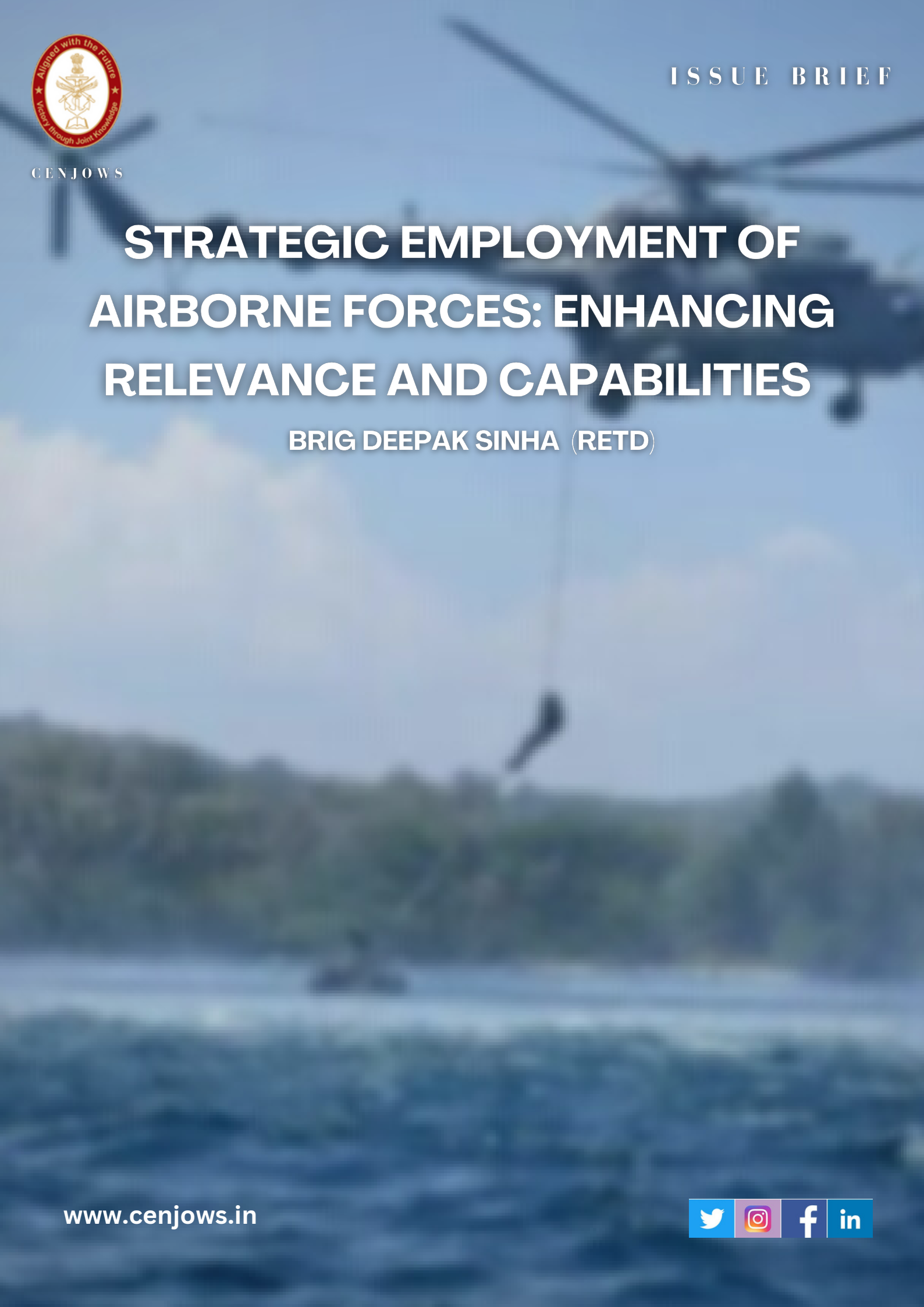

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ISSUE BRIEF

STRATEGIC EMPLOYMENT OF AIRBORNE FORCES: ENHANCING RELEVANCE AND CAPABILITIES

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STRATEGIC EMPLOYMENT OF AIRBORNE FORCES: ENHANCING RELEVANCE AND CAPABILITIES

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Introduction

Throughout history, science and technology have always been at the very forefront of warfare. The crossbow, for example, thought to have been first invented in China around 500 BC, because of its portability, power and accuracy challenged the domination of the horse mounted knight. The invention of gunpowder, the musket, the cannon, machineguns, tanks, aircrafts and the drones of today, have each in their own way, had a similar impact on the battlefield.

Yet, even to this day, victory on the battlefield continues to be measured by the yard and remains a contest between manoeuvre forces and firepower elements, with domination by the latter usually signifying either defeat or stalemate. In the First World War, for example, the stalemate and futility of trench warfare with its horrendous costs, was finally eroded with the advent of the tank. Best exemplified by their spectacular breakthrough in the Battle of Cambrai in November 1917 where a force of 474 tanks broke through the German Hindenburg Line and established a salient that was 10 Kms deep with minimal casualties.

Despite the inability of the Allies to exploit that breakthrough, the potential of manoeuvre warfare as a battle-winning factor once again gained credence. It is in this context that the concept of vertical envelopment operations also caught the imagination of military strategists and thinkers allowing them to envisage the dropping of specialised forces behind enemy defensive positions thereby turning their defences. In September 1918 Colonel William Mitchell proposed dropping a division of parachute-

equipped infantry to seize the city of Metz the very next year,[1] but the war ended a few months later before the plan could be given due thought or executed.

Development of the Vertical Envelopment Concept

In the inter-war years, it was the Soviet and the German Armies that further developed the concept of Airborne Forces, but it was only in April 1940, at the commencement of the Second World War, that the concept was operationally implemented for the first time. In what has now become the standard tasking and utilisation of Airborne Forces (AB), the German Army, in its invasion of Norway, undertook an air assault operation using a paratroop company. They were parachuted in to capture Sola Airfield near Stavanger, which was subsequently utilised for inducting air transported forces for undertaking further operations[2].

However, in terms of their strategic employment, *Operation Merkur*, the German airborne assault to capture the island of Crete in May 1941, was the most significant. Most importantly, the detailed analysis of this operation remains relevant even to this day because it is a forerunner to how AB Forces can be best utilized strategically in support of Land Forces offensives and as advance elements of Rapid Deployment Forces (RDF).

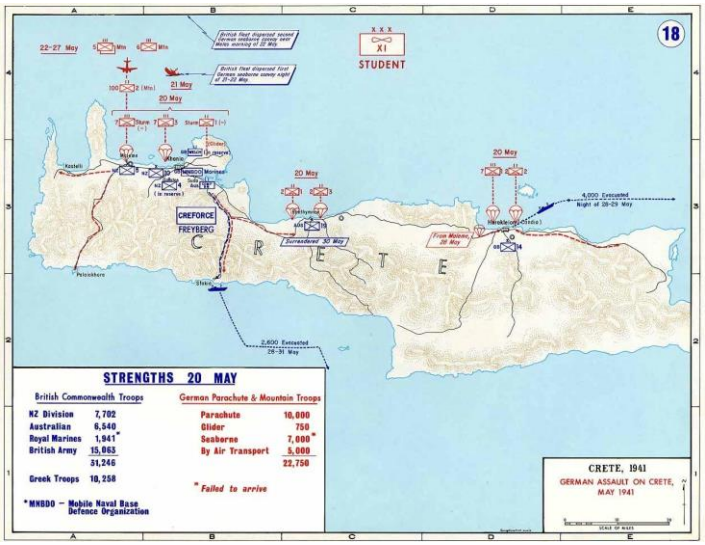
The strategic importance of Crete was two-fold. Firstly, its capture would help protect the southern flank in the Balkans for Hitler's planned assault on the Soviet Union. Secondly, if not captured, Crete had the potential to provide suitable air fields from where the Royal Air Force could dominate the Eastern Mediterranean and hamper Axis shipping from providing essential logistics support that their forces deployed in North Africa required.

While the capture of Crete may have been inescapable, given British naval superiority, undertaking an amphibious assault was fraught with risk and unlikely to succeed. The Germans therefore adopted an audacious and wholly unconventional approach and decided to capture the Island through vertical envelopment. German intelligence vastly underestimated the opposition strength, believing that there were only 5000 troops defending Crete. The Allies, however, had approximately 32000 British, New Zealand and Australian troops, supported by the remnants of 10 Greek Divisions, a total of not less than 45000 troops deployed across the Island, though these forces were rather short of artillery and air support.

The forces utilised for the assault were the 7th Airborne Division with four Regiments, subsequently reinforced by an ad-hoc additional Airborne Regiment for the AB Assault, with one Mountain Division in the support role, a total of 22000 all ranks. The plan formulated by General Student was simple, involving utilizing three of Division's four regiments to capture airfields at Maleme, Rethymno, and Heraklion, which could then be used for the landing of heavy equipment and the Mountain Division. The Airborne Division's fourth regiment would be dropped in the area of Chania and Suda in order to secure the two towns' harbours in preparation for the arrival of 7,000 seaborne troops

who would only be available subsequently once the British Fleet had been forced to evacuate the island. Despite the British Navy suffering grievous losses, the seaborne force was not used. Although Student expected that his initial strike force would be outnumbered by the defenders, he was confident that the combination of the element of surprise, the high quality of his troops, and the Luftwaffe's total air superiority would produce victory.

Despite incorrect intelligence assessments, limited preparation time and the lack of surprise given that the British Intelligence had broken German codes and was aware of its operational plans, the Germans achieved astounding success. It was even more impressive given the fact that the Germans encountered stiff resistance from the local population as well. In the final analysis more than 7000 Allied troops were killed or wounded, another 18,000 evacuated, while a similar number became prisoners. It was also an unmitigated disaster for the British Navy which lost 2,000 sailors killed, as well as crippling losses of major ships, which resulted in its withdrawal from the Aegean. It was in fact the costliest British naval engagement of the Second World War. However, it was Hitler's inability to see the strategic opportunities that the victory presented, despite heavy casualties, and his focus on the invasion of the Soviet Union that followed, a few weeks later, that ensured *Operation Merkur* was ultimately only a pyrrhic victory.[3]



(OpMerKur Source:http://www.mlahanas.de/Greece/History/images/BattleOfCreteMap.jpg)

In our context, the 50th Indian Parachute Brigade, was formed October 1941 with three battalions and its supporting elements. It has remained in the airborne role since then. Subsequently, after the Sino-Indian Conflict of 1962, the Parachute Regiment saw an exponential expansion, and at the present time, has fifteen Special Forces battalions, with five in the airborne assault role. The Brigade and units of the Parachute Regiment

have fought in all wars since Independence, though their utilization in the airborne/ air assault role has been rather restricted.

It was only in 1971 that the 2nd PARA Battalion Group, in what probably was the most pivotal action of the war, was dropped at the Poongli Bridge on the outskirts of Dhaka, in what is now Bangladesh, to prevent reinforcement of the Dhaka Garrison and hammer home the hopelessness of the Pakistani position and forced Lt Gen A. K. K. Niazi, to capitulate. The other operation of import was *Operation Cactus,* undertaken in November 1988, in which the Parachute Brigade undertook a forcible entry mission in the Maldives to reinstall the legitimate government of President Maumoon Abdul Gayoom that had been overthrown in a coup by Tamil mercenaries from Srilanka.

The Air Force too has not lagged behind in building up its capabilities for conduct of AB, Air Transported and Special Heliborne Operations (SHBO). In fact, it is one of the few Air Forces worldwide, which reportedly has the capability of dropping a brigade group plus force either in the AB or SHBO role, and moving up to a division in the air transported role, at any one time.

Viability of Vertical Employment Concepts

While there is little doubt that AB Forces can still play an extremely critical role in ensuring the success of ground operations, it is also undeniable that conceptually very little has changed in the manner in which classical AB Assault operations are undertaken even to this day. Given that the Anti Access Area Denial (A2AD) capabilities have increased exponentially over the past few decades, there are serious apprehensions in some quarters, about both the viability and our ability to launch AB Assault operations in the event of a conventional war in the existing environment for a variety of reasons.

This paper attempts to envisage the kind of environment, including the impact of technology advancement, such forces will face in the coming decade or so. It identifies vulnerabilities and how they can be nullified, and suggests changes in employment philosophies and organizational structures that would be necessary if they are to remain viable and effective in the future.

Air-Transported Operations (ATO), though an important facet of air assault operations, are not being examined as these are inherent capabilities that AB Forces possess. The conduct of SHBO operations is also not being considered as, given the limited range and load capacity of helicopters, as well as the limitations imposed by various operational factors, such as location of mounting bases, terrain limitations and availability of helicopters etc, such operations are invariably best undertaken at the tactical level, and on rare occasions at the operational level.

Current Concepts, Employment Philosophy and Tasking

Among the major differences between our PARA (Special Forces) and the PARA (SF-AB Modification) battalions, the most crucial is the ability of the latter to hold ground.[4] While the former play a critical role in shaping the battlefield, they are primarily seen as force multipliers, unlike the latter, whose success is imperative, if the Land Forces operational plans are to succeed. AB Assault forces, create a "*decision dilemma*" for the enemy theatre commander with regard to utilisation of his reserves. This is vital if the Land Forces are to maintain the momentum of the offensive. The success of Allied AB landings in Normandy during *Operation Overlord,* and their failure, both at Arnhem during *Operation Market Garden,* and at Hostomel Airport in the ongoing Russo-Ukrainian Conflict are examples of this aspect.

AB Assault operations are, by their very nature, extremely complex high risk/high gain operations largely dependent on obtaining accurate intelligence, achieving surprise, detailed and thorough planning followed by meticulous execution. The complexity of assembling together the disparate elements required for an AB Assault and launching them in an appropriate time-frame is extremely challenging, especially given the necessity to ensure the safety and security of the air transport stream. Failure can also have disastrous consequences and cause immense damage to professional reputations of commanders. Both Field Marshal Montgomery, despite his larger-than-life reputation, and General Student came under harsh criticism following the rather limited success of *Operation Market Garden* and for the extremely high casualties incurred during *Operation Merkur* respectively.

Once the decision to go to war has been taken at the highest levels, political and military aims are formulated, operational directives issued to theatre commanders and detailed operational planning undertaken. This includes various contingencies for the utilisation of AB Forces. Once their employment has been finalised and accepted by the Chiefs of Staff Committee (COSC), the Army and the Air Force make available the requisite resources and nominate commanders for the Air Borne Task Force (ABTF) and the Air Force Task Force (AFTF).

The Commander ABTF, normally either the Commander of 50 Parachute Brigade or the Commanding Officer of the Parachute Battalion nominated for undertaking the task, and the Commander AFTF, normally the Station Commander from one of the Transport Wings, establish a Joint Planning Cell (JPC). They assist the Commanders in formulating a joint tactical plan, but being an adhoc establishment, is personality driven and suffers from teething problems, that can adversely impact operational planning. This is a major systemic weakness that needs rectification and will be examined in detail subsequently.

In our context, AB Assault missions, at the present time, can be broadly classified into the following:

- Either in support of Land Force operations, or independently, to capture key terrain features to either disrupt, delay and destroy enemy reserves or provide Firm Bases for Follow on Forces.
- Special Missions such as provision of Path Finders (PF) for security and marking of dropping Zones (DZs) or for carrying out raids against enemy command, control, communication and logistics assets.
- To reinforce/stabilise threatened sectors.
- Out of Area Contingencies (OOAC) involving the conduct forced entry operations to project force in support of friendly foreign countries or in national interest.

Methodology and Conduct of AB Assault Operations

The organizational structure in place for undertaking such missions within the Army is either the 50th Independent Parachute Brigade or one of the AB units not on the Order of Battle (ORBAT) of the Parachute Brigade. On its ORBAT the Brigade has three PARA SF (Airborne) Battalions, one Artillery Regiment and its complement of air defence, combat engineers, communications, medical, administrative and logistic elements. In addition the brigade holds twelve BMP-2 Infantry Combat Vehicles (ICVs) that are crewed by personnel from the AB battalions. Therefore, as per standard operating procedures the Brigade routinely deploys in three Battalion Group Task Forces (BGTF), each of approximately 700-750 personnel, which includes their complement of supporting arms and services elements.

While the Brigade is authorised a Pathfinder and Reconnaissance Squadron, this unit is unavailable for operational employment as it functions as the President's Body Guards. In addition, two Parachute Battalions and an Artillery Regiment, located in operational areas for live training, are rotated into the Brigade at regular intervals to ensure all major units of the Brigade gain requisite experience in operating in diverse terrain and operational environments.

In terms of operational employment, as per existing conventions, AB battalions are treated as highly trained infantry once they are on the ground. Conventional tactical reasoning thus demands that they follow standard force ratios, generally 3:1 in our favour, while allocating troops to task for conduct of offensive operations. Thus, conventional planning presently, requires a battalion be tasked to clear a company sized defended locality.

As such, presently, each of the BGTF's requires between 14- 20 aircraft for personnel, excluding PFs, and another 4-8 aircraft for heavy loads depending on factors such as threat perception, tasking, terrain, distances involved and type of aircraft. In addition, there is the likelihood that additional aircraft sorties would be needed subsequently for aerial resupply. At the present time the country reportedly has the capability to drop the complete brigade at one time, a capability available only with the United States, Russia, China and France.

At present all operational drops, barring PFs, are planned as static line night drops using non-steerable parachutes, except for operations in mountains, where the High Altitude Parachutes (HAPs) in use have limited steerable capabilities. Working on an average requirement of 21 aircraft for personnel carriage, and an additional 8-10 for Heavy Drop stream a complete BGTF drop, using standard dropping procedures and techniques would take between 30-45 mins to be completed and the airborne stream could extend anywhere between 100-150 Kms in length. This requires that the Dropping Zone (DZ) be approximately 1.5-2.0 Km in length and 1 Km in width. While the requisite DZs can be selected with ease in the plains and the Tibetan Plateau, availability in mountains is extremely restricted.

As per existing standard operating procedures, the PFs would secure the DZ at least 30 mins prior to main drop, in which heavy loads are dropped first followed by personnel. The BGTF would require additional 45-60 mins at the DZ after dropping is completed to tactically reorganize itself before proceeding for its task. If resupply drops are envisaged or artillery support is required to be provided from the DZ, then it may require the securing of the DZ for additional time. Dropping heights would vary between 500-800 feet for personnel and up to 3000 feet for heavy equipment drops.

Organizational Imperatives & Drawbacks

This makes clear the magnitude of the problems involved in ensuring the safety and security of the transport stream and of personnel immediately on landing before they have reorganised. Furthermore, if the DZ selected is at a distance from the objective, as was the case in *Operation Market Garden*, the likelihood of surprise being compromised and the ABTF interdicted, increases manifold. In addition, the AB Force, once on the ground, is relatively immobile and equipped with limited anti-armour and artillery resources, especially in terms of ammunition that can be carried. It is vulnerable to destruction in detail once the enemy is organised and has fixed the force on the ground. Thus, its ability to hold ground for extended periods is quite limited, hence the necessity for link up by Land Force elements becomes vital.

From the Air Force point of view, the proliferation of sophisticated early warning and A2AD capabilities requires that either total air superiority, as was the case in Bangladesh, or at the very least, a minimum 2-3 hours window be provided within which enemy A2AD capabilities are completely neutralised and unable to respond against the air stream. In the prevailing environment, especially when we are considering an air stream of over 30 aircrafts, this is an extremely difficult proposition. It requires extensive resources being made available, which would obviously take time to concentrate, given the other commitments of the AF. This may impact launch timelines of the AB Force, which if not in consonance with the requirements of the Land Forces operational plan, could render them irrelevant.

More so, in the plains sector, because with the adoption of the “Cold Start” doctrine as the lynchpin of our military strategy in the plains in the event of a conflict against Pakistan.[5] the window for carrying out AB Assault is extremely limited, especially if the

Strike Corps continue to be held back. In this contingency AB Forces can only be used as a part of the pre-emptive offensive. Moreover, given that we have plans of only advancing 15-20 Kms on a broad front, vertical envelopment operations in such circumstances are better undertaken by employing suitable elements in SHBO role.

There is however, another dichotomy as well. While we have made a strategic pivot towards mountains and HAA operations[6], our capabilities for undertaking AB Assault operations in mountains/HAA is woefully inadequate. Their employment is restricted with drops undertaken either at first light or just prior to last light. With size of DZs being extremely restricted, aircraft are forced to make a number of circuits to drop their full loads. The reason is that presently all operational planning is based on paratroopers using static line semi-steerable HAPs during day as these parachutes are not capable of accurate.

These drawbacks, as will be brought out, can be mitigated to an extent by incorporating changes in organisational structures, operational and tactical concepts and by utilising state of the art aircraft, weapons and equipment. However, it would be fair to say that the biggest challenge that prohibits the undertaking of such operations is that of prevailing mindsets. Preconceived ideas and perceptions about force capabilities and their application are key decision making factors that govern their utilisation and need to be appropriately addressed.

As stated earlier, the Army hierarchy perceives AB Forces as nothing more than specially equipped and highly trained infantry once they are on the ground. Hidebound conventional tactical reasoning demands we use standard force ratios, generally 3:1 in our favour, while allocating troops to task for conduct of offensive operations. In mountains and HAA this ratio can go up to 9:1 when attacking fixed defences. Unfortunately, conventional planning formats do not take into account other unquantifiable factors. For example, their very mode of entry allows full play to battle winning factors such as surprise, shock action, speed and momentum of attack. Apart from that, given that AB Forces operate deep in the adversary’s territory the probability of defences being well prepared and coordinated is extremely low.

Moreover, these are elite forces consisting of highly motivated volunteers, selected after having undergone an extremely gruelling and challenging process that assess both their physical abilities and mental toughness. Thus paratroopers tend to be well trained, highly motivated, physically fit and mentally strong with a penchant for bold and independent action. Given that these operations are undertaken in depth areas, where the opposition they are likely to confront tends to be from lightly equipped reserve forces/armed police, their chances of achieving initial success is extremely high, especially since they aim to secure areas that are preferably not held. The problem for them is holding out for the required duration, against coordinated counter attacks that are bound to follow, before they are reinforced or linked up with by Land Forces. The duration they are required to hold being determined by the type of mission allotted and the likely opposition.

However, if we ignore hidebound conventions, procedures and concepts, then historical precedents suggest that a company strength defences, well in depth, could be seized by AB Assault by either a force of equal size, or at best with a battalion less two Teams (companies). Since AB force levels have a direct correlation to the number of aircraft required and length of the air transport stream, it stands to reason that reduction in strength of the ABTF will ensure a corresponding reduction in aircraft and the complexity of stage-managing such an operation from the AF point of view.

The issue, however, that adversely impacts AF performance is the fact that unlike the Army, its senior hierarchy tends to see only minor differences between AB Operations and routine supply dropping missions. The fact is most supply missions are undertaken within own territory, while AB Assaults operations will be undertaken deep within enemy territory. It stands to reason that these be considered in the realm of special operations, requiring highly skilled aircrews possessing the requisite mental toughness and strength of character required to undertake operations behind enemy lines.

Given the existing mindset, AF commanders and staff tend to ensure all operational planning parameters are tailored to keep in consideration their weakest link in the chain, the least skilled or experienced aircrew involved, as safety is of paramount importance. While decisions pertaining to issues such as line of approach, dropping heights and separation between aircrafts are in the realm of the Commander AFTF, such an approach, tends to adversely compromise/impact the operational plan of the ABTF.

Moreover, unlike the army, which has specialised personnel with a tailored organisational structure in place for undertaking such operations, the Air Force does not. The Commander AFTF is nominated from the Air Command in which operations are to be undertaken, with resources provided by Air Headquarters as required. It is usually one of the AF station Commanders or a Transport Squadron Commander, depending on force requirements, of that Command who is so nominated. Little or no consideration is given to his experience in planning or conduct of such operations. More often than not, it tends to be a case of "*reinventing the wheel*", as Commanders and staff are not fully conversant with latest procedures and techniques in use, which leads to avoidable confusion and delays.

Fortunately, this aspect is rapidly undergoing change with the introduction of the C-130 and C-17 aircrafts, as they require highly skilled aircrew to use them to their fullest capability. The situation can be easily rectified by having both the Army and the AF Commanders of the ABTF and AFTF respectively, nominated on a permanent basis. Preferably these should be the Commanders of the Parachute Brigade and 4 Wing AF, as they are already co-located and train together and for the most part operate jointly. The requisite JPC established by them would be on a permanent basis that would lead to better cohesiveness and smoother planning.

The Technological Perspective

We are now in the midst of a rapidly evolving convergence of information, communication and technology (ICT) whose greatest impact has been in the manner it has challenged conventional, inefficient and rigid top-down hierarchies, undermining them while empowering the more efficient, responsive and flexible lower echelons.[7] While the importance of data as a source of connectivity cannot be underestimated, it is in the evolving technological advances in embedded devices, autonomous interactive communication, robotics, artificial intelligence (AI), cloud computing and miniaturisation that will prove to be game changers for the military in the coming years. This allows for vast amount of information pertaining to the area of operations being collected through electronic means, comprehensively collated and analysed, and accurate actionable intelligence being disseminated.

Its practical application, that will greatly impact AB Operations, is premised on two fundamental pillars, that of big data analytics, and advanced technologies which include robotics, miniaturization and AI. Their capabilities have been greatly improved and assisted with the increasing use of embedded technologies, such as Radio-Frequency Identification Devices (RFID) for autonomous tracking and the availability of user friendly, software and robust lightweight hand held device. These platforms have a plethora of uses, from navigation and secured audio and digital communication to providing tactical battlefield situational awareness.

In the operational and tactical sphere, enhanced battlefield transparency, precision targeting and an increasing reliance on semi-autonomous machines, has similarly transformed the modern battlefield, leading to a compression of the "*Observe-Orient-Decide-Act"* (OODA) Loop. Thereby, enabling rapid targeting of valuable military assets within the theatre of operations. This, as Libicki has so succinctly pointed out, is forcing the military to conceptually come to terms with the reality that *"small and many"* will replace the *"large and few [8]."* The employment of AB Forces as is being recommended is in consonance with this new reality.

This has been amply demonstrated in the ongoing Russia-Ukraine Conflict wherein slow moving large- sized combat forces and their logistics tails have been targeted with devastating consequences. Some of the preliminary lessons in warfighting which have emerged from this conflict have been covered in the Royal United Services Institute for Defence and Security Studies (RUSI) Special Report on Preliminary Lessons in Conventional Warfighting from Russia's Invasion of Ukraine: February-July 2022 by Zabrodskyi et al.[9]

As has been pointed out earlier, the biggest constraint on the employment of AB Forces is the continued vulnerability of a large stream of slow moving transport aircraft with no stealth capability attempting to ingress into an sophisticated A2AD threat environment. The Anti-Access threat can be countered by initiating measures such as ensuring operational security, use of deception, operating from multiple airfields that

are out of the adversary's ballistic missile ranges and deploying suitable Anti- Ballistic Missile systems, to ensure the protection of our mounting bases.

The Area Denial threat that is posed by sophisticated Air Defence Systems, such as the S-400, which in our context have been deployed by the Chinese in the Tibetan Autonomous Region, that can engage multiple targets as far away as 250 - 400 Kms (China not being a signatory of the MTCR Regime is not permitted to be sold missiles with ranges beyond 250 Km). However, as the Ukrainians have shown they are vulnerable to interdiction and countering this threat would require an integrated use of stand-off and stand-in measures that would provide for a window within which the air transport stream can be inducted/ de-inducted without interference.

As Sameer Joshi puts it, "*stealth, stand-off precision strike, Manned Unmanned Teaming (MUT), Swarming technologies and development of a robust C4ISR & EW potential, will ensure the IAF retaining a measure of success in penetrating the existing and next generation A2/AD zones in contested airspace*"[10]. In this context swarming refers to "*autonomous or semi-autonomous units engaging in convergent assault on a common target*…. *attacks which are coordinated and designed to disrupt cohesion of the adversary*."[11] Moreover, modern transport aircraft of the type already available with the IAF are equipped with sophisticated navigation systems and have the ability to fly extremely low (*Nap of the Earth*) and operate effectively on dark nights from unprepared landing grounds to undertake drops without the necessity of the marked DZs. Use of unprepared landing grounds as mounting bases would add an element of surprise to the operation.

In addition, the adversary's existing surveillance and Air Defence systems are likely to be less effective when deployed in mountainous/HAA terrain because of the adverse effect of climate on maintainability and interference from terrain contours. These existing gaps, in conjunction with other active measures can be exploited to provide the requisite window for launch of such operations.

From the AB Forces point of view, sophisticated, highly manoeuvrable static line operated parachutes are available in the market that would allow for limited stand-off drops with a high degree of accuracy. In addition, suitable night vision, navigation and communication aids are easily available that would permit skilled paratroopers to carry out night drops from stand-off distances. Moreover, for the dropping of heavy loads suitable *Remote Control Aerial Delivery Systems* (RCADS) are available and in use, which can be utilised to ensure accurate drops of stores, ammunition, guns and other heavy loads.

The Indian Army's thrust on modernisation of infantry and the concept of Future Infantry Soldier as a System (F-INSAS) that is presently under implementation[12] can be suitably modified for AB Forces. In addition the new range of weapons, ammunition, UAVs and *All-Terrain Vehicles* (ATV) etc will greatly enhance lethality, survivability, mobility and sustainability[13].

Looking to the Future

Given our existing threat perceptions and current geo-political challenges that we face one can reasonably conclude that the mountains/HAA theatre of operations will become ***the strategic centre of gravity*** in any future conventional conflict involving our adversaries.

The relevance of AB Assault operations in support of successful Land Forces operations in HAA/mountainous terrain is not in doubt. In fact, given the terrain configuration in mountains and the limited approaches available they can play an even more critical role than in the plains.

The viability of launching such operations, especially in mountainous/HAA terrain, at battalion and above levels, utilising existing doctrines, tactics and organisational structures against our adversaries is questionable, given the hostile A2AD environment and the large requirement of aircraft for their transportation.

This, ofcourse, does not hold true against minor opposition or non-state actors, as was the situation faced in Maldives during *Operation Cactus*. In that context the importance of a suitably balanced and organised airborne RDF for OOAC cannot be over emphasised. It allows us to undertake forced- entry operations, in time imperative situations, and establish a suitable Air-Head/Firm Base for Follow on Forces, when own national interests are threatened. Placing of a Parachute (Special Forces) Team under command of the Parachute Brigade for such missions is a necessity.

In conventional operations in support of Land Forces undertaking operations above battalion level against our adversaries will be the exception. Even battalion level operations would involve Team level drops on multiple DZs, launched from two or more mounting bases, including semi-prepared landing grounds to maintain surprise, preferably with a time differential. It would allow Teams, for example, to be dropped in their tactical grouping, without the necessity of carrying out “composite” loading, the flexibility to navigate and land at designated points on the DZ in subunits, thereby greatly reducing time required for reorganisation. If required, specified heavy loads, not required prior to the assault, can also be dropped directly on the objective after it has been captured.

Paratroopers need to be highly skilled in the use of square canopy manoeuvrable parachutes with the requisite aids at night, as also in operating RCADs for ensuring heavy loads land at the designated DZs. The BGTF must be capable of carrying out stand-off drops at night on multiple DZs in mountains. This would allow for stealthy approaches to their respective DZ by personnel once dropped at 2-3 Kms from their DZs. It would also be extremely difficult for the adversary to pinpoint likely objectives.

Because stand-off capability allows individual aircraft to select their own “*dropping points*”, relative to the DZs selected, the aircraft stream has greater flexibility and options available for selection of formations, routing etc. The sophisticated navigation

aids available also permit them to utilise '*Nap of the Earth* and *swarming*' techniques. This would allow for drops being completed more rapidly, as well as assist in maintenance of surprise and security. The sequence of drop would have to be changed if required to ensure heavy loads are guided in by those required to use them.

Given the level of skills required as well as keeping in mind that such forces will have to operate primarily at team level there is a necessity to enhance the strength of the Airborne Teams in a battalion, may be by adding the fourth Troop. This would also ensure that local reserves are available in a rapid timeframe. This could be done by reducing the number of Airborne Teams in a battalion from four to three.

The Teams may have converging objectives which would allow for mutual support and provide depth, once the objectives have been cleared and secured. The primary tasks need not necessarily be restricted to capture of a specific objectives, as is the requirement in conventional ground operations, but should preferably focus on denial of approaches leading to those objectives. While securing of positions that are not held would be the ideal, relative strength should not be the defining factor, if capture of lightly held positions is necessary or unavoidable. It needs to be emphasised that ideally denial of approaches would be the preferred task as that allows such forces additional flexibility to move when coming under pressure and does not necessarily require a link up with Land Forces.

Attention must be paid to the emerging lessons from the ongoing Russo-Ukrainian Conflict and requisite action taken to enhance surveillance, firepower, mobility and survivability. There is an urgent necessity to withdraw the BMP 2 ICVs, presently held by the battalions of the Parachute Brigade, and establish a separate Mechanized company directly under the Brigade Headquarters. Ideally this mechanised element should also be equipped with air-droppable light tanks as well. The BMP-2 should be replaced by the lighter BMD-2 series of ICVs.

Mobility for the carriage of administrative (*F Echelon*) stores, ammunition and crew served weapons of the parachute battalions needs to be substantially increased with the authorisation of air-droppable light ATVs. Networking and communication capabilities along with EW capabilities must be enhanced. There is also a necessity to equip units with a robust UAV and CUAV capability.

Conclusion

At the existing time our AB Forces are a potent "threat in being". However, their utility during conventional in the given environment is severely restricted. To continue remaining operationally relevant, AB forces must adapt to the environment that they face. Also given our strategic pivot towards mountains/HAA, they will have to develop the requisite capability to undertake tasks in mountainous terrain in a timely manner.

A change in mindsets and operational philosophy will allow us to undertake AB Assault operations using a more realistic '*troops to task*' profile with reduced numbers. The consequent reduction in the number of aircraft required for the task, will greatly reduce the complexities involved in the launching of such missions, allow for surprise to be retained and limit their exposure to an adverse A2AD environment.

The AB Assault Forces would have to adopt techniques such as *Nap of the Earth* and *Swarming* techniques and operate at night in mountains, using multiple DZs and stand-off drops. All of this has become feasible because of rapid advances in avionics, night vision and navigation systems, airborne equipment, including steerable static line parachutes, and RCADS.

This calls for upgrading skills of aircrews and paratroopers to be able to carry out the necessary manoeuvres required of them safely and at night. It would also require reorganisation of units as well as of operating procedures and tactics as necessary.

The Commanders of 50 Parachute Brigade and 4 Wing AF, must be nominated as permanent Commanders of the ABTF and AFTF respectively with a full time JPC in place, and be tasked for conduct all AB assault operations to be undertaken in a conventional war, with the requisite forces being allotted/placed under command as required. The Air Force must also take necessary steps to institutionalise its special operations capability.

There is little doubt that with the requisite reorganisation, training and enhanced equipment both the AF and AB Forces are capable of launching AB Assault operations in mountainous terrain, despite the existing A2AD environment. With the requisite tactical and doctrinal shifts it would be feasible for such forces to ingress deep into enemy territory in two/ three coordinated formations of four to six aircraft each, along different approaches, for dropping a BGTF without its security, safety or surprise being compromised.

DISCLAIMER

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[4] Deepak Sinha, Ramesh Balakrishnan; "*Employment of India's Special Operations Forces"* ORF Issue Brief, Issue No 150, June 2016; pp3-4.

[5] For better understanding of this doctrine see Deepak Sinha, "*Divergent Paths: India's National Security Strategy and Military Doctrine*", Indian Defence Review Vol 30.1 Jan-Mar 2015.

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