
Aerospace Power and India's National Security

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Six Decades of Experience

Since its inception, Indian air power has contributed to the security and defence of India. Be it the operations in the Northwest Frontier Province (NWFP) way back in 1937, defending eastern India from the Japanese invasion during World War II or stopping the invasion of Kashmir Valley by Pakistan immediately after independence in 1947, the Indian Air Force (IAF) has always risen to the occasion and played its role effectively and efficiently.

War in Kashmir 1947-48

The Royal Indian Air Force (RIAF) went into action shortly after independence in 1947. In a bid to gain control of the erstwhile principality of Jammu and Kashmir (J&K), Pathan tribesmen, armed and aided by Pakistan, poured into Kashmir. They went into a frenzy, killing, ransacking and pillaging as they advanced to Srinagar. Unable to turn the tide of the conflict, the Maharajah, who until then had vacillated over joining either India or Pakistan, appealed to the Indian government for assistance. Within hours of his signing the Instrument of Accession, the first Indian troops were airlifted to Srinagar. It was a remarkable achievement at such short notice.

The first Indian troops were landed at Srinagar airfield at 0830 hours on 27 October 1947¹. At that time, it wasn't even known whether the airfield had fallen to the tribesmen or not, but the risk was taken.

From 28 October onwards, fighter aircraft of the IAF continued to attack enemy targets and troops and were instrumental in pushing the invaders away

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and saving Kashmir. The lone transport squadron, in the course of its regular casualty evacuation and transport duties, airlifted field guns to Poonch. It also flew the first Indian Army troops to Leh, becoming the first aircraft to land at Leh, and even undertook bombing sorties in support of the army.

The fighting ended and the ceasefire was brought about by UN mediation at 2359 hours on 01 January 1949.² The RIAF acquitted itself well.

Meanwhile, down south, the Hyderabad police action was in progress. Here too the RIAF lent a hand to the army. Tempest and Dakota aircraft saw much action, strafing, bombing and dropping leaflets against the Nizam's forces. However, the scale of operations was minuscule compared to the J&K operations.

India-China Conflict 1962

When the 1962 conflict began, India was the acknowledged leader of the Non-Aligned Movement and Jawaharlal Nehru its unquestioned leader.

Maj Gen D K Palit was director, Military Operations (DMO) under the Chief of General Staff (CGS), Lt Gen B M Kaul, who was later blamed for the debacle. In his book, Gen Palit says that the Directorate of Military Operations had, as early as 02 May 1962, recommended the use of offensive air power to redress the adverse force ratio in Ladakh.³ Offensive air action was considered feasible in both the Northeast Frontier Agency (NEFA) and Ladakh.

The fear of escalation dominated Indian thinking throughout the crisis. On 26 May 1960, the defence minister directed the chiefs of both the army and the air force to explore likely sites for constructing new airstrips and to assess aerial supply requirements in order to establish new posts under the "Forward Policy". However, flying fighter aircraft within 15 miles (24 km) from the international border was prohibited by orders issued by the prime minister, in order to avoid exacerbating tension. There were no restrictions on transport flying. When the army urgently requested, in December 1961, a waiver for operational reasons, the defence minister agreed to permit fighter flights on a case-by-case basis; no blanket authority was given. Canberra aircraft were then used for mapping and reconnaissance missions to obtain data on Chinese deployments.⁴ The Intelligence Bureau's (IB) assessment of overwhelming Chinese superiority and likely Chinese retaliation appears to have tilted the balance against the use of offensive air power.

The offensive role of the IAF, however, was not utilised in the conflict due to the policies and compulsions of the government. The air supply effort by the IAF was noteworthy and responsible in large measure for the maintenance of forward posts and the resistance put up by Indian troops in the face of Chinese

forces. Non-use of the offensive element of the IAF against the invaders was an opportunity missed. Its use could have led to the Chinese forces being thrown back effectively, . India may not have won the war at the end of the conflict but definitely the defeat may not have been so humiliating for the nation.

Indo-Pak War 1965

Early in 1965, Pakistan attacked in Kutch, in western India. The army took the field without any prior planning or preparation. Its reaction was fast but there was no joint army-air force plan, and all that the air force could do was to provide logistic support with light aircraft. The possibility of tactical support was considered after the fighting began. It was then realised that our bases were so far from the battle zone that our aircraft would have to operate at extreme range with reduced weapon loads while Pakistani aircraft could dominate the entire combat area from bases close by. The incident was soon defused but, apparently, not before it had encouraged Pakistan in the belief that the time had come to settle the Kashmir dispute by force of arms.

Then, in August and September 1965, came the second Kashmir War. It began with skirmishes in the Valley by so-called freedom fighters, in reality agents of Pakistan. These were followed, towards the end of August, by an all-out attack by Pakistani armour in the Chhamb area of Jammu province, with the obvious objective of cutting the Jammu-Srinagar highway. Our army, working under the restrictions of the ceasefire agreement, was lightly equipped in that sector and though it fought valiantly, its AMX tanks were no match for the more powerful Pakistani Pattons. While there was some hope of the army holding the Pakistani attack on its own, there was no talk of bringing the air force into the conflict. But on 01 September, with the Pakistanis pressing forward from Jaurian, the army asked for air support.

Air Marshal Arjan Singh, the air chief, had on his own alerted the air bases in Punjab. When the call came, a force of fighter bomber aircraft from Pathankot mounted a strike on the Pakistanis within minutes of being ordered to do so. This action helped to bring the Pakistani force to a halt. ⁵

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The events in the Chhamb-Jaurian sector leading to the call for air support compelled the government to decide whether to enlarge the area of conflict, and it did so without hesitation. That, indeed, appeared to be the only way to divert Pakistani forces from the vulnerable Jammu-Srinagar highway, the loss of which would have jeopardised the defence of the Valley. With the decision to fight Pakistan outside J & K, the army moved up forces from peace-time stations, some from the Deccan and further south, and formulated an operational plan at short notice.

The Indian Army moved swiftly and was fully supported by the IAF. India's advance into Pakistan caught the Pakistani forces by surprise. Probably, they had not thought the Indian government and armed forces capable of swift decisions and speedy action.

However, apart from preserving the status quo in Kashmir, the 1965 War was valuable for the many practical lessons it taught us in the conduct of operations from the highest level to combat in the field. In the years that followed, these lessons were absorbed and applied.⁶

Indo-Pak War 1971

The war started on 03 December when Pakistan Air Force (PAF) combat aircraft struck nine Indian airfields along the western borders. The air strikes were followed by a massive attack on the strategic Chhamb sector in the north. In the east, it was the Indian Army which went on the offensive. By late that night, artillery shells were raining down all along the western and eastern borders. India was locked in a two-front war.⁷

The IAF had gone into action within hours of Pakistan's preemptive strikes of 03/04 December 1971. Counter-air sorties in the east were so successful that the PAF was neutralised within hours of the outbreak of war.

For the IAF, the aim was two-fold: first, to prevent the PAF from messing with the Indian Army's advances, logistics and launching points; and, second, to seriously impair Pakistan's capacity to wage war.

A major reason for India's rapid successes in the 1971 conflict was the excellent coordination effected between the IAF and the army. The IAF had built up significant qualitative and quantitative advantage over the PAF. Through joint planning at the highest levels, the IAF had prioritised its tasks for the war and had fine-tuned its tactics and strategies during the preparation time. It was planned to take the offensive right from the beginning on both the fronts so as to gain air superiority to facilitate land operations with minimum interference from the enemy air and land forces.

The IAF achieved total air superiority in East Pakistan within 48 hours of commencement of hostilities and then focussed on providing massive airlift to the army , forming air bridges with the helicopters to assist river crossings in the army's lightning advance into East Pakistan . These operations demonstrated joint operations of copy book style.

The final proof of the IAF's capabilities came in the form of the rocket attack on the governor's house in Dhaka with surgical precision. Another significant event of the war was decimation of an armoured regiment in Longewala , all by air power.

According to Lt Gen AAK Niazi:

This (the IAF) has hastened the surrender. I and my people have had no rest during day or night , thanks to your air force . We have changed our quarters ever so often, trying to find a safe place for a little rest and sleep so that we could carry on the fight, but we have been unable to do that.

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This decisive Indian victory in the war of 1971 resulted in the liberation of Bangladesh, dismemberment of Pakistan, surrender of over 90,000 Pakistani troops and occupation of valuable Pakistan territory in Punjab, bigger in size than Kashmir Valley. The Indian defence forces established their superiority in the air, on land and at sea. This made India the dominant power in South Asia. It was then in a position to clinch the Kashmir issue once and for all.⁸

Siachen Glacier (Operation Meghdoot)

Siachen Glacier is the highest battlefield in the world. A war has been going on here for the past 24 years. Operation Meghdoot was launched on 13 April 1984 when the Indian Army and Indian Air Force went into the glacier. However, very few people know that the glacier operations started a full six years before that! Yes, in 1978. It was to show the flag on a territory, rightfully ours, but opened to foreign expeditions by Pakistan. Pakistan had also started showing the area as their own on their maps. To oppose this 'cartographic aggression', it had been decided to launch an expedition by the team from the High Altitude Warfare School (HAWS) led by Col Narendra Kumar. The HAWS team that had gone to the glacier was to

be supplied with mail and fresh rations by the Indian Air Force. On 20 September 1978, the first IAF sortie to Siachen was launched.⁹ And on 06 October 1978, the first landing was carried out on the glacier for a casualty evacuation. The aircraft employed were Chetak helicopters. The troops at Siachen stay in conditions that defy description—miserably cold, with temperatures going down to -60°C, where the weather clamps down for days at a stretch, preventing supplies from coming in. In such conditions, the life-line to the outside world is the Indian Air Force.¹⁰

Kargil Conflict 1999

The Kargil War was the IAF's first limited war after 1947. It was limited in the sense that it was for the first time that limited resources were fielded to achieve limited objectives in a limited theatre of war and that too in our own territory. The IAF was called upon in the Kargil War to engage not conventional military targets that all air forces train for but lightly burdened individuals, well conversant with mountain warfare and operating amongst rugged mountains in small bunkers, at altitudes up to 5 to 6 km above mean sea level (amsl). Larger targets in the form of major supply bases and artillery positions lay across the Line of Control (LoC) in areas the IAF was not permitted to hit due to political compulsions. Ballistics of weapons for weapon delivery at such high altitudes were not available and the units had to extrapolate these from available ballistics tables for lower altitudes. This war was a milestone in the history of military aviation as this was the first time that air power was used in such an environment.¹¹

In the first 18 days, the IAF had flown 580 strike missions and 460 air defence missions like (combat air patrols—CAPs) and escorts to strikes, apart from 160 reconnaissance sorties. Helicopters flew a total of 2,500 sorties transporting more than 800 troops and almost 600 casualties and close to 300 tons of load besides scores of operational missions like strikes. Fixed wing transport aircraft flew in supplies and troops.¹²

The IAF strikes played a decisive role in pushing back the intruders. A laser-guided bomb (LGB) attack on an enemy Brigade HQ on Tiger Hill led to destruction of the enemy's command and control system, leading to confusion amongst enemy forces and thus enabling the army to take over that feature. A major enemy supply camp at Muntho Dhalo was destroyed, while enemy supply lines on our side of the LoC were also interdicted. Almost all assaults by the army were preceded by intense air attacks. Even night attacks were carried out using

hand-held global positioning system (GPS) receivers and a stopwatch. These night attacks affected the enemy's resilience, stamina and will to fight.

The presence of our air defence aircraft ensured that PAF F-16 aircraft stayed away from our strike aircraft that were pounding their troops on the ground. The IAF gave an excellent account of itself despite the adverse area of operations and limitations of the equipment in service.

The Environment Today

Global

The power of a nation is increasingly determined by its economic might and technological prowess, rather than by its military strength. Though interdependent, the most fundamental is economic strength, without which none of the other indices of power can be created or sustained. At the same time, economic growth is not guaranteed without the protective cover of military power, in what is referred to as its "peace dividend".¹³

The most popular terms that can describe today's world are interdependence, global village, flat world, etc. Certainly, there is heightened interaction and cross-pollination in every sphere. This interdependence leads to a 'balancing of interests'; instead of 'balance of power' and the politics of 'confrontation' has been replaced to a large extent by the more nuanced 'competition and cooperation'.

Asia is the current powerhouse and every major power has presence and high stakes here. The Asian countries have greater influence around the world as well and military capabilities on the continent are now substantial. The region is also witness to conflicts and instabilities, as people attempt to reconfigure their settings, the reverberations of which are felt around the world. It is also a region of nuclear proliferation and increasingly, the cradle and playground of terrorism. India is situated in an action packed part of the continent. Its size, resources, capabilities and growth also endow it with power, visibility, influence and responsibility for a greater role in regional affairs.

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Threat Perceptions

So what is the impact on our security and threat perceptions? Territorial disputes linger on; our adversaries are militarily strong; cross-border terrorism and internal security challenges persist. At the same time, trade and energy security add to our considerations and are a potential source of conflict. This encourages an outward orientation, which is good.¹⁴

Ideological divisions in the modern world still exist, but in other forms, such as democracies vs autocracies or fundamentalists vs the secular. These strains and tendencies exist within and outside our country too and impact our security calculus; turning into militant aspirations that challenge national integrity. These have in the past sought to redraw national boundaries and many still abound, even drawing covert support from outside the country.¹⁵

Yet another area of concern for us is the ethnic Indian population resident in other parts of the world, which at times may need protection and support. There have been instances of this in the past. On the flip-side, migrant populations have changed the demographic character of our border states and impacted their polity, with attendant security connotations. We are all aware that non-traditional threats create crisis situations that in the end require the military's organisational capabilities and technical support. Keeping the peace is yet another important international commitment for the Indian armed forces.

There is no longer the comfortable immunity from problems in some distant part of the globe. It is not easy for a single nation to ensure peace and stability for itself, on its own. This encourages, indeed demands, international cooperation. This realisation or compulsion is visible the world over. India's international cooperation too has considerably increased, translating into increased engagement in all spheres, including military exchanges and interactions. The role of military diplomacy has also been enhanced. The significance of collective security and cooperative organisations has increased over time, India too seeks an increased and active part in cooperative mechanisms, though joining collective security organisations is not our policy.

On the whole, India is faced with the full '**spectrum of threats**' ranging from nuclear confrontation, through conventional war, to conflicts limited in area, scope or objectives, to the lower end friction such as insurgencies, terrorism, etc. Moreover, India needs to be prepared for the escalation of conflict, from the limited to the nuclear.¹⁶

The Times Ahead

Nature of Conflict in the Future

While the probabilities of total wars and extensive mobilisations may have reduced, India still must be prepared for a full-fledged and conventional conflict. Nuclear power-play has increased in the region and impacts postures and strategies. In a more integrated and interdependent world, the spillover of conflict in the neighbourhood and its negative global consequences makes it everybody's concern. While there would be supporters for either party, the sum of international pressure would be to end the conflict. Moreover, the battlespaces are now transparent to the public, and legalities cannot be ignored. Therefore, limited, but high-tech

wars of high intensity are more likely. Aerospace power has a distinct advantage in such a scenario. Determining the objectives and the end-state in a limited war is critical, but poses dilemmas. Perceptions matter too.

While the future is uncertain, wars will be multi-dimensional, requiring an interdisciplinary approach and the marshalling of all organs of national power. Military power is a critical component of national power, without which, as history bears out, progress is possible only up to the point where it clashes with the interests of another stronger nation. Often, assumptions of conflicts and military capabilities are based on the classical war scenario. However, the IAF recognises that complex military challenges require different force constructs, for different situations, ranging from highly mobile and effective conventional forces, to 'rapid-reaction joint special-forces'. It is here that air power could provide the crucial edge. Clearly, future conflicts are likely to be short and sharp; more challenging and unpredictable, requiring a capability for assured, clean, swift, calibrated, varied and flexible responses and a transportability of national power in all forms.

Aerospace Power

It is aerospace power that intrinsically possesses the characteristics that enable such responses. This by no stretch of the imagination lessens the importance of other forms of military power, yet modern aerospace capabilities have as much,

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or perhaps greater impact than maritime power had for colonising nations in the past. Unlike the latter, whose applicability is determined by a country's geographic location; and the land forces, whose shape and size are determined by relations with neighbours, size of the country and internal security compulsions, aerospace power has a more universal applicability. That is why even armies and navies strive to assimilate organic aerospace capabilities.

Various technological developments, including the synergy of air and space, in the recent conflicts in various parts of the globe, have enhanced aerospace force unprecedentedly, making it astonishingly reliable, effective, clean and responsive and the 'preferred instrument',

in most situations of peace or war. It has enabled effects-based operations, made simpler parallel operations and creates strategic effects with a small footprint. Aerospace power is empowering and futuristic and easily lends its strengths and capabilities to other disciplines. In the Indian context, all forms of military power are necessary and important, however, strategic aerospace power offers newer options, both for our northern concerns, as well as for our outward orientations.

Aerospace power is inherently flexible and its application is not constrained by geographical areas. It can easily be assigned to any task on priority to attain the objectives – current or overall.

The IAF

Force Status Today

In its 77th year, the IAF, with its fine combination of air warriors, machines and ethos, has proved itself time and again. The status of the force and strength of the economy have boosted our international defence cooperation, including assistance to friendly air forces. Trans-continental reach has enabled exercises with friendly air forces on all continents, which is an excellent way to train, assimilate best practices and strengthen bonds of friendship. The capabilities and reach have enhanced significantly in the last decade.¹⁷

Goal

If we look at the way the IAF must evolve and compare it to any other evolving air force, and the path charted by the advanced air forces, there are essential similarities. In fact, but for minor variations, we are on a globally recognised growth path. So, depending upon the circumstances, threat perceptions and resources, it is the scope and pace of growth of the air force that essentially remain to be managed.

It goes without saying that the IAF must be equipped for long-reach, persistence, all-weather, precision, air dominance, networked and space-enabled force and capabilities. Not many air forces have such capabilities, but the IAF, among the leading air forces of the world, can with the right infusion of technology and training, attain such status.

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Challenges Ahead in Future

The Hardware – Technological Challenges

There are challenges facing the IAF. However, in the challenges lie seeds of opportunity and, thus, how we address them will qualify our future. Technology is at the core of an air force – acquiring and assimilating it is our primary challenge. The lack of it curtails national options, impacting postures and doctrines. Denial and selective availability of technology are all enmeshed in international relations.

Maintenance Challenges

While our response to technological challenges will determine the 'shape' of things to come, maintenance challenges determine how long they last and their cost-effectiveness. 'Maintainability', which includes logistical issues is, therefore, crucial.

People and Organisation

While hardware is important, it is converted into capabilities by people. Aerospace power requires highly skilled and impeccably trained personnel. Also, in aviation, optimum performance usually lies close to safety margins, which brings in the concern of costs – in both human and material terms. Attracting quality youth, and training and retaining them is another of the IAF's challenges. Inculcating

qualities of leadership and innovativeness and ushering in meritocracy and productivity are a must in the system.

Future Opportunities

Shape of Things to Come

The most obvious and significant opportunity is already before us i.e. the modernisation plan. Ideally, modernisation should be evolutionary and continuous. Yet, for a variety of reasons, the IAF has in the past modernised in spurts, often as a reaction to circumstances. Today, the IAF is in the throes of a most comprehensive modernisation—we can call it transformational, for it will change everything dramatically. Being based on long-term perspective plans, most of it is already crystallised. Yet, a lot remains to be determined; many new capabilities are still short of the decision stage. At this juncture, if we are able to synchronise these plans with national security objectives, we would really have utilised this opportunity well. From that arises another opportunity that must be seized and that is the formal enunciation of long-term national security objectives, strategies, as well as technology roadmap and indigenisation strategies.¹⁸

Much also depends upon the way aerospace power will develop in the future. It is not easy to guess the shape of future aerospace power then. Would the accent shift to unmanned flight, to missiles, or would 'air' be more of 'space'? Technological advances are sure to revolutionise military affairs in the future too. Despite the unpredictabilities, it is certain that the need for 'application and transportability' of national power – hard and soft – and thus for aerospace power, with enhanced fundamentals, would remain. Aerospace power is bound to proliferate. One can expect aerospace power to permeate the national security apparatus more completely, including for homeland security. The IAF foresees greater specialisation; tailored capabilities for each occasion; an increased dependence on unmanned vehicles; and greater accent on force enhancers, particularly the intangible ones, such as quality of people and their skills.

Networking and assimilation of space, both interdependent, are already the way forward and can tilt the balance considerably. A quiet 'space race' is the current reality and weaponisation, a distinct possibility. Perhaps more than any other, it is air power that is most significantly enhanced by the integration of space-enabled capabilities, for there are essential similarities.

Since the IAF requires a comprehensive capability, its future in the long-term will largely mirror the future of aerospace power itself. Though this path

is invariably influenced by leading nations, India and countries like it must be selective and seek creative variations, in terms of both hardware and doctrine.

Outward Orientation

We find that our international interactions are increasing. Leading nations want to engage us and probably seek to include us in their calculations. Smaller nations look up to us for support, assistance and training. UN commitments are also considerable. We could ignore these opportunities, or we could use them to build Indian influence, generate goodwill and reap multiple dividends.

Synergies

Synergies and jointness, without any doubt comprise the way forward. Just as every tool has a place in the toolbox, every discipline too has its own niche. However, there are other organs of national power and we must learn to use them and interface with them effectively. Such synergy creates desired effects, perhaps at lesser cost and in quicker time. This calls for wisdom, knowledge of other disciplines and lack of parochialism. The future also brings with it the opportunity for creating synergies and national capabilities.

Therefore, the trick lies in perfecting internal core-competencies, identifying complementary capabilities in other organisations, developing effective interfaces and training to create and employ a new, enhanced hybrid. We are convinced that such 'jointness' is the way forward and that core competencies of each Service, indeed of all organs of national power, must be synergised to generate the required effect and capability. Essentially, jointness and synergy have less to do with new structures and ownership, but depend upon joint thinkers, planning, capability creations, as well as joint training and execution. Perhaps it is better to grow in an evolutionary manner. Similarly, it is also imperative that military and civil aviation integrate, to take advantage of each other's capacities, for better efficiency, cost-effectiveness and for greater options.

Conclusion

India's aerospace power has played an important part during all operations till date. Air operations in the recent past and the successes achieved have catapulted aerospace power to the centre-stage in today's conflict. The international environment has combined technologies to usher in a new era of warfare in which aerospace power is going to play an increasingly decisive role in support of national security. The practitioners of aerospace power need to possess futuristic vision to

be able to visualise the evolving nature of warfare , the likely roles and missions of aerospace power in the future wars, and, more importantly, train to realise the true potential of lethality and effects that aerospace power can produce.

Notes

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15. Ibid.
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17. Ibid.
18. Ibid.