STRATEGIC ROLE OF AIR POWER: HOW WE NEED TO THINK, TRAIN AND FIGHT IN THE COMING YEARS

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Real exploitation of air power's potential can only come through making assumptions that it can do something we thought it couldn't do. . . . We must start our thinking by assuming we can do everything with air power, not by assuming that it can only do what it did in the past.

—Col John Warden

The application of air power to further a nation's strategic objectives has gained momentum over the last few years ever since it was used with telling effect in Operation Desert Storm, over Kosovo and during Operation Iraqi Freedom. Notwithstanding the tremendous asymmetry displayed in these conflicts, the advent of sensors that provide accurate target intelligence coupled with precision guided munitions (PGMs) has led to "effect-based operations" gaining predominance in speedy conflict resolution, with minimum attrition and collateral damage. The Indian Air Force (IAF) is in the midst of a radical change in mindset and reorientation of its force structure so that it is capable of conducting "parallel" warfare and influencing operations at the tactical, operational and strategic levels. It is in the light of these developments that there is need to "think, train and fight" with a strategic focus.

CONCEPTUAL DEVELOPMENT

The use of air power to further a nation's strategic aims, and objectives has come a long way since the pounding of Nazi Germany's ball bearing factories on the

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Rhine by Allied bombers and the obliteration of Hiroshima and Nagasaki, both of which had a significant bearing on the outcome of World War II. The conversion of World War II vintage bombers like the B-17, B-24 and the B-52 along with their Russian counterparts like the TU-126 to carry nuclear missiles and warheads added a new dimension to strategic air power, that of deterrence.[1] The application of air power to further strategic objectives and engage in coercive diplomacy has seen tremendous success over the last 40 years, barring an odd failure. Without constantly harping on the contribution of the strategic application of air power at Hiroshima and Nagasaki as the prime catalyst for the surrender of Japan, numerous examples that cut across intensities of conflicts can be cited to push the case for a reappraisal of the swift benefits of the strategic air campaign. Whether it was Operation Linebacker I and II[2] that allowed the US to draw the Viet Cong back to the negotiating table in 1971-72, or the surgical strikes on Arab airfields by the Israelis in 1967, target selection was the key to the achievement of strategic objectives. As against this, poor target selection during Operation Rolling Thunder from 1965-68 led to its total failure. The strategy of targeting the Ho Chi Minh Trail and centres of population in North Vietnam proved to be blunders that were rectified in Operation Linebacker where only military and infrastructure elements of national power were targeted.[3]

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Next came the redefinition of platforms to prosecute the strategic air campaign and the consequent understanding that the strategic air campaign was better focussed when one looked at the "effect" of destruction on the ability or will of a nation to wage war rather than the target and platform itself. The choice of attack platforms today also represents a radical shift from the strategic bomber

1. Air Chief Marshal Sir Michael Knight, *Strategic Offensive Air Operations* (Brassey's Airpower Series, 1989), pp. 48-60.
2. Duncan Bell, "The Seductive Promise of Air Power: Strategic Coercion in Vietnam (and beyond?)," *Air Power Review* (Centre for International Studies, Cambridge University), vol. 3, issue 2, Summer 2000.
3. Ibid.

concept. Role reversal of strategic and tactical aircraft commenced in Vietnam where B-52s carried out missions in support of ground operations while F-4s and F-105s flew against strategic interdiction targets deep inside North Vietnam. Years later, eight F-16s, primarily considered in the United States Air Force (USAF) and Israeli Air Force as tactical platforms, destroyed the Iraqi nuclear reactor at Osirak in what was considered a classic strategic strike.[4] The final fillip to the case for strategic air power is, without doubt, the emergence of highly accurate PGMs coupled with real-time intelligence and "just-in-time targeting" that allow a nation to exert its will on another without committing ground forces, and paving the way for negotiated settlement of conflicts without unnecessary collateral damage and loss of life. A classic example of this redefinition, which may not be palatable to the counter-air purists, would be the destruction of Arab aircraft on the ground in 1967 during the classic counter-air campaign launched by the Israeli Air Force. Were not the effects "strategic" in terms of breaking the Arab coalition's ability and will to fight? Enough has been articulated over the years on the spectacular success of the Coalition air forces in Operation Desert Storm where an "effect"-based strategic air campaign, conceived by Colonel Warden and executed by General Horner, achieved President Bush's "Strategic Objective" of driving Iraq out of Kuwait with minimum attrition.[5] If one were to pinpoint one failure of the use of strategic air power in recent years, it would be the failure of the USAF to eliminate Osama Bin Laden and the top Taliban leadership that was one of the main strategic objectives of Operation Enduring Freedom. If mass, tonnage, widespread area bombing due to lack of hard intelligence, collateral damage and indiscriminate loss of life were the prime characteristics of the strategic air campaign of yesteryears, stealth, precision, intense shock effect and speedy capitulation of the enemy along with the achievement of objectives are the results of the 21st century strategic air campaign.

Sceptic may say that the next few generations may not see a world war and that force structures of developing countries like India need to be focussed on

4. Mark J. Conversino, "The Changed Nature of Strategic Air Attack," *Parameters*, Winter 1997-98, pp. 28-41.
5. Col. Richard T. Reynolds (USAF), *Heart of the Storm* (Alabama: Air University Press, Maxwell Air Force Base Janunary 1995).

The coming years would see a struggle for strategic resources, strategic points and strategic markets, most of which could spread across the globe, thousands of miles from a country's geographical boundaries.

waging local wars under hi-tech conditions, low intensity conflicts and counter-insurgencies. They could not be farther from the truth as the coming years would see a struggle for strategic resources, strategic points and strategic markets, most of which could spread across the globe, thousands of miles from a country's geographical boundaries. A threat to these assets would warrant speedy intervention, something that only air power could achieve. The case for further developing the IAF's strategic air capability in the coming years cannot but be overemphasised in the light of India's emergence as a potential economic superpower with global energy interests and markets. The need for swift, precise and decisive intervention in potential hotspots spread across continents can only be achieved by synergistic joint operations, with air power being used as a springboard or a launch pad for further intervention by land and naval forces.

UNDERSTANDING PARALYSIS, ASYMMETRY, AND PARALLEL WARFARE

The three main objectives of any military campaign have always been coercion or intimidation, incapacitation or dismemberment and, finally, annihilation or destruction. These military objectives have always been focussed in the direction of achievement of a nation's geo-political objectives in any dispute or conflict. Warfare in the 21st century is slowly moving towards keeping destruction or annihilation as a last resort in legitimate war-fighting scenarios. With this in focus, two air power theorists from the USAF, Colonels Warden and Boyd propounded

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path-breaking theories of paralysing the enemy by strategic application of air power.[6] While Boyd talks about paralysing the enemy psychologically and weakening his will to fight, Warden emphasises the need to physically paralyse the adversary by attacking leadership, infrastructure, communication links and fielded forces as part of his now famous "Five Ring Theory" based on Clausewitz's centres of gravity, which formed the heart of the air campaign in Operation Desert Storm. The cornerstone of this process is the high probability of pounding an enemy into submission without inflicting too many casualties and reducing the intensity of contact battles by driving his leadership "underground," blinding him, rendering his senses (eyes and ears) ineffective and destroying reserves and follow-on forces by carrying out "deep precision strikes." While the strategic air campaign that aims at paralysis is based on overwhelming asymmetry that US forces are likely to enjoy in any conflict scenario, it is important for policy and strategy planners in India too to understand the tremendous advantages of creating an asymmetry[7] vis-à-vis potential adversaries by building up a potent strategic air capability that is built around technology, force multipliers and multi-theatre capability. At no stage is it considered that air power alone and that too the strategic air campaign alone can win a war by itself. What it certainly can do, by applying the principles of asymmetry and paralysis, is hasten the capitulation of an enemy by incapacitating him and reducing his military potential, as mentioned earlier, rather than destroying him. All this can be done by air power simultaneously while providing support to the surface campaign by exploiting air power's ability to conduct parallel warfare[8] at the tactical, operational and strategic levels. Building such an ability calls for acceptance of the need for asymmetry, change in mindset and significant alterations to asset allocation. In the Indian context, building up asymmetry cannot be restricted only to acquisition of technology, force multipliers and space-based sensors, as many would believe, in order to justify a "leaner" air force. All the above need to be supplemented with numbers

6. John Boyd and John Warden, *Air Power's Quest for Strategic Paralysis;* David S. Fadok, a thesis presented to the School for Advanced Air Power Studies, Maxwell AF Base, February 1995.
7. Jasjit Singh, "Strategic Framework for Defence Planners: Air Power in the 21st Century," paper presented at the Aero India 1998 Seminar, December 8-10, 1998.
8. Rebecca Grant, "The Redefinition of Strategic Air Power," *Air Force Magazine*, October 2003, pp. 33-38.

in terms of aircraft and platforms to be able to conduct parallel and asymmetric warfare on multiple fronts. This obviously calls for a strong case to `beef up' up the number of squadrons in the IAF from a projected 29 in 2007[9] to at least 40- 45 squadrons by 2015.

ROLE DEFINITION IN THE 21ST CENTURY

The emergence of invisible enemies like terrorists, and unconventional targets that revolve around material and human resources has meant that it will become increasingly difficult to classify the roles that strategic air assets would perform over the next few decades. If one were to identify the most critical characteristics of air power that would occupy centre-stage for the Indian Air Force in the years to come, they would be flexibility, reach, firepower with precision and interoperability, with other characteristics like surprise and shock effect being age-old and time-tested corollary benefits. What is it about these four USPs that makes them the focus of a study to define the roles of strategic air power for the IAF in the 21st century? The ability of a platform to effortlessly switch from a tactical to a strategic role is an inescapable imperative as is its reach in performing "interventionist" roles with appropriate combat support elements, thousands of kilometres away from its launch base. Having reached its target, the platform must be able to neutralise the target with precision attacks and minimum collateral damage. The platforms and crew used for prosecuting the strategic air campaign must be able to operate in international air space with varied sensors, and possibly with aircraft/air crew of multinational task forces, especially in conflicts involving the UN/multinational forces. They also need to be well integrated with elements of the

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9. Sandeep Unnithan, "Force in Free Fall," *India Today*, April 10, 2006.

surface forces involved in strategic interventions so as to synergistically apply the principles of asymmetry in conflict resolution. Having broadly spelt out the framework, what then are the broad strategic roles and missions that the IAF can take on with a force structure that would revolve around aircraft like the SU-30 MKI, MRCA, Mirage 2000, IL-78, IL-76 and the airborne warning and control system (AWACS)? While it would be very easy to ape the USAF and formulate a "strategic air campaign" and force that revolves around "centres of gravity," nothing would be more divorced from the reality of the "Indian situation." Two major questions would need to be asked:

- Do we have the resources to prosecute such a campaign?
- Are we likely to be faced with an Iraq-like situation of asymmetry?

The answer would obviously be NO! That brings us back to a strategic intervention capability revolving around economic progress, energy and people. Till now, the IAF has been seen as a predominantly tactical air force with limited deterrent capability. With the advent of platforms like the SU-30 MKI, weapon systems like the Brahmos and force multipliers that include aerial refuelling platforms, unmanned aerial vehicles (UAVs) and AWACS, there is a need to "think big" and "think far." Conventional roles have to be replaced by roles that cater to the following scenarios:

- Power projection role.
- Strategic intervention.
- Proactive strikes and elimination of threats.
- Humanitarian intervention.
- Peace-keeping missions in a lead role.
- Protection of energy and economic resources and island territories of Andaman and Nicobar and Lakshadweep.
- Anti-terrorist and anti-hijacking operations.
- Protection and evacuation of human resources.
- Enforcement of "no fly zones."

Targeting philosophy too has changed significantly over the years, dictated mainly by the nature and duration of wars, capability of platforms, accuracy of munitions and quality of intelligence.

In many of the scenarios and roles indicated above, while the navy and army would continue to form key components of a joint task force, it is air power that would be used to intervene at short notice. Even when it comes to humanitarian intervention, the recent tsunami highlighted the speed and responsiveness of air power as also the need for additional resources in terms of heavy lift helicopters and transport aircraft for disaster relief operations.

TARGETING FOR STRATEGIC AIR STRIKES

Targeting philosophy too has changed significantly over the years, dictated mainly by the nature and duration of wars, capability of platforms, accuracy of munitions and quality of intelligence. The slow and sequential effect of strategic bombing during World War II, and to some extent during Vietnam, did contribute significantly to the final outcome owing to repetitive attacks. This involved thousands of sorties against the same target sets without looking at civilian casualties and collateral damage, the main aim being to systematically undermine the industrial capability and psychologically numb an adversary into submission. Closer home, the surgical strike by the IAF MiG 21s on the governor-general's residence in Dhaka in December 1971, did make a significant dent in the morale of the East Pakistani leadership that ultimately resulted in their capitulation only days later. Wars and conflicts in the 21st century will be short and swift, necessitating extremely quick and effective targeting without having to resort to repetitive attacks. Redundancy and recuperability of economic targets has also shifted focus on the types of targets that need to be neutralised to hasten the end of a conflict. Typical changes in target profiles over the years are indicated in Table 1.

As can be seen, the focus has shifted from people and economy to "leadership"

Table 1

World War II	Gulf War of 1991 and Iraq War of 2003
Population centres	Enemy leadership
Industrial capability	Command, control, communications, intelligence (C^3I) systems and sensors
Manufacturing centres	Fielded forces and reserves
Hydroelectric and power generation	Nuclear and weapons of mass destruction (WMD) sites

and military capability.[10] Targeting for the strategic application of air power was also totally redefined during Operation Desert Shield, Desert Storm and in Kosovo, with significant refinements during Operation Enduring Freedom in Afghanistan and Operation Iraqi Freedom in 2003. As against a fairly rigid set of targets that were defined by perceived centres of gravity and folded into a largely individualistic and much publicised "shock and awe" strategic air campaign in 1991, the 2003 Iraq War saw a number of strategic targets being engaged simultaneously by platforms as varied as classical strategic platforms like the B-2 bomber to purely tactical platforms like the F-16 and Predator UAVs armed with PGMs and a wide variety of "smart weapons." Of the 41,309 sorties flown during Operation Desert Storm, only 20 per cent were against strategic targets, primarily due to low availability of PGMs and absence of real-time target information, a figure that went up significantly in 2003. Another interesting change in the US strategy in 2003 that has lessons for the Indian Air Force is that the strategic air campaign during the 2003 Iraq War was not tied to any traditional timetable[11] and was made to fit like a glove around simultaneous land and naval campaigns that gave more impetus to the importance of synergy and joint operations.

The focus has shifted from people and economy to "leadership" and military capability.

10. Col Philip Meilinger, "Ten Propositions Regarding Airpower," *Air Power Journal*, Spring 1996, pp. 51-59.
11. Grant, n 8.

The Honourable Raksha Mantri of India, Shri Pranab Mukherjee acknowledged the primacy of air power in future conflicts and linked the reorientation of the IAF to India's rapid economic growth and the need to protect our security interests extending from the Persian Gulf to the Malacca Straits.

ASSET ALLOCATION

The present force structure of the IAF offers limited capability for "strategic intervention." Only aircraft like the SU-30 MKI and IL-76/78 meet the various criteria laid down for strategic intervention. Given India's growing global aspirations, there is a need to address our force structure requirements for strategic force projection, intervention and even coercive diplomacy. While delivering the Air Chief Marshal P.C. Lal memorial lecture in March 2006, the Honourable Raksha Mantri of India, Shri Pranab Mukherjee acknowledged the primacy of air power in future conflicts and linked the reorientation of the IAF to India's rapid economic growth and the need to protect our security interests extending from the Persian Gulf to the Malacca Straits. He went on to also highlight[12] the need for emphasis on strategic thinking, joint operations and asymmetric warfare, all of which have been discussed in this article. Some of the essential ingredients to bolster our strategic air war-fighting capability are listed below. These include not only tangible assets like hardware resources and technology, but also intangibles like leadership and political will. The list includes:

- Platforms.
- Facilitators.
- Information providers.
- Responsible and knowledge based leadership.
- Political will and speedy decision-making appellate/organisation.

12. Honourable Raksha Mantri of India, Shri Pranab Mukherjee, speaking at the Air Marshal P.C. Lal memorial lecture on March 20, 2006, *Defence Watch*, April 2006, pp. 8-10.

Platforms

Amongst the numerous aerial platforms that are presently in use the world over as part of "strategic forces," the most important ones from an Indian perspective are fighter aircraft, heavy lift / medium lift transport aircraft, multi-role helicopters and force multipliers like AWACS, air-to-air refuelling (AAR) platforms and early warning (EW) aircraft. These platforms need to be backed up by real-time information providers like satellites with < 1 m resolution and rapidly deployable UAVs with multiple sensors, adequate loiter time and even limited firepower. While the SU-30 MKI with its phenomenal reach, awesome firepower, multi-crew and multi-mission capability is an ideal platform to prosecute a "strategic air campaign," it is important that we clearly understand that essentially tactical platforms like the M-2000 and the MRCA, 126 of which are in the pipeline, can be employed effectively in neutralising "strategic targets." Even older platforms like the Jaguar can supplement the SU-30, M-2000 and MRCA. The only caveat being that greater coordination, support and precision would be required for using them in the strategic air campaigns. Strategic strike capability without strategic airlift capability leaves a gaping hole in a nation's ability to project, sustain, reinforce and, if required, even extricate, strategic forces over large distances. The IAF's only strategic airlift platform, the IL-76, is ageing and needs to be supplemented by a newer generation heavy lift aircraft in the same or larger category and a medium lift aircraft in the 15-20 ton payload category. As far as helicopters are concerned, destruction of C^3I nodes, elimination of leadership, induction/extrication of special forces and interdiction of reserves and "follow-on forces" are all strategic tasks if one looks at effect-based operations. There is a yawning deficiency in this area and it needs to be addressed at the earliest.

Force Multipliers

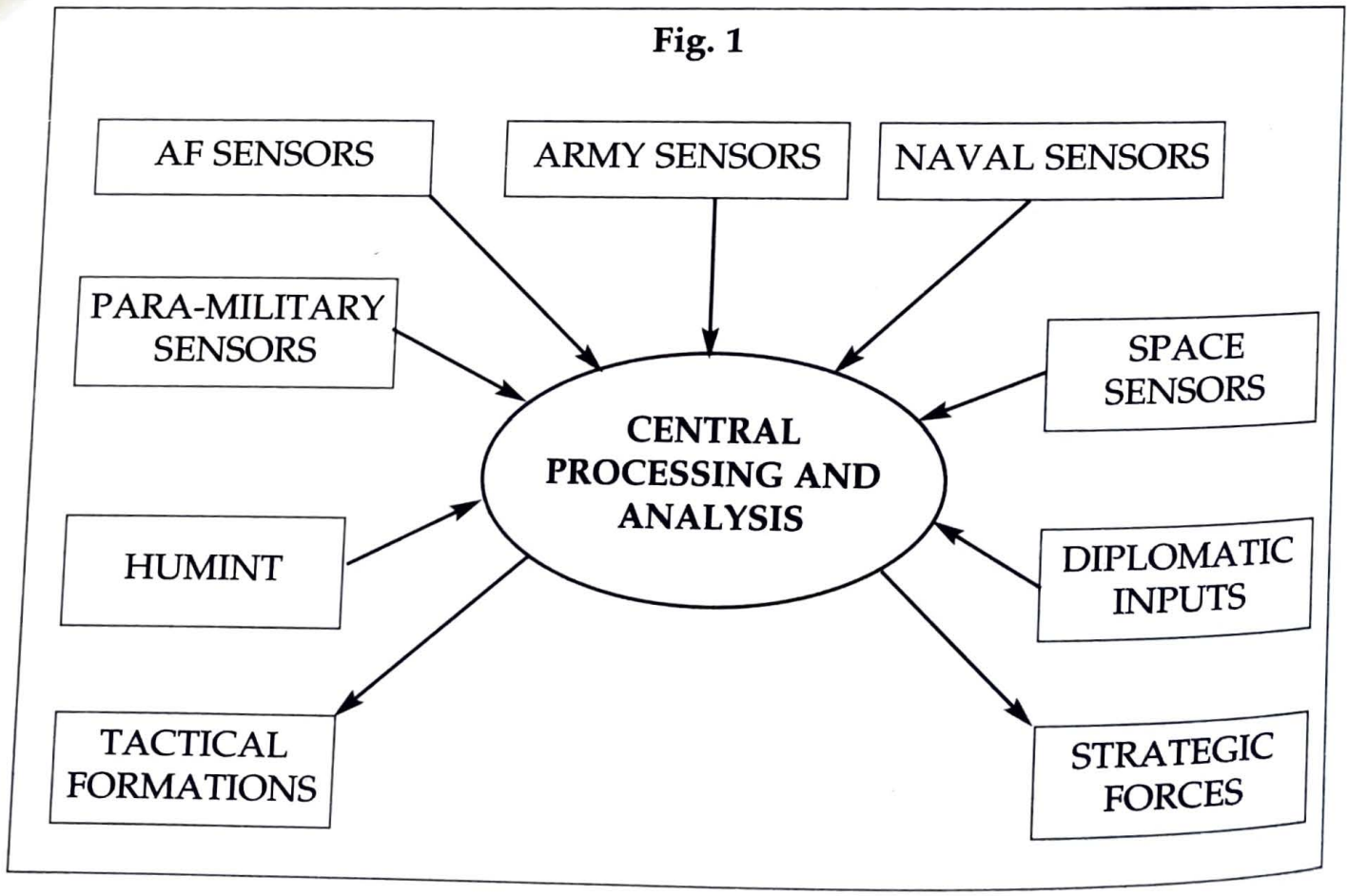
With the induction of the IL-78 AAR platform and the impending induction of AWACS, the IAF would have taken the first step to becoming a truly self-reliant air force with global intervention capability. However, let us not be lulled into a false sense of bravado that the journey ends here. If one looks at the geographical extent of our country, one would realise that the number of

refuellers and AWACS would barely suffice to address tactical needs in multiple theatres, leaving very little for any meaningful strategic intervention. It is this limitation and void that needs to be filled with additional inductions to create an exclusive force that thinks, trains and fights "strategically" – more of which will be discussed in organisational and training imperatives later on in the article. The induction of UAVs and exploitation of civilian space technology has also added significant punch to our capability, and needs to be well integrated into our intelligence framework.

INTELLIGENCE GATHERING TO SUPPORT STRATEGIC AIR OPERATIONS

Presently, sharing of intelligence between the military and other agencies leaves much to be desired and turf battles have resulted in "below optimal" sharing of both hard and soft intelligence. Targets for strategic intervention are no longer static and range from elusive enemy leadership to highly mobile tactical weapon

Fig. 1



systems whose destruction can break an enemy's will to continue fighting. Classic examples of this were the continued US air attacks against mobile Al Qaeda leadership, with limited success, in conjunction with special forces, and the destruction of Serb SAGW sites during the Kosovo conflict by air power alone. There are presently too many agencies that receive, process, interpret and disseminate intelligence, and there is a pressing need for a lean intelligence structure to support strategic air operations. Without dissecting the structure too critically, a broad requirement is given in Fig. 1.

With the phasing out of the MiG-25 strategic reconnaissance aircraft, the onus of providing accurate intelligence for strategic targeting has shifted to space based sensors. Even in the absence of dedicated military satellites, capabilities of civilian remote sensing technologies like the Ikonos (USA) and the Indian technology experimental satellite (TES) permit resolutions as low as one metre.[13] With possibilities of further reduction in resolution on the anvil, the dividing gap between civilian and military capability is reducing. Typical resolution of some possible strategic targets in metres is given in Table 2.[14]

According to Prof U.R. Rao, one of the pioneers of India's satellite programme,

Table 2

Target	Detection	General Identification	Precise Identification	Description	Technical Analysis
C^3I HQs	3	1.5	1.0	.15	.10
Nuclear Weapon Components	2.5	1.5	1.0	.15	.05
Missile Sites	3	1	1.0	.3	.05
Airfd Facilities	6	4	3	.3	.15
Bridge	6	4	1.5	1.0	.3
Radar	3	1	.3	.15	.02
Supply Dump	2	1	0.3	.03	.03

13. U.R. Rao, "National Reconaissance Assets Required For Military Intelligence," *Trishul*, Spring 2003, pp. 50-54.
14. Ibid.

the only way to exploit space for strategic intelligence is to foster greater synergy between the Indian Space Research Organisation (ISRO) and defence users like the three Services, Research and Analysis Wing (RAW) and Intelligence Bureau (IB).[15] He further goes on to say that all requirements for strategic reconnaissance have to be met indigenously, with ISRO being capable of meeting reduced resolution requirements. Needless to say, the success of any strategic air campaign depends on the accuracy of intelligence and training in a realistic environment like the Coalition forces carried out in Operation Desert Shield prior to Operation Desert Storm. Common sensor and communications programmes in UAVs, manned aircraft and even satellites are vital for mission effectiveness along with a single processing, analysing and disseminating agency like the aerial common sensor programme being adopted by the US armed forces.[16]

COMMUNICATION REQUIREMENTS

Transfer of real-time information between platforms and ground/airborne sensors is vital for the successful execution of any mission and assumes even greater relevance in the case of a strategic air operation wherein the flexibility to abort the operation or a new target location could be given minutes before the TOT (time over target), something that is imperative to ensure the success of the emerging concept of "just-in-time" targeting. Some of the ingredients of a secure, effective and flexible system are highlighted below:

- Satellite-based defence communication system with encryption and sufficient bandwidth.
- Link 16 type of data linking facilities that gives air crew and mission coordinators a clear picture or sitrep of both the tactical and strategic air situations. This would involve elaborate linking up of surveillance platforms, ground processing sensors, AWACS, airborne platforms and even special forces which could be assigned the role of terminal designators against mobile and elusive targets like enemy leadership in mountainous terrain.

15. Ibid.
16. Robert Wall and David Fulgheu "Sigint Snarl," *Aviation Week & Space Technology*, January 23, 2006, p. 24.

POLITICAL WILL AND INTENT

Prosecution of the strategic air campaign requires strong political will, clarity of intent and ability to gather domestic public support/approval and absorb international flak and criticism. The only way to gather public support in a democracy like India is to encourage widespread strategic debates to make our strategic interests widely known and accepted, so that when these interests are threatened, the decision to use force can easily be taken. This is a weak area in our country and needs to be addressed at the earliest. The organisation for speedy decision-making exists. It only needs to be exercised in the direction of strategic interests and intervention more often.

The most difficult part of change is to alter a mindset. There is a need to adopt the techniques of parallel warfare in which the payoffs of strategic application of air power, when applied simultaneously with tactical application, act as a decisive force.

CHANGES IN PHILOSOPHY/DOCTRINE

Probably the most difficult part of change is to alter a mindset. The last 30 years have shown that air power has the ability to decisively influence the course of any conflict by strategic application of aerial force, be it in the Arab-Israeli conflicts of 1967 or Bekaa Valley or Desert Storm, Kosovo or Enduring Freedom. It is time to embrace a doctrinal shift towards building up a Strategic Forces Command that recognises the need to develop intervention capability spearheaded by air power, with naval and land forces completing a synergistic troika without needlessly engaging in turf battles regarding command and control of theatre forces, something that has so often stunted the development of strategic doctrine within the Indian armed forces. There is a need to adopt the techniques of parallel warfare in which the payoffs of strategic application of air power, when applied simultaneously with tactical application, act as a decisive force. Lest the surface forces feel that the impact of strategic air strikes is not felt at the tactical or operational levels of war, one does not have to go very far back in history. The use of tactical platforms like the A-10s , AV-8Bs, and F/A-18s to destroy elements of the

two Iraqi armoured divisions that were seen to manoeuvre offensively to influence the abortive Iraqi offensive at Al-Khafji is a classic example of a tactical operation that ultimately had tremendous strategic significance in that it proved to be the proverbial "nail in the coffin" for Iraqi ground resistance in1991.[17] Contrary to early theorists like Douhet and Mitchell who believed that strategic air attacks alone can win a war, the concept of the strategic air campaign today focusses on attacking targets that can subsequently be attacked or exploited by surface forces, with reduced forces and reduced casualties. Current air force doctrines seek to serve the overall effort by leveraging the impact of strategic strikes and interdiction, and not waging independent wars.[18] This in itself should be enough to assuage any apprehension amongst the surface forces that air power is trying to usurp the primacy of surface forces. Such a belief is a total non-issue and only undermines synergy and jointmanship. The key issue, however, is to foster an understanding of the capabilities of strategic strikes and interdiction. Despite the politico-strategic procrastination over using air power during the Kargil conflict,[19] the IAF's "never done before" high altitude interdiction air campaign did contribute significantly to the strategic objective of evicting Pakistani regulars and Mujahideen from the heights that they had stealthily and audaciously occupied. With that as a template, there is nothing that prevents the formulation of a cohesive interdiction campaign, provided the surface forces realise the tremendous payoffs of a well planned strategic interdiction campaign.

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TRAINING

The next logical step, after displaying the political will and changing existing mindsets regarding the advantages of air power in the furtherance of India's

17. Lt. Col Price T. Bingham (Retd), (USAF), "Revolutionizing Warfare Through Interdiction," *Air Power Journal*, Spring 1996.
18. Conversino, n.4.
19. General V. P. Malik, *Kargil: From Surprise to Victory* (Harper Collins).

strategic objectives is to train and think to fight strategically. The present training pattern in the IAF for air crew, controllers and support elements is heavily skewed towards tactical orientation and is rather defensive in nature, given our reactive doctrine since we have never wanted to be seen as an aggressive and expansionist country. Without drastically altering our training methodology, there is a need to train continuously in strategic roles. A strategic orientation can be introduced at the training stage itself after induction of the Hawk advanced joint trainer (AJT) in which trainee pilots could be introduced to AAR and long distance missions in the final phase of training.

Some areas that need immediate attention are enumerated below:

- Simulated target systems need to be created on the lines that exist in the Negev desert of Israel that cater to wide ranging scenarios, from evacuation of personnel to destruction of key installations and terrorist eliminations. These targets need to be engaged across the country in different seasons and terrains.
- A pool of specially trained air crew on varied platforms needs to be formed who are primarily tactically proficient but also undergo periodic specialist capsules and training in execution of strategic missions. This core group on different fleets needs to be exercised periodically.
- Regular yearly/half yearly exercises involving joint task forces at varied locations ranging from deserts to hilly terrain and island territories need to be conducted. Long distance missions involving AAR, change in control zones, height bands and time zones may be regularly planned. Sleep deprivation and fatigue orientation[20] need to be introduced at regular intervals.
- Multiple aerial refuellings and engagements spread across theatres must be introduced at various levels of squadron training.
- Strategic airlift capability and helicopter operations along with special forces must be given impetus and exercised periodically.
- Exercises with a few foreign air forces must be continued with simulation of contingencies in mutually acceptable third countries.

20. Knight, n.1.

- Strategic task forces need to be created with centralised decision-making, independent component commanders, and decentralised execution.

INDIA-CENTRIC SUMMARY

With the phasing out of a number of squadrons of MiG-21s, 23s, and 27s, the IAF`s fighter fleet is in a period of transition.[21] The transport and helicopter fleets in the IAF are also due for expansion and refurbishment, with emphasis on replacements for the AN-32 and IL-76 and the induction of a medium lift aircraft in the 15-20 ton category. No replacement has been identified for the Mi-8/ Cheetah/ Chetak though the advanced light helicopter (ALH) is waiting in the wings. The modernisation process is likely to take 10-15 years, by the end of which, the IAF will possess significant strategic capability in terms of platforms and force multipliers. These would not be an area of concern. The main areas of concern are related to infrastructure requirements to support such operations, communications, political will to prosecute strategic air operations and sister Service support and acknowledgement of the long-term strategic payoffs of such operations. The IAF`s mindset also has to shift from being a tactically oriented and proficient force to one that has the confidence to influence strategy and doctrinal changes. At a time when nations are increasingly reluctant to commit ground forces due to the "body bag" effect, the ability to engage strategic targets with minimum collateral damage and maximum effect has made air power a "most preferred option" in swift conflict resolution. The main problems that have to be dealt with while prosecuting the strategic air campaign would relate to morality, legality[22] and accuracy of intelligence. From the horrific aerial attacks

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21. Unnithan, n.9.
22. Thomas Keany, *Air Power : What a Difference a Decade Makes* (Foreign Policy Institute, John Hopkins University, February 9, 2005).

on London, Coventry, Dresden and Berlin to the precision with which targets were engaged in Afghanistan and Iraq in 2003, the strategic air campaign has come a long way and it is about time that the IAF puts together a blueprint for building a credible strategic aerial intervention capability over the next decade.

ELEVEN CARDINAL PRINCIPLES OF THE STRATEGIC AIR CAMPAIGN

- Aerospace power of any kind that directly influences or achieves the strategic objectives of a campaign would be classified as part of the strategic air campaign (SAC).
- Political will is the key to the effective implementation of the SAC.
- Centralised command of all forces involved in the SAC, coupled with decentralised execution and minimum political interference is a vital imperative for the success of the SAC.
- Target selection remains a predominantly politico-military process, while target engagement a purely military one.
- Flexibility, surprise and shock effect are the key ingredients of a successful and contemporary SAC.
- "Effect-based operations" and not platform-based ones are the cornerstone of such operations.
- The SAC cannot be an isolated and time-based campaign. It has to be intelligently dovetailed into the surface campaign, and best precedes it by surprising the enemy and blunting his will to fight.
- The SAC is best employed as part of the emerging concept of "parallel warfare" in which all forms of combat power are unleashed simultaneously.
- Accurate and "real-time intelligence" allows the SAC to transcend conventional barriers and adopt "just-in-time targeting" techniques, which until very recently was exclusively a tactical option.
- Use of PGMs ensures achievement of objectives with minimum effort, attrition and collateral damage.
- Creation of a credible and potent strategic force to prosecute the SAC can only come about if there are changes in mindsets at all levels that we have

entered a new era of warfare[23] and that of air power being essentially a "tactical tool." Doctrinal changes will be slow, difficult and fraught with obstacles.

If a battle can be won without suffering loss, surely this is the most economical, if not the most traditional, way of gaining the strategical object.

—John Frederick Charles Fuller

23 Thomas A. Keany and Eliot Cohen, Air Power Survey-Summary Report, Washington D.C, 1993