwidth communication links that is giving rise to a network-centric, situationally aware joint fighting force and “adaptive planning”—

15. Nick Cook, “Cause and Effect,” *Jane’s Defence Weekly*, June 18, 2003.

16. *Ibid.*

the ability to react in near real-time to evolving battle situations, a key requirement for attacking time-sensitive targets.¹⁷ The unleashing of skillfully orchestrated EBOs is expected to achieve such a high level of dominance and rapid destruction that it would result in “shock and awe,” as it did in Iraq.

Some of the other key aspects of combined operations during the Iraq War deserve to be highlighted. Michael E. O’Hanlon has written:¹⁸

- **Striking Iraqi Forces with a Powerful Preparatory Air Bombardment.** The combination of GPS-guided all-weather bombs, better all-weather sensors such as JSTARS aircraft flying well within Iraqi airspace, and real-time joint communications networks denied Iraqi forces any sanctuary. Even if the Iraqis tried to move during sandstorms, or at night, coalition forces could see and strike them. In addition, due to the rapid movements of coalition ground forces, any Iraqi redeployment had to happen quickly if they were to help frontline forces under attack. That made it more likely they would move in large formations on roadways. They were badly hurt as a result. Again, this was textbook doctrine, applied with devastating effectiveness, rather than brilliant generalship.
- **Decimating Combined-Arms Attacks Against the Republican Guard.** In addition to the above combat dynamics, coalition forces were remarkably effective when air and ground units worked together. By the last days of March and early days of April, U.S. forces were mauling Republican Guard forces deployed outside of Baghdad. Saddam made a major mistake in keeping them there, perhaps out of fear that they would turn against him if allowed into Baghdad or perhaps out of overconfidence that they could hide in the complex terrain of the Tigris-Euphrates Valley. The coalition did employ some tactics—such as the 3rd Mechanized Infantry Division’s “bump and run” move to outflank part of the Madinah Division near Karbala—but what won that fight was a devastating display of combined-arms warfare. It built on a decades-old concept with dramatically improved technology that was acquired and integrated into American military doctrine and tactics during the Reagan, Bush, and Clinton years. It was less brilliance than sheer dominance.

17. Ibid.

18. Michael E. O’Hanlon, “Operation Iraqi Freedom and the Future of the U.S. Military,” *Iraq Memo #17*, Brookings, June 19, 2003.

POINTERS FOR INDIA

Close Air Support

The importance of close air support in modern wars must not be underrated. It is well known that just a few missions of fighter ground attack (FGA) aircraft can deliver more ordnance by way of dumb 1,000 lb. bombs in a few minutes on an objective for attack than a medium artillery regiment can deliver in 20 to 30 minutes. What is not so well known is that these 1,000 shells would need more than 20 vehicles and 50 to 60 soldiers to transport from ammunition depots in rear areas to the gun positions and five to six hours to prepare, everything being done manually. In critical situations, particularly in fast flowing mechanised operations, accurate air strikes can save the day. The battle of Longewala during the 1971 War with Pakistan is a case in point. Also, it is a truism that visibly accurate air strikes against the enemy in contact provide a psychological boost to the morale of ground troops. Nothing heartens beleaguered infantrymen more than to see the enemy getting a hammering from one's own air force and artillery. In fact, the US Field Manual makes the point that "the air space of a theatre is as important a dimension of ground operations as the terrain itself."¹⁹ The problem of enemy air defence weapons can be overcome by evolving a coordinated suppression of enemy air defence (SEAD) plan employing artillery, attack helicopters and air and ground based electronic warfare platforms.

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Air-to-Ground Strikes in Mountains

The mountainous terrain on India's northern borders presents peculiar professional challenges for the pilots of FGA aircraft. Defensive posts held

19. "Challenges for the US Army," n. 7, p 4.

by enemy troops are normally located on the dominating heights, while artillery gun positions, battalion and brigade headquarters, communications centres, logistics installations, loading points, vehicle parks, tactically important bridges and the barracks and stores housing uncommitted reserve troops and their arms, ammunition, rations and supplies are located in the valleys. The enemy posts on the LoC are usually of platoon strength (30 soldiers). The platoon is deployed over an area of 50 by 40 metres in three to four steel and concrete bunkers with a few emplacements for weapons such as 2-inch mortars and shoulder-fired rocket launchers. The bunkers could be double-storey with the upper one designed as a fighting bunker and the lower one, usually underground, for living.

The widely separated posts are sited for all round defence on high mountaintops or along the sharp spines of narrow ridgelines or spurs and present small targets that cannot be easily acquired visually and are difficult to attack from the air as even a near miss by a dumb bomb can make it explode uselessly up to a kilometre away. The targets in the valleys lie along the banks of twisting and turning rivers and *nullahs*. The valleys are deep and tucked between sharply rising hillsides and are not easily approached by low-flying, fast moving FGA aircraft. It is an enormous challenge for a young fighter pilot to dive into a narrow valley, navigate his aircraft to the weapon release point and deliver his payload accurately on the target. If these targets are to be successfully engaged, double or even triple the required number of missions must to be planned to achieve the desired result.

Careful cost-benefit analysis would often reveal that with the aerial delivery platforms and air-to-ground weapons available at present, the effort necessary is simply not commensurate with the result that might be achieved. To some extent this challenge could be overcome by employing attack helicopters. However, as the Afghan resistance proved against the Soviets and as was witnessed during the Kargil conflict, these lumbering fighting machines are extremely vulnerable to shoulder-fired SAMs. Since India is more likely to fight future border wars in the mountains than in the plains, as in the past, this shortcoming needs to be addressed early.

Low Intensity Conflict

The remaining roots of Pakistan's continuing proxy war in Kashmir are now mainly located in Pakistan Occupied Kashmir (POK) and across India's western border in Pakistan's heartland itself. A large number of terrorist training camps, assembly areas and launch pads are located across the LoC in POK. One or more major incident of Pakistan-sponsored terrorism may compel India to launch air strikes across the LoC at some of these camps. Air Marshal Patney is of the view: "If

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we're really serious about ending cross-border terrorism, the air force needs to cross the Line (LoC) more often... The army's organic weapons have limited range and yield limited options. The use of aircraft will permit better selection of targets at considerable distances with more effective weapons. Moreover, the use of air power does not involve any desire to gain territory and, therefore, is not escalatory in that sense. In any case, it has now become necessary."²⁰ Whether or not the use of air power across the LoC is escalatory is a debatable issue. What is beyond doubt is that should the pursuit of such a course of action become necessary in the unending fight against Pakistan-sponsored trans-border terrorism, the IAF and the army should be well prepared for the joint orchestration of this option.

Under certain circumstances, to intercept infiltrating or exfiltrating columns of terrorists, India may even exercise its right of hot pursuit, as prevalent in, and sanctified by, international law. Hot pursuit operations would need to be supported by closely coordinated air strikes and may also require transport helicopters to move reserve troops quickly to their release or drop-off points close to, or even across, the LoC and to retrieve them after the operation. Such an operation would require fighter escort for the

20. Several serving and retired senior Indian Air Force officers have advocated the need for trans-LoC air strikes. See, for example, Vinod Patney, "Give Wing to Escalation Across LoC," *Indian Express*, August 27, 2002. (The author, a retired air marshal, was AOC-in-C, Western Air Command during the Kargil conflict.)

helicopters during both infiltration and exfiltration phases. Since trans-LoC operations would invariably be undertaken at night or in hours of poor visibility, it would be mandatory for the participating IAF units to be capable of night flying and accurate navigation to the release or drop-off points and to be trained for such specialised operations.

Need for Better Response Time

It is the synergy between the army and the air force that needs improvement on the Indian subcontinent where the response time between an immediate air strike being initiated and delivered is still greater than the one hour and 15 minutes that it used to take during World War II. The

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procedures for demanding air support, vetting the demands at various levels of command, the coordination between the airbase launching the strike and the forward air controller with the ground forces and finally, the air-to-ground communications available to the strike pilot, all need to improve substantially. Only then will the provision of

close air support to a leading spearhead or a beleaguered defender be upgraded by an order of magnitude. A mechanised combat team commander in the plains and a company commander in the mountains must be able to bank on close air support being available in a here-and-now manner when the shrapnel is flying thick and fast around them like artillery fire is today.

Dedicated Strike Platforms

In view of the lessons learnt during the Kargil conflict and the capabilities necessary for future wars, the IAF must reassess the suitability of its weapons platforms and ammunition and launch a concerted drive to acquire the

required means. Ideally, the IAF should be equipped with specialised, dedicated ground strike aircraft of the A-10 Thunderbolt or SU-25/39 variety which are relatively slower moving, enable greater precision to be achieved in aiming, can carry several tons of payload per sortie, including air-to-ground precision strike missiles and bombs, and can take a lot of damage from the enemy's air defence weapons. Writing about the role played by the US air power during the Gulf War, Robert H. Scales Jr. states, "The A-10 was devastating once the ground war began and once the aircraft dropped low enough to provide effective 30 mm cannon support."²¹

In the coming decades, the IAF will continue to be called upon to launch ground strikes with precision munitions in support of the army. Once the need for such aircraft has been adequately debated and is established beyond dispute, additional funds will have to be provided to the IAF for their induction.

Such aircraft would also cost only a fraction of the cost of multi-role aircraft such as Mirage-2000. The risking of costly multi-role aircraft for tactical bombing runs has obviously to be very carefully considered. It is certain that in the coming decades, the IAF will continue to be called upon to launch ground strikes with precision munitions in support of the army. The IAF, quite obviously, cannot afford to acquire new, dedicated ground strike aircraft with its present budget. Once the need for such aircraft has been adequately debated and is established beyond dispute, additional funds will have to be provided to the IAF for their induction.

IAF aircraft that are earmarked for ground strikes also need to be armed with precision strike munitions to achieve a telling effect. Free flight 1,000 lb. and 500 lb. bombs cannot be dropped with the precision necessary to destroy individual bunkers, pillboxes and armoured fighting vehicles (AFVs). Just like artillery batteries firing standard high explosive ammunition are designed to 'neutralise' large areas of ground with their inherent dispersion

21. Scales Jr., n. 5.

of fire, modern jet aircraft flying at supersonic speeds and constrained by the threat posed by air defence weapons in the TBA, and hand-held, shoulder-fired SAMs such as the Stinger and the Unza, cannot be expected to achieve precision even with rockets and Gatling guns. Only laser-guided and TV-guided bombs with stand-off capability and air-to-surface missiles can provide the necessary reach and accuracy.

Superior precision firepower can give ground forces a decisive edge in limited wars.

Also, the RSTA capabilities required for successful ground strikes must not be lost sight of. In an interview on the eve of Air Force Day recently, Air Chief Marshal S. Krishnaswamy highlighted several emerging technologies that he felt were critical to enable the IAF to maintain superiority in the South Asian region. Among these, he was of the view were “sensors, specifically those that can be employed for target acquisition by night and bad weather... (and) stand-off short/long-range precision guided weapons that could be launched from multiple types of carriers like helicopter and combat aircraft.”²²

Superior precision firepower can give ground forces a decisive edge in limited wars. Long-range lethal munitions and precision targeting promise to provide an immense edge to well-equipped ground forces. According to Robert H. Scales Jr., “The lesson from the Gulf War is clear: in a high intensity war, firepower must break the enemy’s will to resist before close combat begins. Firepower must so weaken the enemy that close-in killing by infantry and armoured forces becomes a *coup de grace* rather than a bloody battle of attrition.”²³ The Indian Army’s recent experience in Kargil has also provided the same lesson. Maximum Indian casualties occurred during initial assaults on the icy mountaintops occupied by regular Pakistani soldiers before the artillery had built up to the level of being able to concentrate 100 guns on each target in turn. Sustained, accurate and high volume concentrated artillery firepower eventually won the battle for India by completely decimating

22. “Firing Line: S. Krishnaswamy — MiGs not Technically Unsound,” *Indian Express*, October 6, 2002.

23. n. 5.

enemy *sangars* and enabling the infantry to assault virtually unopposed. Tiger Hill and many other objectives were finally re-captured without a single casualty. Air strikes by the IAF also achieved significant results and helped to weaken the enemy's resolve. The battle winning utility of ground and air firepower in limited wars was established beyond doubt.

Combat Helilift Capability

During limited war, due to restrictions on the level of application of force and other limitations, operations by special forces (SF) assume even greater importance than in full-scale operations in aiding the commander's design of battle. SF units can conduct either unconventional warfare or act unilaterally in the enemy's rear areas in support of ground operations. Unconventional warfare operations can concentrate on strategic and operational level goals and may aim to achieve either immediate or long-range effects on the conflict. Such operations could include interdicting enemy lines of communications and locating, identifying and destroying important military targets. SF units would also be employed to collect strategic intelligence and conduct psychological operations when necessary. The greatest value of SF units to commanders at all levels is to add depth to the ground operations, forcing the enemy to deploy a large number of combat forces to protect his rear areas. The most desirable method of insertion of SF units behind enemy lines is by helicopters.

The need for surprise is even greater in limited war than in full-scale conventional conflict because of the many restrictions imposed on the conduct of operations.

The need for surprise is even greater in limited war than in full-scale conventional conflict because of the many restrictions imposed on the conduct of operations. In what is generally regarded as his most important contribution to military thinking, Boney Fuller has made an important distinction between "moral" and "material" surprise. Moral surprise, he avers, means that the enemy is unaware that you are coming and material

surprise means that the enemy knows that you are coming but can do nothing to stop you.²⁴ In Fuller's opinion, only moral surprise can achieve an immediate decision. The component of modern forces that is most suitable for achieving tactical and sometimes even operational level surprise is an air assault formation that is self-contained in combat helilift capability. An air assault brigade is capable of achieving both moral and material surprise through its speedy deployment from an unexpected direction. One of the reasons for this is that helicopters can use ground tactically without depending on it for mobility.²⁵ An air assault formation can move dispersed and fight concentrated. Soft targets such as command and communications centres, forward airfields, important bridges, logistics installations and surface-to-surface missile (SSM) hides could form primary objectives for wreaking havoc in the enemy's rear at operational depth.

The selection of objectives would also be dependent on the ability of ground assault forces to ensure a timely link up. Also, with its growing regional responsibilities and increasing calls for joint international action, as also to defend its island territories and its exclusive economic zone (EEZ), India needs to develop a potent air assault capability. However, an air assault brigade would cost the equivalent of a light armoured division to raise and maintain. Force multipliers are sometimes budget multipliers too! All of these critical capabilities require a fleet of combat helicopters that are specially designed for the purpose. These must be acquired in sufficient numbers, progressively increasing the total capability to at least one air assault brigade over a decade.

It can be justifiably argued that India is unlikely to be confronted with a Kosovo-type situation in the foreseeable future. Nor is there a likelihood of repeated air strikes such as those launched by the US against Iraq on many occasions after the Gulf War or those frequently launched by Israel against Hizbollah hideouts in Lebanon till recently. As such, besides fighting

24. Major General J. F. C. Fuller, *Foundations of the Science of War* (London: Hutchinson, 1926), quoted by Brigadier (Retd) Richard E. Simpkin, *Race to the Swift* (London: Brassey's, 1985).

25. Brigadier (Retd) Richard E. Simpkin, *Anti-Tank: An Airmechanised Response to Armoured Threats in the 90s* (London: Pergamon-Brassey's, 1982).

the air war to achieve a favourable air situation, the IAF will be called upon to strike ground targets primarily in support of a limited ground war and it is these ground strike capabilities that need to be further developed and honed. It has been argued before that “like artillery fire, there is now an inescapable need for immediate air support to also be ‘on call’ so that it can be delivered in real time. Even for pre-planned air support, it is unrealistic to ask the corps staff to plan 24 hours in advance. Pre-planned air support should be available to a commander in the field at two hours notice — the usual response time for reacting to emerging situations.”²⁶ If attack helicopters were considered to be the ‘fourth squadron’ of a combat group, the time has come for dedicated close air support assets to act as the ‘fifth squadron’, particularly during offensive operations so that fleeting opportunities can be optimally exploited. The efficacy and success of air-to-ground strikes will be enhanced considerably by the acquisition of an optimised ground strike aerial platform that is dedicated for the purpose. ■

26. Gurmeet Kanwal, “Strike Corps Offensive Operations — Imperatives for Success,” *Indian Defence Review*, January 1988, p. 88.