

STRATEGIC ROLES OF AIR POWER: THINK, PLAN, EQUIP AND TRAIN FOR IT

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Conflict is endemic to human nature and as Plato had once said, "Only the dead have seen the end of war." Preparing for conflicts is, therefore, the best deterrence against potential threats. The likely threats to India's national security comprise widespread poverty, environmental degradation, hostile neighbours, terrorism, Maoist movements and the need to provide a secure environment to allow the Indian economy to flower. Added to this multiplicity of threats is the likely short duration of conflicts that necessitates the requirement to quickly attain campaign objectives whilst operating under perceived nuclear thresholds. Hence, it entails the conduct of war shifting from a tactical focus orientation to creating such strategic influence quickly that it forces the enemy to make the desired concessions in a short duration of time. Air power, with its unique ability to attack the enemy's crucial vulnerabilities in depth, creates possibilities to achieve quick strategic influence. Whilst the land forces must defeat the enemy's military before achieving the desired strategic effect, it is air power that is capable of achieving it swiftly and independently.

EVOLUTION OF STRATEGIC AIR POWER

In the late 19th century, Major Fullerton, a British Army officer, prophesised that "the impact of aeronautics had sowed as great a revolution in the art of war as the discovery of gun powder." In June-July 1917, the German Gotha bombers attacked London. Though the physical damage was less, its psychological impact

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was such that Britain soon established a strategic bombing unit in France known as "Independent Force" to conduct reprisal raids against the German heartland¹. In November 1918, Major Gorell evolved the first Strategic Development Plan in which he recommended dropping aerial bombs on commercial and industrial centres and lines of communications, thereby giving birth to the concept of employing air power independently to achieve the strategic effect.

Two classical theorists, Douhet and Billy Mitchel, were strong proponents of strategic bombing. Douhet in his book *Command of the Air*, highlighted that the

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enemy's population centres and industrial complexes should be attacked to instill fear and panic, and air power's effect would then be so disruptive and destructive that it would make the enemy sue for peace. He even recommended the use of high incendiary, high explosive and chemical weapons. By 1930, the US Air Corps had developed a doctrine based on the belief that air power alone could achieve victory by breaking the enemy's will and capability to fight.

The Germans in World War II used the *Blitzkrieg* doctrine to create such wide scale spatial dynamism that they rapidly overran France and pushed British forces out of Dunkirk. It was only due to their inability to achieve control of the air in the Battle of Britain that their plans of invading England were shelved. After America entered the war in December 1941, their industrial capacity gave the Allies the potential to mount a Strategic Air Campaign. The Casablanca Directive issued in January 1943, tasked the Allied forces in England with the progressive destruction of the German military, industrial and economic systems and undermining the morale of the German people to the point where their capacity for armed resistance was fatally weakened². The employment of nuclear weapons in Japan seemed to prove Douhet's assertion of air power's decisive effect. It also brought in the

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1. Air Commodore (Retd) Jamal Hussain discusses the development of air power as a force, accessed from www.defencejournal.com/2001/November/evolution.htm.
 2. The Combined Bomber Offensive Progress Report, February 4 - November 1, 1943, US Air Force Historical Research Agency file No. 520.318 Frames 1196-1297, Appendix A.

concept of strategic deterrence when both sides possessed nuclear weapons and of strategic coercion when one side possessed it and the other did not.

The emphasis during the Cold War was on nuclear balance and strategic bombing was linked to this balance, thereby creating fears that it could be the critical mass that could trigger a nuclear exchange. This led to the development of nuclear bombers and high altitude interceptors. The major post-Cold War innovations were stealth, precision, extended reach, night sensors and computing power. Leadership now became a viable target³. A significant shift also took place with the use of night empowering technology that prevented major surface manoeuvres at night. Whilst the short duration of modern wars left little time for the strategic effect to take place, the need to quickly create strategic influence, however, increased, especially whilst operating under nuclear thresholds. In the 1991 Gulf War, technology brought about a paradigm shift in the employment of air power. The enemy was treated as a target system and air power was used strategically to carry out parallel attacks on the enemy's key centres of gravity (COGs)⁴. In the Kosovo operations, air power was the only military instrument used coercively to achieve Coalition objectives. Air power's ability to create strategic effect quickly without transcending territories on the ground made it a primary instrument of choice in modern warfare.

STRATEGIC DEVELOPMENT OF THE INDIAN AIR FORCE (IAF)

No. 1 Squadron of the IAF was formed at Drigh Road Karachi on April 1, 1933. It was designated as the "Army Cooperation Squadron." In World War II, the strength of the IAF was increased from one to nine squadrons. All squadrons were assigned the "Army Cooperation Role." At no stage did the British envisage a strategic role for the Indian Air Force. However, the IAF was instrumental in creating strategic effect by blocking the advance of the Japanese Army in Burma. In recognition of the crucial role played by the IAF, King George VI conferred it the prefix "Royal" in 1945. This prefix was dropped in 1950.⁵

3. Thomas Keaney, "Air Power :What a Difference a Decade Makes," in Security Studies Programme Seminar.

4. Talk given by Air Marshal Mehra, AOC-in-C South Western Air Command at College of Air Warfare on September 29, 2006, whilst highlighting evolution of air power and its doctrinal principles.

5. Information has been obtained from Internet website [http:// www.answers.com/topic/Indianairforce](http://www.answers.com/topic/Indianairforce).

The IAF was put to test soon after independence when the Pathan tribesmen aided by the Pakistani forces invaded Kashmir. IAF Dakotas airlifted troops to Srinagar, Leh and Poonch and provided crucial support to the Indian Army in pushing the invaders out of these areas. This action saved not just Srinagar but two-thirds of Kashmir. In 1962, the IAF provided vital logistic support to the Indian soldiers fighting in some of the most inhospitable terrains. The decision not to use air power in combat operations was based on highly exaggerated fears of the perceived Chinese threat to the Indian cities (the People's Liberation Army Air Force (PLAAF) was virtually grounded due shortage of spares) and the feeling that the Chinese Air Force would interfere with the IAF transport operations on which the Indian Army was critically dependent. This was the only war where the IAF was not used and it was the only time our nation suffered humiliation post-independence. It was after the 1962 debacle that force levels and all round capabilities of the Indian Air Force were significantly enhanced.

On September 1, 1965, the Pakistani armour made rapid advances towards Akhnur. The Indian Army was caught unprepared and requested for urgent air support late in the day. Despite losing four Vampires, the IAF continued to attack the advancing armour and caused a strategic pause. One of the major roles of the IAF during this war was to keep the Pakistani Army's mobile artillery and tank divisions in check and the results of the IAF operations contributed to Pakistan suffering one of the largest tank losses in modern history.⁶

In the 1971 Indo-Pak War, the Pakistani armour and infantry moved towards Longewala. The Indian border outpost was manned by only one company. The IAF provided vital close support and 37 out of the 45 tanks were destroyed or damaged. This prevented a major loss of territory in the desert sector. A tactical action by the IAF resulted in creating a significant strategic effect. In East Pakistan too, within the first two weeks, the IAF carried out more than 4,000 sorties and provided vital air cover to the rapidly advancing Indian Army. The IAF also assisted the Indian Navy in sinking several Pakistani naval vessels in the Bay of Bengal. The attack on the governor's house at Dhaka targetted the

6. Ibid.

focal point of the enemy's COG, viz his leadership, and created such strategic effect that the entire Cabinet resigned even though around 93,000 Pakistani troops were available for the defence of Dhaka. Thereby, clearly indicating that tactical actions by air power have significant strategic influence. On May 26, 1999, air operations in Kargil commenced with a proviso to stay on own side of the LoC (Line of Control). Regardless of losing one MiG-21, one MiG-27 and one Mi-17 helicopter, the IAF, with the help of the global positioning system (GPS), precision weapons and innovative tactics proved to be a decisive force in evicting the invaders.

Air Chief Marshal S.P. Tyagi, in a media interview, has recently indicated that India's strategic boundaries have been redefined by its growing energy needs and participation in disaster management operations. The current scenario, therefore, necessitates a strategic reach to safeguard our national interests.⁷ Recently, India developed an airbase, located 80 km from Dushanbe, the capital of Tajikistan. The agreement between the two countries stipulates the presence of the IAF and the Indian Army to ward off threats to Tajikistan's security⁸. Given the IAF's existing air power assets, its recent acquisition of force multipliers and its increasingly dominant role in the region, it is no longer seen as a tactical support arm to the army but as a strategic partner.

STRATEGIC ROLES : RELATIONSHIP WITH FACTORS AFFECTING STRATEGIC APPROACH

Meaning of Strategic Roles

Most dictionaries define strategy as "a long-term plan or policy" or "art of moving troops, ships, aircraft, etc into a favourable position." The word strategy has been derived from the word "strategos" meaning "a general". On the other hand, the word strategic is defined as "of or promoting strategy" and "essential in war for use as a long-term military objective." From these definitions, it can be clearly discerned that in warfare, **any role of a military that targets the**

7. Information obtained from <http://www.defenseindustrydaily.com/2006/02indias-air-force-looks-to-enhance-its-reach-with-upgrades-force-multipliers-index.php>

8. Information obtained from <http://en.wikipedia.org/wolo/Farkhor-Air-Base>.

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opponent's strategy directly or attacks the means employed at the national level to put their strategy into action could be termed "strategic." In other words, those roles of air power that directly create the desired strategic influence or directly impact the strategic dimension of war or whose effects create strategic outcomes.

Strategic Level of War and Strategic Attack

The strategic level of war could be defined as "the level at which a nation identifies the national security policy and objectives and develops and utilises the national resources to accomplish these objectives." The strategic level deals with the overall conduct of war and involves those critical capabilities that form elements of national power. At this level, the desired effect would always be to impose the will of one nation over the other. The critical capabilities at the strategic level include moral strength, leadership, economic and technological strengths and the armed forces. Consequently, an objective sought that has an effect on the war as a whole determines if an attack is strategic⁹.

Strategic Dimensions of War and Their Link With Air Power

J.F.C. Fuller in "The Foundations of the Science of War" has identified three spheres of wars: physical, mental and moral. The physical is related to the fighting power or the means to fight, the mental to the thinking power and the moral to the staying power¹⁰ or ability to get people to fight. Concentrated attacks on the physical aspect would normally lead to concentrating mass or firepower on the enemy's fielded forces in an annihilation or attrition strategy. Focussing on the mental aspects would directly affect the strategy itself. On the other hand, the moral dimension is the one that provides the will to continue with the conflict

9. This definition given in the US manual was obtained from Mark J. Conversino's article, "The Changed Nature of Strategic Air Attack," *Parameters*, Winter 1997-98, pp. 28-41.

10. David S. Fadok, thesis presented to the Faculty of the School for Advanced Air Power Studies on "John Boyd and John Warden." Air Power's Quest for Strategic Paralysis, June 1994, available on www.fas.org/man/eprint/index.html.

and acts as a stimulant to enhance the war effort. It is at this level that coercion in any form could make the enemy succumb to our will. Ideally, one should target that part of the physical element that creates the maximum coercive effect at the moral dimension. Simultaneously, the mental element should be significantly degraded to break the enemy's ability to put his strategy into action. An optimum combination of attack on all these spheres could help win a war in the most cost-effective fashion.¹¹

The mental dimension itself constitutes two sub-elements, viz, intellectual and physical. Intellectual includes the leader's mind, the strategy devised and the ability of the opponent to put his strategy into practice, whilst, the physical part includes leaders themselves, command and control structures and communication nodes and links. It is at the intellectual level that fog, friction and deception measures could be employed. At the physical level of the mental dimension, targetting the enemy's leadership, command and control structures and communication nodes would break the cohesiveness and integrity of a fighting force. A combination of both these measures could lead to mental disorientation, thereby, causing a strong coercive effect at the moral level.

Air power has the unique capability to target all the three spheres of wars simultaneously, thereby, creating the desired strategic influence much faster than land or naval power can do. Air power is inherently strategic in nature and its tactical application would only fritter away its prime advantage of creating strategic effects.

Incidentally, the strategic mindset existed throughout air power's evolution in the early 20th century. Its classical theorists did not focus on individual target systems but aimed

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at collapsing the entire state that included the enemy's war-waging capability. They believed that winning all the tactical battles was of no consequence, if the

11. Ibid.

desired strategic outcome was not achieved. The major limitation then was the inability of prevalent technology to provide the means to execute this strategy. However, with technological advancement, air power today provides such capabilities that link tactical actions to achieve strategic outcomes and this could prove crucial, especially in short duration wars.

Strategic Approach and its Relationship With Culture, History and Geography

Distinctive beliefs, values and assumptions constitute the strategic culture of a nation that exerts important influence on the formulation and execution of strategy¹². Its effect on air power doctrine could be to identify whether to focus on strategic bombing (Allies in World War II) or to apply it tactically (Goering's beliefs on employment of air power). The strategic mindset of the Americans in the latter half of the 20th century was mostly based on their culture, which till 9/11 did not really consider any substantial threat to their homeland and strategised employment of their forces far away from their shores. On the other hand, the IAF inherited its tactical culture from the British and this proved to be its bane in the 1965 Indo-Pak War, where it suffered large aircraft losses despite having significant numerical superiority. This tactical culture was also reflected in the type of aircraft and weapon systems that the IAF procured in the 1960s and 1970s.

History too plays a significant role in determining whether a nation follows a strategic or tactical approach. The daylight raids on London by Gotha bombers in June/July 1917 resulted in the creation of a separate strategic Service¹³. The century of national humiliation left a significant impact on the psyche of the Chinese leaders. It resulted in their following a strategy of isolation in the mid-20th century. Geography decides who our neighbours are and how they could exert strategic influence. A landlocked country such as Nepal would always be dependent on other nations to meet its strategic needs. In addition, geography plays an important role in the way warfare is conducted. India's geography is unique as it straddles some of the most important sea lanes in the world and yet the likely area of operations could cover all types of terrain, viz, mountains, hills, plains, forests, deserts, seas, etc.

12. Booth and Trood, eds, *Strategic Culture in the Asia-Pacific Region*, p.8; Jettcoat David, "Winning with Australian Air Power in Diverse Cultures," 2003, Aerospace Centre RAAF Base, Fairbairn, p13.

13. Jones, *The Beginnings of Strategic Air Power*, pp. 11-12, RAF formation and creation of a long range bomber force.

STRATEGIC ROLES OF AIR POWER

The most decisive victory is of no value if a nation is bled while gaining it. More potent and economical form of warfare is disarmament through paralysis rather than destruction through annihilation¹⁴.

- Liddel Hart

In the conduct of strategic art, it is always much easier and more cost-effective to trigger functional paralysis rather than implement an annihilation strategy based on destruction of the enemy's armed forces. The strategic roles in which air power could be employed are enumerated in the succeeding paragraphs.

Conflict Prevention

Prevention of war implies credible deterrence and if deterrence fails, then presence of sufficient offensive capability to give a befitting reply. The crucial strategic role of an air force is conflict prevention, primarily by possessing strategic deterrence capability. The threat implicit in deterrence must be credible

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to the opponent. Deterrence has a psychological element and, in addition to the availability of credible forces, can be strengthened by resolute policy, demonstrated military capability, the will to use force and a readiness to escalate should deterrence fail.¹⁵ The capabilities inherent in air power such as surveillance that detects hostile action in time, reach that attacks targets in depth, precision that provides discrimination, weapons that bring in lethality and rapid retribution that instills timeliness in response, provide it with enormous strategic deterrence capabilities. Further, when air power is employed even in a limited punitive role, it may not escalate the conflict in the same manner as the surface forces may do when employed for the same

14. Fadok, n.10.

15. Deterrence has been defined in this manner in AP 3000, "The Nature of Conflict."

purpose. The physical presence of infiltrators at Kargil, Dras and Batalik led to a full-fledged Indian response in May 1999.

Political Signalling

Air power's unique capability to provide persistent battlespace dominance with a judicious mix of inhabited and uninhabited platforms makes it an ideal military platform to send clear and unambiguous political signals to the enemy to prevent him from commencing or continuing with hostile activities. These signals could be delivered in the form of enhancing surveillance activities, increasing alert states and deploying offensive assets at operational locations.

Graduated Response

Gradualism is pre-planned increase in intensity of attacks over a period of time matching the response of the enemy. The aim is to bring the desired outcome at the lowest possible threshold of the enemy. The advantages of a graduated response include reducing unnecessary deaths, destruction, collateral damage and own casualties and not allowing the enemy to get into the last stage of do or die fighting spirit early on in the conflict spectrum. Air power is an ideal instrument to provide a graduated response as surface action inherently transcends territories. The IAF could be employed in a graduated manner if Pakistan sponsored terrorism doesn't reduce.

Strategic Coercion

It is a tool used to influence an opponent's decision-making calculus either to prevent a policy action from occurring (deterrence) or to force a policy change after execution (compellence)¹⁶. AP 3000 defines coercion as "the use of force, or threat of force to persuade an opponent to adopt a certain pattern of behaviour against his wishes." Coercive leverage comes from the enemy's expectation of more violence and anticipation of higher future damage. The characteristics of speed, flexibility, reach and lethality provide air power with wide ranging

16. John I. Pray Jr, "Coercive Air Strategy: Forcing a Bureaucratic Shift," accessed from www.fas.org/man/eprint/index.html

capabilities to undertake coercive tasks. This leverage could be brought about as was done by the British in the Northwest Frontier Province (NWFP) in the 1930s by causing severe shortages of essential commodities like food, water and energy resources. The initial operations of the Royal Air Force (RAF) were not successful against the Pathans and Afridi tribes. The RAF then bombed their water reservoirs and crops which subdued these violent tribes¹⁷.

Battlespace Dominance

The future battlefields are likely to be battlespaces that include land, sea, information and integrated air and space media. Air power with space-based assets could play a significant role in achieving battlespace dominance.

- (a) **Command of Air and Space.** Giulio Douhet in 1921 highlighted that “to conquer command of the air means victory; to be beaten in the air means defeat.” The only thing that prevented the invasion of Britain after the Germans rapidly occupied Poland and France was the inability of the Luftwaffe to achieve control of the air over British skies. In the 1965 Indo-Pak War, the IAF did not focus on air superiority, hence, lost more aircraft and the air war itself was a stalemate. Rapid developments in space surveillance, navigation, communication and anti-satellite (ASAT) technologies create an environment in which civil and military satellites would increasingly come under the risk of attack. In addition, due to proliferation of potent ballistic missiles, the area to defend has virtually expanded to space. Command of the air and space media would, therefore, prove to be crucial in achieving decisive advantage in future conflicts. There is a need for the IAF to acquire ballistic missile defence (BMD) systems and additional airborne
- The only thing that prevented the invasion of Britain after the Germans rapidly occupied Poland and France was the inability of the Luftwaffe to achieve control of the air over British skies.**

17. Air Cmde A.K. Tiwary, *Air Power and Counter Insurgency, A Review: J&K as a Model* (Lancer Books 2002), p. 57.

warning and control system (AWACS)/aerostats as well as set up an Aerospace Group to develop potent capabilities for achieving command of the air and space. In addition, the IAF, in liaison with the Defence Research and Development Organisation/Indian Space Research Organisation (DRDO/ISRO) would need to develop ASAT potential.

- (b) **Command of the Surface.** Command of the surface implies preventing the enemy from influencing strategic events on land or at sea. Even while conducting operations within the battlefield, the aim should be to isolate the battlefield from strategic reserves, deny the enemy options by limiting his ability to exploit space, degrade his sustenance capability and mortify his offensive potential; thus, rendering the surface forces impotent to cause meaningful strategic action. Air power employment in the Gulf War is a perfect example of command of the surface. The Pacific, War though primarily being a naval campaign, highlighted the decisive role played by air power in effecting control over the Pacific Ocean.
- (c) **Command Over the Information and Intelligence, Surveillance and Reconnaissance (ISR) Spectrum.** Command over information implies retaining the ability to collect, process and disseminate an uninterrupted flow of information, while denying the adversary the same capabilities. Persistent battlespace transparency would require integration of two enabling capabilities: network-centricity and utilisation of space-based assets. To achieve information dominance, there would be a need to target the enemy's command, control, communications, computers, intelligence (C4I) network as well as his ability to exploit space-based assets.

Strategic Bombing

This can be defined as those operations that seek the attainment of strategic military objectives directly and not through supporting surface forces¹⁸. During the Vietnam War, air power was initially used in tactical roles and it did not lead to tangible results. In March 1972, North Vietnam launched a major offensive and the US carried out air operations under Linebacker-I/II

18. Keaney, n.3.

that culminated in end December 1972. The attack on strategic targets near Hanoi created such a psychological impact that in just 12 days, the US air power achieved what it had failed to achieve in the previous eight years. Similar was their experience in the Kosovo operations in March-June 1999, where tactical operations paid limited dividends and it was only when air power attacked strategic targets that Slobodan Milosevic came to the negotiating table.

Psychological Operations (Psy Ops)

Sophocles had once said, "To one who is afraid everything rustles." Psy ops are designed to bring changes in the attitude and behaviour of the armed combatants and also of the civilian population. Offensive air action could also be employed as part of psy ops. In the Malayan Emergency from 1948 to 1960, the British conducted psy ops by employing leaflets as well as voice recorded broadcasts. More than 70 per cent of the surrendering MCP guerillas indicated that the "voice flights" had played some role in shaping their decision¹⁹.

Psychological operations directly target the moral dimension of war and intend to break the will to fight. In Book One of *On War*, Clausewitz lent strong support to Napoleon's popular maxim that "**in war, the moral is to the physical as three is to one**" and felt that the moral elements play a crucial role and constitute the spirit that permeates war as a whole²⁰. In the Gulf War 1991, the Iraqi Army was defeated as much by lack of supplies and physical attrition as by their soldiers fostering feelings of futility, hopelessness and inevitable defeat. Their defeat was both psychological and physical²¹. In the Kosovo operations too, Lt. Gen. Short intended to generate functional and psychological effects targeted directly at Slobodan Milosevic²². The IAF too needs to procure suitable equipment and formulate appropriate doctrines to conduct psy ops at all levels of war.

19. Maj Ronald F. Stuewe, "One Step Back, Two Steps Forward : An Analytical Framework for Air Power in Small Wars," *Air and Space Power Journal*, March 1, 2006.

20. Dr Joe Strange and Col Richard Iron, "What Clausewitz Really Meant by COG."

21. Col Phillips Mellinger, "Op Desert Storm: At its Most Basic, War is Psychological."

22. John A. Tirpak, "Shorts View of the Air Campaign," *Air Force magazine*, September 1999, <http://www.afa.org/magazine/watch/html>.

Asymmetric Warfare

Air power could be used for conducting surveillance and reconnaissance, logistic support, casualty evacuation, air mobility, communications, psy ops, electronic warfare, air policing and precision engagement. In addition, it could be used to augment the force to space ratio when needed in localised areas and yet maintain lesser overall armed forces' presence. Rapid response requirements of asymmetric warfare are best met by the employment of air power. In the Malayan Emergency, air power was used to locate 232 guerrilla camps and 313 cultivated sites. Air power was also used effectively by the British during the 1920s and 1930s to control land and people by bombing rebellious tribes and bandits to suppress insurgencies.²³

Strategic Airlift

An armed force's responsiveness is dependent to a large extent on its strategic airlift capability. The airlift provided by the IAF in October 1947 not just saved Srinagar but two-thirds of Kashmir. The operations conducted in 1984 under "Op Meghdoot" showcased the IAF's airlift potential to transport troops and equipment to the highest battlefield in the world²⁴. On November 3, 1988, the IAF airlifted a parachute battalion group from Agra to Hulule flying 2000 km non-stop to restore government rule at Male²⁵. The IAF has also performed numerous humanitarian missions at home and abroad,²⁶ including providing relief to Indonesia and Sri Lanka when the tsunami wreaked havoc in December 2004 and to the US in the aftermath of Hurricane Katrina. In addition, the IAF and India's civil air power resources were used to mount rescue operations to evacuate thousands of Indians from the Gulf countries in 1990-91. There is, however, an urgent need today to procure METAC aircraft and additional medium lift helicopters to augment strategic lift capabilities.

23. Thomas A. Keaney, "Lessons Unlearned, the History of Air Power in Unconventional Warfare", www.armedforcesjournal.com.

24. Information obtained from Internet website; www.answers.com/topic/indian-air-force.

25. Ibid.

26. Address by the Chief of Air Staff (CAS) at DSSC on April 15, 2005; Role of the IAF in the Changing Regional Security Environment.

Nuclear Deterrence

The IAF provides a viable second strike capability and, therefore, offers credible nuclear deterrence. Since IAF aircraft operate from secure airbases, the nuclear assets could be suitably stored there and appropriately protected.

Peace Operations

In peace operations, air power could be used effectively for ISR, search and rescue, casualty evacuation, crisis management, special operations, strategic mobility and logistic support. Air power's capabilities of reach, precision and lethality help it to be used both as a deterrent and as an actual counter to aggression. In 1961, the IAF used Canberra aircraft in Congo to stabilise the ground situation. Presently, two IAF contingents with MI-17 helicopters are based at Congo and Sudan. The IAF is also providing base support facilities.

Force Projection/Out of Area Contingencies (OOACs)

Depending on the quantum of force required and the time available, air power is the primary instrument of choice for force projection and OOAC situations. The tasks that could be envisaged include assistance provided to friendly countries (Maldives in 1988), humanitarian aid (tsunami aid to Indonesia/Sri-Lanka), protection of sea lines of communication (SLOCs), deterring offensive designs of the enemy, support for UN missions, rescue of Indians from crisis situations and protection of offshore platforms or island territories. These tasks require possessing an extended reach and a rapid response capability. There is a need to enhance our strategic airlift potential initially to brigade strength and thereafter to a division in the long term.

Cooperative Engagement

One of the key ingredients of future conflicts is preventive diplomacy. Facilitating this vital aspect would be cooperative engagement activities carried out by the armed forces during peace time. The IAF is regularly participating in international exercises with a number of air forces, including those of the USA, UK, France, Singapore, Russia and South Africa. Besides learning valuable lessons in

employing air power, it is also building vital cooperative long-term partnerships. There is a need to enhance cooperative engagement with our neighbours too.

FUTURE THREATS

In the future, threats to India's national security are likely to be diverse, varied and complex, requiring an integrated and rapid response. Yet, wars fought for territory may slowly lose their meaning in an economically linked globalised world order. Consequently, the menace posed by non-state actors,

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terror organisations and Maoist movements is likely to increase further. In addition, the nuclear test carried out by North Korea and renewed rise of the Taliban and Lashkar-e-Tayyeba (LeT) in Afghanistan and Pakistan have brought a different dimension to the global security environment. The conduct of warfare could now range from asymmetric to high intensity conflicts fought under nuclear thresholds, with wide global ramifications. The need to maintain considerable deterrent capability for a conventional conflict would,

however, continue to increase as more potent capabilities are acquired by China and Pakistan. China especially has been modernising at a rapid rate for the last two decades. Hence, there is a need not only to develop strategic deterrence potential but full spectrum dominance capabilities to cater to the diverse nature of threats.

The IAF's capability and reach have enhanced significantly in the last decade; however, the quantitative combat strength of the IAF has declined. At the same time, in consonance with the emergence of an economically strong and technologically advanced India, our role in global affairs is increasing. It would require our armed forces to be utilised in out of area contingencies and UN peace-keeping operations. India's growing economic might would also require a secure environment to sustain its growth, be it against external aggression, the

scourge of terrorism, limited conflicts or nuclear threats. These complex challenges would require different force constructs that range from highly mobile and effective conventional forces to rapid reaction joint special forces. It is here that the IAF could provide the crucial cutting edge provided it has acquired certain crucial and lethal strategic capabilities.

EQUIPPING PHILOSOPHY TO UNDERTAKE STRATEGIC ROLES

There is nothing more difficult to carry out nor more doubtful of success, nor more dangerous to handle than to initiate a new order of things. For the reformer has enemies in all those who profit by the old order and only lukewarm defenders who would profit by the new order.

Niccolo Machiavelli²⁷

To undertake strategic roles effectively, there is a requirement to possess vital capabilities such as extended reach, precision, lethality, global airlift, space-based assets, stealth and joint force constructs that lead to strategic deterrence and full spectrum dominance. First of all, there is a need to change our traditional thinking based on a tactical mindset towards acquiring strategic potential. The IAF has a certain amount of strategic capability and some more is being acquired in the near future. However, there are vital deficiencies too. The combat strength of the IAF is likely to decline from 39.5 fighter squadrons to 29 by 2007. The RFPs for 126 MMRCA aircraft are being issued soon. Taking into account the procurement and induction cycle of 10-15 years, there is a need to show greater urgency in accelerating the procurement processes. In addition, there is a need to acquire stealth capability to enhance survivability, interoperable IFF to prevent fratricide, METAC transport aircraft and medium lift helicopters to augment airlift capability, high powered radars, AWACS/aerostats, advance surface-to-air missiles and BMD systems to improve aerospace defence and additional unmanned aerial vehicle (UAV) squadrons to cater for persistent surveillance potential. Further, there is a need to integrate space-based assets that enhance the IAF's combat effectiveness such

27. Maj Gregory P. Cook, "Waging Peace: The Non-Lethal Application of Aerospace Power," May 22, 1995.

as secure communications, navigation and sub-metre reconnaissance capability. To achieve their integration, there is a requirement for an Aerospace Command.

To counter-balance the declining numbers, the IAF has planned upgrades on its MiG-21 Bis, MiG-27, Mig-29 and Mir-2000 fleets. Additionally, the proposed delivery schedule compression of Su-30 MKI aircraft could check this depletion. In all, seven squadrons of Su-30 MKI aircraft are likely to be in operational service by the end of the 11th Plan and an additional two by the middle of the 12th Plan period (2012-17). A contract for 20 light combat aircraft (LCA) has also been signed. The Prithvi-II missile system's induction into the IAF has commenced and the three squadrons would be operational by 2008-09. Regarding BMD technology, we are awaiting the outcome of the indigenous missile system being developed by the DRDO²⁸. However, due to budget limitations, we may have to rely more on qualitative offsets, better training and innovative operational concepts.

The short and swift nature of wars requires a considerably higher degree of jointmanship, joint training and joint planning. Joint operations necessitate viewing the entire battlespace as a seamless environment. There would be a need to provide a fused composite picture not only to enhance battlefield transparency but also to spread shared awareness that prevents fratricide and enhances combat efficiency. This would require providing interoperable systems as well as making available a common backbone for secure communications among the three Services. Integration at the architectural level would require knitting interoperability in the command, control, communications and intelligence networks of the IAF, Indian Navy and Indian Army. Further, there is a need to electronically link the appropriate operational commands of the three Services with each other and to a joint operations room at Delhi to facilitate the execution of strategic art.

TRAINING IMPERATIVES

Today, the IAF is transforming itself to become an aerospace power with extended reach. There is a need to change our historical tactical mindset into

28. The information on future acquisition has been obtained from an interview given by the Chief of the Air Staff to the *Force* magazine, May 2006.

thinking strategic and thereafter to train for the same. The future aerospace leaders would need to develop a strategic outlook that develops unconventional responses to diverse threats ranging from challenges posed by terror organisations to OOACs and to high intensity conflicts fought under nuclear thresholds. Inculcating strategic thinking would require modifying our existing training syllabi appropriately in different training institutions and war colleges.

Integrated tri-Service exercises must be conducted once in two years. In addition, our personnel would need to learn to work in a multi-nation environment. This would require them to possess better awareness of global politics in general and of South Asia in particular. The IAF would also require to periodically train alongwith its sister Services and with our neighbours towards OOAC situations. The bilateral or multilateral exercises with other air forces must continue as they provide valuable exposure to our personnel. IAF leaders would need to be visionaries, analysts/theorists and strategic practitioners. Therefore, the focus during training should shift from the cognitive domain to the intellectual domain as the officer progresses in service. War-games, preferably computer aided, are an important method by which our strategic leadership could be trained to develop effective strategic thinking. The same must be conducted annually within different operational commands by making AOCs/station commanders execute strategic and operational art by employing them in senior/tri-Service appointments during the exercise.

The focus during training should shift from the cognitive domain to the intellectual domain as the officer progresses in service.

CONCLUSION

Over the last few years, the IAF has significantly enhanced its technological capability and reach. With the acquisition of force multipliers such as AWACS, aerostats, precision weapons, multi-role combat aircraft and air-to-air refuellers, the IAF would be able to undertake a number of strategic roles. These include conflict prevention, graduated response, battlespace dominance, strategic

bombing, psychological operations, strategic airlift, nuclear deterrence and force projection. To undertake these roles more effectively, there is a requirement to change our traditional tactical mindset towards thinking strategic. Further, there is a need to procure systems and equipment and formulate doctrines that prepare us for conducting integrated operations in diverse situations.

At the same time, the IAF's combat potential is declining in quantitative terms. There is a need to restructure the IAF, provide a balance between qualitative and quantitative capabilities and speed up our procurement processes. In addition, there is a requirement to acquire stealth capability, interoperable IFF, METAC transport aircraft, medium lift helicopters, AWACS/aerostats, high powered radars, advanced surface-to-air missiles and BMD systems. Further, there is a need to integrate space-based assets that enhance the IAF's combat effectiveness such as secure communications, navigation and sub-metre reconnaissance capability.