AIR POWER IN JOINT OPERATIONS: PRIMACY OF JOINT TRAINING

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INTRODUCTION

The primary role of militaries down the ages has been to protect kingdoms from external aggression, and also to fight their rulers' wars in the quest for expansion of empires. Most such battles took place on land in early times. Some of the more adventurous nations felt the need to 'explore' the world in search of new lands – well beyond their shores – that they could dominate and thereby expand their influence. For this, having a strong military – including a versatile maritime force – was essential. The search for new lands by such expeditionary forces was invariably dependent on ships to carry soldiers to distant lands. The division of responsibilities of the various 'professionals' entrusted with the task of 'showing the flag' was clearly demarcated. The sailors were responsible for the safe passage of troops. In case of any opposition enroute, battles were fought, with naval tactics coming to the fore. No commander of ground forces – even though embarked – would ever interfere in the conduct of such battles (unless it involved hand-to-hand fighting); his job was to command his troops once landed. All was fine and expeditionary nations prospered under this arrangement. **Joint training** for the naval and land forces was not felt necessary as they both had independent, fairly well demarcated areas of military prowess – now better understood

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While it is often suggested that as practitioners of war, military leaders need to study campaigns of the past so as to learn from history and not commit the mistakes made earlier, the nature of warfare in the future – if the present ongoing conflicts in the world are any indication— will demand a very different approach to warfare.

as 'core competencies' – and no serious thought was ever given to train the forces together for war.

With the invention of the airplane, the cat was thrown among the pigeons, World War I being more of a testing ground for the potential of this new war-fighting machine. However, by the end of the war, the aircraft's ability to carry the war into the enemy's heartland – bypassing the enemy's fielded forces and overcoming the obstacles of terrain – had been established. During World War II, there were instances where aerial duels between opposing air forces alone had decided the outcome of the battle, e.g. the Battle of Britain (July to October 1940), while there were some in which carrier-based air power had played a preeminent role, without the participation of the surface force(s) of the opposing navies. This was best exemplified during the various engagements between the US Navy and the Imperial Japanese Navy in the Pacific.

The British Army had failed to acknowledge the role of air power in the initial stages of World War II, despite having witnessed its tactical usage by the Germans in their advances through Europe. While it is often suggested that as practitioners of war, military leaders need to study campaigns of the past so as to learn from history and not commit the mistakes made earlier, the nature of warfare in the future – if the present ongoing conflicts in the world are any indication – will demand a very different approach to war-fighting. What is the model of **jointness** that needs to be adopted for tackling future conflicts in the Indian context, and how does one **train jointly** to deal with the emerging threats, therefore, bears careful examination.

But first, a little peep into history.

THE INDIAN EXPERIENCE OF JOINTNESS SINCE 1947

We shall first examine the use of air power in the Indian subcontinent post-Independence and the extent of jointness in various wars fought since then. We shall also critically examine the state of training and the role **joint training –** and **joint planning –** played in the outcome of these wars.

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FIRST INDIA-PAKISTAN WAR, 1947

Once the Dominion of India received the Letter of Accession signed by Maharaja Hari Singh of Jammu and Kashmir State on October 26, 1947, the Indian Air Force (IAF) flew troops of 1st Sikh into Srinagar in the early morning on October 27, 1947, to stop the marauding Pathan tribals from capturing the city. The airlift was repeated with civil aircraft also being requisitioned. The Indian Army swung into action and repelled the attacks through a brave display of leadership and superb fighting skills. The Royal Indian Air Force (RIAF[1]) fighters (Spitfires and Tempests) and Harvards (trainer aircraft) provided close support to the army, most notably during the Battles of Badgam and Shelatang, enough for the Brigade Commander, Brig LP Sen to comment, "*The RIAF, in this crucial engagement and during the follow up, played a decisive role*".[2] The Battle of Shelatang lasted for 12 hours and was one of the **finest examples of inter-Service coordination and cooperation** that was responsible for the retreat of the tribal marauders from virtually the doorstep of Srinagar in November 1947. The pilots carried out their missions against the raiders based on the briefing they received from the Ground Liaison Officer (GLO) before getting airborne and also on the situation that they assessed on reaching the affected areas. Their training, superb airmanship, and indomitable offensive spirit ensured that

1. The IAF at that time still had the prefix 'Royal' attached to it.
2. *Defending Kashmir* (The Publications Division, Ministry of Information and Broadcasting, Government of India, 1949), p. 26.

the marauders were soundly beaten back. The transport fleet of the RIAF (No. 12 Squadron, equipped with Dakota aircraft) also proved its mettle and came to the assistance of the beleaguered Indian Army garrison at Poonch by landing on the extremely small (600 yards) airstrip. The 25-pounder guns that were flown in by night – with Air Cmde 'Baba' Mehar Singh himself flying one of the Dakotas into Poonch – helped the army dislodge the enemy. No. 12 Squadron provided 4,21,000 lb of supplies and evacuated 35,000 refugees from Poonch.[3] As the threat to Leh grew more serious, 'Baba' Mehar Singh carried out a daring mission once again by flying a Dakota at 23,000 ft, without oxygen, and landing on a rough, improvised airstrip at Leh at an altitude of 11,554 ft above mean sea level (amsl). Accompanying him was Maj Gen KS Thimayya, General Officer Commanding (GOC) 19 Div [and later the Chief of Army Staff (COAS)] who carried out an on the spot assessment of the situation and decided that reinforcements were required to be flown in urgently. Once again, this was an **outstanding example of inter-service coordination at the higher levels of leadership**. The Dakotas of No. 12 Squadron carried out the task successfully.[4] Although the RIAF was poorly equipped, the support provided to the army was exemplary, with pilots risking their all in order to beat back the marauders. This earned them the appreciation of the General Officer Commanding-in-Chief (GOC-in-C), Western Command.[5]

THE 1962 INDIA-CHINA WAR

During the India-China War in October-November 1962, the IAF was not permitted to carry out offensive operations against the Chinese Army, possibly for fear of retaliation by the numerically superior People's Liberation Army Air Force (PLAAF) that was supposedly also capable of carrying out bombing of the important Indian cities of Delhi and Calcutta. The IAF, however, carried out extensive helicopter operations in support of the army both in the Northeast (NE) as well as the Ladakh sectors. IAF helicopters carried out casualty evacuation, air maintenance and intra-

3. Ibid.
4. Ibid., pp. 68-69
5. Ibid., p. 112.

theatre airlift of troops. The intrepid helicopter pilots, having inducted into the eastern sector barely days before the outbreak of hostilities, exploited their machines to the maximum, often well beyond the manufacturer's limits, and carried out some daring rescues, including by night. This was a significant achievement as the helicopters were not cleared for operations by night at that time.[6] The An-12 transport aircraft of the IAF air-landed troops, twelve 25-pounder guns, ammunition and eight AMX-13 tanks to the beleaguered garrisons at Chushul. Although limited, the role played by the IAF in support of the Indian Army during this operation was indeed noteworthy. The IAF lost an opportunity to assist the war effort in what could have been an effective way to check the advance of the vastly superior (in numbers) PLA. Interdiction of the large number of Chinese forces could have paid rich dividends.[7] What was of significance during this conflict was the total **absence of joint planning** between the army and air force despite the existence of a "*fairly comprehensive system for joint military operational planning (that) had been established within weeks of our independence. The Chiefs of Staff Committee (COSC), the highest military professional level, was to provide military advice to the political leadership – in specific terms to the Defence Committee of the Cabinet (DCC) chaired by the Prime Minister – but had not met since 1959 or so.*"[8] Similarly, the Joint Intelligence Committee (JIC) and Joint Planning Committee (JPC) had been defunct since the mid-1950s. While the JIC's role had virtually been hijacked by the Intelligence Bureau (IB), the JPC, that was mandated to prepare **joint military plans** for the joint employment of the three Services – and was to be manned by a permanent joint staff as per Cabinet orders – had never met, "*leave alone professionally addressed the issue of the use of combat air power as part of the planning process before the war or as a joint response during the war.*"[9]

6. Bharat Kumar, *Unknown and Unsung: Indian Air Force in Sino-Indian War of 1962* (New Delhi: KW Publishers, 2013), p.202.
7. Jasjit Singh, *Defence From the Skie*s (New Delhi: KW Publishers, 2013), p. 98.
8. Ibid., p. 93.
9. Ibid., p. 94.

THE 1965 INDIA-PAKISTAN WAR

Before we discuss the first real conflict between the two neighbours, it is important to examine the relative strengths of the two air forces, not only from the point of view of numbers but also the state of **training** – and, consequently, their operational preparedness. The Pakistan Air Force (PAF) had received eight squadrons (120 aircraft) of the highly successful F-86 Sabre jets (of the Korean War fame) from the US under the Military Assistance Programme. Twenty-four Sabres were modified to carry the AIM-9B Sidewinder air-to-air missiles. The PAF had also received one squadron (14 aircraft) of the state-of-the-art F-104 (Starfighter) that was also armed with the AIM-9 Sidewinder air-to-air missile. The PAF also had two squadrons of the Canberra bomber. Its pilots had participated in various exercises with the US Air Force (USAF) by virtue of Pakistan being a member of the Southeast Asia Treaty Organisation (SEATO) since 1954 and were, thus, conversant with the latest air combat tactics. The IAF, on the other hand, had a mix of French and British aircraft forming the bulk of its fleet: six Hawker Hunter, six first generation (1940s' vintage) Vampire, and five Folland Gnat squadrons (all of British origin), and five Mystere IVA and three Ouragan (Toofani) squadrons (both French aircraft). The IAF also had three Canberra squadrons and had just received its first Mach 2.0 plus supersonic fighter squadron equipped with the MiG- 21 that was capable of carrying two K-13 air-to-air missiles. The IAF pilots had no experience of **training** with foreign air forces till then, and, thus, relied only on the "*training that had been carried out in-house*".[10] In order to ensure that India's eastern flank was also protected against any likely interference by the Chinese, ten Indian Air Force squadrons were retained in the eastern sector.

The offensive came on September 1, with Pakistan launching an all-out attack at 0930 hrs in the Chhamb sector with two regiments of armour and corps artillery supporting Pakistan's 7 Infantry Div. Clearance to the Chief of Air Staff (CAS) for the IAF to carry out attacks against enemy ground forces was given by the defence minister only at 1650 hrs; by 1719 hrs (barely 29 minutes

10. Air Mshl Bharat Kumar, *The Duels of the Himalayan Eagles* (Gurgaon: IMR Media Pvt Ltd.), pp. 35-45.

later), the first formation was airborne. Three missions of Vampires (four aircraft in each mission) were launched, followed by four missions of Mysteres (total of 14 Mystere aircraft) to blunt the Pakistani armoured thrust. The strikes by the IAF aircraft destroyed 12 tanks, two field guns and 62 vehicles, although the loss of aircraft was high – three Vampires (of the second formation) lost to Sabres, and one from the first formation possibly being shot down by ground fire. The Vampire was a first generation aircraft of 1940s' vintage that had been launched keeping in mind the criticality of the ground situation which required that all available air assets be pressed into service in support of the Indian Army. The strikes by these IAF aircraft broke the momentum of the Pakistani advance and prevented the fall of the vital town of Akhnoor. Throughout the 22-day war, there were many such instances where close support was provided to the army in accordance with the broad strategy spelt out by the government for utilisation of the IAF; the air force, consequently, met more than 90 percent of the air effort indented by the Indian Army – a fact that seems to have been lost sight of in the post-war period.[11] **The IAF was also restricted from attacking PAF airfields unless attacked**.[12] This restriction prevented the IAF from carrying out the planned preemptive strike[13] against the PAF, while the PAF had no hesitation in carrying out a preemptive strike against IAF bases. It was only after the PAF first attacked IAF bases on September 6, that the IAF was given permission to retaliate. The IAF suffered losses of aircraft on the ground as a result of these attacks by the PAF.

A huge lesson for the political and military leadership: unless own military is given a free hand in the conduct of military operations , especially when hostilities are imminent – in this case, Pakistan had already crossed the Line of Control (LoC) in the Chhamb-Jaurian sector as early as September 1, 1965 – own military will always be at a disadvantage.

11. Ibid., p. 51.
12. Ibid.
13. A 'preemptive strike' has the advantage of catching the enemy by surprise and can seriously affect the conduct of air operations by the enemy, as his airfields that are targeted can be kept non-operational for extended periods of time through repeat attacks.

This, then, is a huge lesson for the political and military leadership: unless own military is given a free hand in the conduct of military operations , especially when hostilities are imminent – in this case, Pakistan had already crossed the Line of Control (LoC) in the Chhamb-Jaurian sector as early as September 1, 1965 – own military will always be at a disadvantage if the initiative is allowed to pass to the adversary. Giving own military the freedom to launch a preemptive strike could have possibly prevented such huge losses on the ground as were faced by the IAF on September 6, 1965; the IAF would have seized the initiative and put the PAF on the defensive from Day-1 itself.

The 1965 War saw the emergence of the IAF as a bruised but effective fighting force that traded punches with the better trained and equipped PAF, yet achieved greater success in the air battles that ensued. The diminutive Gnat earned the sobriquet 'Sabre slayer'.

THE 1971 INDIA-PAKISTAN WAR

On November 22, 1971, when four F-86 Sabres attempted to enter the Indian air space from East Pakistan in support of the Pakistan Army that was fighting the Mukti Bahini, the IAF Gnats were scrambled from Dum Dum airport (Calcutta) to intercept the intruding aircraft. In the ensuing combat, three Sabres were shot down by the IAF Gnats.

Pakistan launched a preemptive strike against IAF bases in the west at last light on December 3.

The 1971 India-Pakistan War had begun.

The PAF was not able to cause any serious damage during these strikes as IAF aircraft had now been dispersed in hardened aircraft shelters (unlike in 1965).

The IAF responded with counter-air strikes, both in the east and the west. While air dominance was achieved in the east within the first three days, the PAF was forced to go on the defensive in the western sector, thereby permitting greater freedom of operations to the Indian Army, unhindered by enemy air in both sectors. Blunting of a Pakistan armoured thrust by the IAF's Hunter aircraft at the lightly held – yet resolutely defended – Indian

Army outpost at Longewala, was a classic example of Counter-Surface Force Operations (CSFO) carried out by the IAF in direct support of the army. It also highlighted the vulnerability of armour to air attack while on the offensive and caught in the open. Lack of air cover by the PAF rendered the tanks defenceless. The Hunters cut them to size and destroyed almost 40 tanks.

The IAF also successfully prevented a major armoured thrust planned by the Pakistan Army in the Suleimanke headworks region through round-the-clock attacks on the Pakistani armour reinforcements and fuel dumps in the Changa Manga forest, besides providing close support to the Indian Army. The IAF helped check the further advance of the Pakistani armour beyond the Sabuna drain (in Indian territory).[14] Effective interdiction by the IAF destroyed trains carrying tanks[15] and fuel to the area (between Okara and Montgomery). The Changa Manga forest was singled out for attacks at night by the Canberras and also the An-12s.[16] The An-12s were also utilised successfully by night to 'carpet bomb' an area that was being used by the enemy artillery to target Poonch. They dropped 40 tons of bombs and silenced the guns effectively.

In all the above operations, it was the core competency of the IAF that was on display, as also its ingenuity in the optimum utilisation of its resources. The *mantra* for the IAF throughout the conduct of air operations in the western sector appeared to be: "You tell us what the target is; leave the rest to us to figure out how to destroy it". The impact was felt in the battlefield by the Pakistan Army; the planned grand offensive by Lt Gen Tikka Khan did not materialise.[17]

The average time for the IAF to respond to a demand for close support was between one to one and a half hours in the western sector; this was a vast improvement over the time that it took for demands to materialise during

14. Air Chief Marshal PC Lal, *My Years with the IAF (*Lancer International), p. 262.
15. "A train carrying 50-odd tanks was destroyed by Mystere interdiction strikes between Okara and Sahiwal (old Montgomery)", Singh, n.7, p. 159.
16. Lal, n. 14, p. 264.
17. Singh, n.7, p. 161.

Valuable lessons in jointmanship were learnt during the operations in the east, born out of the necessity to assist the army in crossing the various natural obstacles – rivers – in its advance towards Dacca. Air dominance was established by December 6.

the 1965 War[18]. The procedure for providing support to the army had also been streamlined by providing Tactical Air Centres (TACs) along with each of the Corps Headquarters (HQ), besides an Advance HQ of the air force alongside each Command HQ of the army. Forward Air Controllers (FAC) had been **trained** during exercises conducted in the western sector before war broke out on December 3. The Army Commander, Western Command, Lt Gen KP Candeth, commenting on the support provided by the IAF in the western theatre, said, "Except during the first four days in Chhamb, the PAF never really made their presence felt. Further, they never were able to prevent or even hinder our moves or the execution of any operations."[19]

Valuable lessons in **jointmanship** were learnt during the operations in the east, born out of the necessity to assist the army in crossing the various natural obstacles – rivers – in its advance towards Dacca. Air dominance was established by December 6 with the bombing of Tezgaon airfield, the operating base for the F-86s. The bombing was carried out by MiG-21s[20] of 28 Squadron operating from Gauhati; the squadron had earned the sobriquet "The Runway Busters" by the end of the war. From the very next day, i.e. by December 7, IAF helicopters began carrying army troops and equipment across the rivers in an innovative and unprecedented heli-bridging operation that proved extremely successful. In anticipation of the likelihood of achieving air dominance in the eastern theatre within seven days (it was actually achieved within three), paradrop of a battalion group was planned. The **joint planning** for the paradrop was carried out

18. Lal, n. 14, p. 176.
19. Lt Gen KP Candeth, *The Western Front: The Indo-Pakistan War 1971* (New Delhi: Allied Publishers, 1984), p. 158.
20. This was yet another example of 'flexibility' of air power – an essentially air defence aircraft was utilised in the bombing role using 2x500 kg free fall bombs (with a high explosive charge) for runway denial missions. The results were outstanding.

by forming a Joint Coordinating HQ at the Advance HQ of the Eastern Air Command (EAC) working under the Director of Operations (Transport) at Air HQ. It functioned alongside the Army Eastern Command at Calcutta. An Integrated Air Transport Group was also established for effective execution of plans[21]. Paratroopers not familiar with jumping from Dakotas were given practice jumps in the build-up phase. The different types of aircraft practised the formations to be flown for the final drop. As a result, the paradrop near Tangail was near copy-book in terms of the time taken for the battalion group to be dropped as well as the accuracy of the drop. Training of paratroopers during the build-up phase paid rich dividends in a true display of jointmanship.

Close support for the advancing Indian Army was provided wherever pockets of resistance were observed; thus, facilitating the progress of the army. Procedures for close support had been streamlined and proved successful during the operations in the eastern sector.

On December 14, an intelligence report was received at HQ Eastern Command (at 0930hrs) that the Governor of East Pakistan, Dr AM Malik was to have a Cabinet meeting at 1200hrs in the Government House. This was promptly conveyed to Air HQ as well as to Eastern Air Command. The MiG-21 squadron based at Gauhati was tasked for the mission. Although there were no maps of the target area with the squadron, a tourist map was located with Indian Oil Corporation at the air base at Gauhati [22](from where the squadron was operating during the operations) and planning for the mission was carried out using the same. The strike was carried out with pin-point accuracy by the MiG-21s of 28 Squadron with unguided 57 mm rockets. The Governor was so shaken up after the strike that he, along with his entire Cabinet, resigned. This action by the IAF precipitated the surrender of the Pakistan Army in the east. It is also a befitting example of the IAF effectively exploiting some of the important characteristics of air power, viz. '**precision**', '**flexibility**' (using an essentially air defence aircraft in the air-to-ground strike role) and **'lethality'** (the impact that the precision strike had

21. Lal, n.14, p. 219.
22. Singh, n.7, p. 168.

on the psyche of the leadership). The core competency of the IAF was never more aptly demonstrated as during the bombing of the runways in East Pakistan – that grounded the PAF – as well as the attack on the Government House; all carried out by that true multi-role aircraft of the IAF: the MiG-21.

THE KARGIL WAR, 1999

The infiltration by the Pakistani forces was detected only on May 3, 1999, by the Indian Army when it moved to reoccupy the posts it had vacated during the previous winter. Initially, it was seen as a minor incursion by militants which the army felt confident of neutralising in a few days. When it was realised that the threat appeared to be more serious, the Indian Army sought attack helicopters from the IAF on May 11, to dislodge the infiltrators. The CAS agreed to this demand from the army but first sought political clearance for employing the air force. Use of the air force was viewed as being escalatory and the government did not want the conflict to spread to other areas; the Indian government, thus, refused utilisation of the IAF on May 18, during the Cabinet Committee on Security (CCS) meeting.

A Canberra carrying out reconnaissance on own side of the Line of Control (LoC) was hit by a Stinger Surface-to-Air Missile (SAM) on May 21. The aircraft recovered safely. The 'go-ahead' by the government to use the IAF was finally given on May 25, with the proviso that the LoC was not to be crossed under any circumstances. The mountainous terrain, with targets at heights ranging from 12,000-18,000 ft amsl posed a challenge that had to be overcome; no air force in the world had ever faced the challenge of attacking dug-in troops at such heights before. The restricted manoeuvring space for the fighters – in view of the government's diktat of not crossing the LoC – coupled with the threat from shoulder-fired SAMs, only increased the degree of difficulty that needed to be overcome by the IAF. Although some training had been carried out at the Toshe Maidan high altitude air-to-ground range near Srinagar just before the IAF was inducted, the challenges over the area of operations were entirely different, mainly relating to target acquisition. On May 27, a MiG-21 aircraft flown by Sqn Ldr Ajay Ahuja was shot down on own side of the LoC with a Stinger missile. Although he ejected safely, he was killed by the

Pakistani soldiers on landing. On May 28, a Mi-17 helicopter was shot down – again by Stinger missiles – while on an operational mission in the region. All on board were killed. These two losses necessitated a change in tactics that would keep fighter aircraft outside the lethal envelope of the shoulder-fired SAMs. Further helicopter offensive support missions were stopped. Mirage-2000 aircraft were inducted and this made a significant difference in the accuracy of the strikes. Interdiction of supply camps at Muntho Dhalo resulted in serious degradation of the enemy's ability to sustain the war effort. All possible aircraft in the sector – including the MiG-21s – were utilised to carry out round-the-clock bombing of the enemy. This was aimed at breaking his will to fight; it proved successful. Use of air power was a significant factor in reducing own casualties. The enemy air was kept at bay with air defence escorts being provided for every strike mission that proceeded to the target area. Own air defence aircraft were armed with Beyond Visual Range (BVR) missiles – something that the PAF lacked at that time. As a consequence of the Kargil conflict, the PAF realised this operational shortcoming and has since obtained BVR missiles for its fighter aircraft. **'Flexibility' and 'adaptability' were the hallmarks of IAF operations during the Kargil conflict.**

Finally, the biggest compliment to the IAF was symbolised in the message received from HQ XV Corps, which read, "You guys have done a wonderful job. Your Mirage boys with their precision guided bombs targeted an enemy Battalion HQ in Tiger Hill area with tremendous success. Five Pakistani officers reported killed and their Command and Control broke down – *as a result of which our troops have literally walked over the entire Tiger Hills area.* The enemy is on the run. They are on the run in other sectors also. At this rate, the end of the conflict may come soon"[23] (emphasis added).

One of the most important takeaways from the Kargil conflict was the high degree of army-air cooperation (at the functional level) that marked every phase of the operation.[24] The sheer grit of the young army officers and the men they personally led into battle is the stuff legends are made of – their

23. AVM (then Gp Capt) DN Ganesh, *Indian Air Force in Action*, in Jasjit Singh, ed., *Kargil 1999: Pakistan's Fourth War for Kashmir* (New Delhi: Knowledge World, October 1999), p. 184.
24. Ibid., p. 186.

If the complexity of peace-time exercises can be increased to a level that 'almost' replicates the 'real thing', pilots would be better prepared to face the uncertainties brought about by the 'fog of war' – when the bullets, the Anti-Aircraft Artillery (AAA), Surface-to-Air Missiles (SAMs) and Air-to-Air Missiles (AAMs) start flying around.

close interaction with the air force helped evict the Pakistani intruders from Indian soil.

COMBAT TRAINING IN THE IAF

You Fight Like You Train

The Chief of Staff, USAF, Gen David L. Goldfein, while addressing the Air Force Association in 2016, was recounting his experiences during the Gulf War wherein he emphasised the importance of training under realistic conditions. Red Flag – the USAF's keystone exercise – prepares aircrew for operations just short of war, and this facet of the experience (gained by him and as recounted by the General) was the saving grace for pilots in the opening rounds of conflicts. From experiences during the Korean War and Vietnam War, it had been established that if a pilot survived the first ten missions of a conflict, the chances of him surviving the war were very high.[25] Realistic training, therefore, has no substitute. If the complexity of peace-time exercises can be increased to a level that 'almost' replicates the 'real thing', pilots would be better prepared to face the uncertainties brought about by the 'fog of war' – when the bullets, the Anti-Aircraft Artillery (AAA), Surface-to-Air Missiles (SAMs) and Air-to-Air Missiles (AAMs) start flying around.

Without trying to sound pompous – or parochial – it is to the credit of the IAF that it pursues a rigorous training programme at its Tactics and Air Combat Development Establishment (TACDE) that is as challenging as the one carried out during Red Flag. It is no wonder, then, that the IAF aircrew have repeatedly performed exceptionally well during various international

25. "An Air Force analysis known as Project Red Baron II showed that a pilot's chances of survival in combat dramatically increased after he had completed 10 combat missions"; Exercise Red Flag; From Wikipedia, the free encyclopedia; https://en.wikipedia.org/wiki/Exercise_Red_Flag. Accessed on April 27, 2017.

exercises, be it Red Flag in the US/Alaska, Cope India (between the USAF and IAF in India), Ex Garuda (between the IAF and the French Air Force), Ex Indradhanush (between the Royal Air Force and IAF), etc. These exercises prepare IAF pilots for complex air combat scenarios, and provide them the opportunity to lead and participate in missions involving large force employment. With the introduction of the composite graduate course concept at TACDE, transport and helicopter aircrew are also inducted into the course, besides fighter controllers (both on ground-based radars as well as on AWACS), Surface-to-Air Guided Weapons (SAGWs) crew, Garuds, et al. Emphasis is placed on realistic Electronic Warfare (EW) training as well. Core competencies are achieved after the churn in the crucible of such exercises, not only abroad but also within the country; this is, however, equally applicable to the other Services as they follow Service-specific exercises/training regimens. **No attempt should, therefore, be made to undermine the other's capabilities in their areas of expertise at any stage. The emphasis should be on using the Service most suited to best achieve the operational objective in pursuance of national aims.** At this stage, I cannot help but recount a famous quote by one of my seminar-mates at the Air War College (USA) in 1997-98. While discussing joint operations he said: **"Jointness is like golf; you only have to use the right club!"**

The PAF has a Combat Commanders School (CCS) – akin to TACDE of the IAF – where its pilots get trained in realistic air combat scenarios. The CCS is located at PAF Base, Mushaf (earlier, PAF Base, Sargodha). The centre is believed to be a world class facility for conducting multinational exercises as well as training PAF personnel at every level.

COMBAT TRAINING IN THE PAF

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The PAF has also participated in the Red Flag Exercise held at Nellis AFB, Nevada, USA, in 2010 and 2016. It also participates in the annual exercise conducted by Turkey – Ex Anatolian Eagle. During the 2016 version of the exercise, emphasis was placed on dynamic and time-sensitive targeting, as well as close air support missions. Besides the Turkish Air Force (TuAF) and the PAF, the Italian Air Force and the Royal Saudi Air Force also participated in the exercise. The PAF first participated in the exercise in 2004 and has been participating in this Red Flag type of exercise occasionally thereafter. In February 2016, the PAF CAS was the chief guest at an earth-breaking ceremony for an air warfare training facility called the Airpower Centre of Excellence (ACE) at PAF Base Mushaf (Sargodha). The centre is believed to be a world class facility for conducting multinational exercises as well as training PAF personnel at every level. It was operationalised in October 2017 when an international exercise 'ACES Meet 2017' involving eight air forces was conducted there.

Earlier, in May 2017, the PAF had activated its PAF Base Qadri in the Gilgit-Baltistan region and carried out exercises there. The Intelligence, Surveillance and Reconnaissance (ISR) assets of the PAF, including precision targeting equipment – 'Sniper' Advanced Targeting Pods (ATPs) – were believed to have been used for the conduct of time-sensitive Counter-Insurgency (COIN) operations (as part of Operation Zarb-e-Azb against militants) in the mountainous regions of Waziristan [a part of the Federally Administered Tribal Areas (FATA) bordering Afghanistan].[26] The Sniper pods have a day/ night capability and could be used for Suppression of Enemy Air Defence/ Destruction of Enemy Air Defence (SEAD/DEAD) missions besides accurate targeting using Laser Guided Bombs (LGBs), including in the mountains.

26. "Sniper ATP provides pilots high-resolution imagery for precision targeting, surveillance and reconnaissance missions. Sniper ATP detects, identifies, automatically tracks and laser designates small tactical targets at long ranges. It also supports employment of all laser and GPS-guided weapons against multiple fixed and moving targets"; "Pakistan Expands Lockheed Martin Sniper Advanced Targeting Pod Fleet", Lockheed Martin release, July 14, 2015; http://www.lockheedmartin.com/us/news/press-releases/2015/july/mfc-071415-pakistan-expands-lockheed-martin-sniper-advanced-targeting-pod-fleet.html. Accessed on April 27, 2017

More recently, the air exercise 'Saffron Bandit' was held at the Air Warfare School, Mushaf, in Sargodha, and concluded on August 17, 2018.

COMBAT TRAINING IN THE PLAAF

Fighting and winning local wars under conditions of informatisation had been the cornerstone of China's military doctrine since 1993 as much as it had been the rationale for its systematic military modernisation. This has now expanded to include President Xi's simple directive, "The Central Military Commission (CMC) should strengthen the troops' sense of crisis and war, work hard at combat readiness, and lead our military to be able to fight and win wars".[27]

What has the PLAAF done in recent years to improve its state of training, which till the 1990s was considered archaic?

A Flight Test and Training Centre (FTTC) had been set up in 1987 at Cang Zhou, near Beijing, tasked with developing combat tactics, flight techniques (standard operating procedures/combat evaluation manuals/ flight operating instructions), training programmes for new aircraft and certification of new equipment (a combination of the roles performed by TACDE and ASTE[28] in the IAF). The best combat pilots are sent to the FTTC which is also tasked with defending Beijing. The base carries out 'aggressor' training for the benefit of visiting PLAAF Air Regiments. Presently, it houses three 'aggressor' Air Regiments (one each of the J-10, Su-30 MKK and J-7E). In 1992, Russian flight instructors found that the PLAAF was treating the newly inducted Su-27 like the MiG-21 and were not utilising all of the potential of the Su-27. After the initial setbacks to training caused by the myopic leadership who thought training was capitalistic, the real boost to PLAAF training was given in 2002 after Hu Jintao assumed the leadership. The FTTC was tasked to develop tactics and operational concepts based on lessons learnt from the first Gulf War (1991).

27. "President Xi's Directive to Military: Be Ready for War" *The Straits Times*/Asia News Network / 02:46 PM November 6, 2017. http://globalnation.inquirer.net/161495/president-xis-directive-military-ready-war#ixzz5PY1a9idc Follow us: @inquirerdotnet on Twitter | inquirerdotnet on Facebook. Accessed on August 29, 2018.
28. ASTE –Aircraft and Systems Testing Establishment.

In 1998, a new Air Force Test Training Base was established at Dingxin (north-central China) and by 2005, Red Flag type of exercises (Red Sword/Blue Sword) began to be practised by the PLAAF at the base. Different war scenarios are now practised by the participating forces, the complexity increasing every year. Weaknesses in training are identified and standardisation of air regiments carried out. In January 2018, the J-20 is believed to have carried out BVR engagement exercises against the J-16 and J-10C, possibly at Dingxin.[29]

The facilities at Dingxin cater for integrated training of fighter/transport/helicopter pilots, fighter controllers, SAM/AAA crew, and operational crew manning various command and control centres, including Airborne Warning and Control System (AWACS)/Airborne Early Warning (AEW) aircraft. Realistic Electronic Warfare (EW) training is imparted at the integrated EW range in a dense electromagnetic environment. Over 100 aircraft of different types participate at a time in the Red Sword/Blue Sword series of exercises that include CAS, SEAD and OCA[30] missions. Live weapons, including Precision Guided Munitions (PGMs) (air-to-ground) are used during the exercises. Most PLAAF Regiments have completed training at Dingxin. Those squadrons (from among the second/third generation aircraft) that perform well during the exercise are 'rewarded' by gaining a conversion to a new type of aircraft.

To overcome the handicap of exposure to Western tactics, the PLAAF has exercised with the PAF and Turkish Air Force during 2010 and later with the PAF in 2011, 2013, 2014, 2015, 2016 and 2017 during the Shaheen series of exercises between the PAF and PLAAF. The Shaheen series of exercises have been held alternately in Pakistan and China. Reports on the performance of PLAAF aircrew during the exercise with the Turkish Air Force indicate that the PLAAF crew were very weak in the application and understanding of complex manoeuvres involved in large force engagements; their standards are likely to have improved over the years due to their exposure to the

29. Gabriel Dominguez, "PLAAF Inducts J-20 into Combat Units," *IHS Jane's Defence Weekly* February 12, 2018; https://www.janes.com/article/77794/plaaf-inducts-j-20-into-combat-units. Accessed on September 3, 2018.
30. CAS – Close Air Support; SEAD – Suppression of Enemy Air Defence; OCA – Offensive Counter. Air.

Shaheen series of exercises with the PAF and their participation (since 2014) at the Aviadarts Military Games at Lipetsk AFB, in Russia. The Aviadarts competition pits selected pilots from various countries (Russia, China, Belarus, Azerbaijan, etc.) in a gunnery meet-cum-aerobatics competition where pilot skills in navigation, reconnaissance and evasion of ground-based air defence systems—including the feared S-300 surface-to-air missile system – are also tested. On conclusion of the Aviadarts 2017 in China in August 2017, Commander of the Russian Aerospace Forces Col Gen Viktor Bondarev said, "Our team came first in the contest. It was a close fight, the Chinese pilots proved to be worthy opponents, but our pilots were unparalleled."[31]

As early as 2015 when the US Department of Defence (DoD) tabled its report to Congress on "Military and Security Developments involving the People's Republic of China", the PLAAF has been credited with "rapidly closing the (technology) gap with Western air forces across a broad spectrum of capabilities from aircraft, C2, to jammers, to Electronic Warfare (EW), to datalinks;"[32] this has been reiterated in its 2018 report to Congress as well.[33]

Closer home, of late, the PLAAF has been carrying out joint training drills in the Tibetan Autonomous Region (TAR) which are aimed at creating a favourable air situation for unhindered operations of the PLA. These exercises involve the use of helicopters to drop highly mobile units of the PLA whose main objective would be to capture and hold mountain passes and Advanced Landing Grounds (ALGs), and neutralise the IAF's 'gap-filler' radar units. Attention is also being placed on providing greater air defence coverage to PLAAF airfields in the TAR in an 'Integrated Air Defence System' (IADS) through induction of radars and air defence weapons – Medium Range Surface-to-Air Missile (MRSAMs), Short Range Surface-to-Air Missile (SRSAMs) and point defence weapons in the form of anti-aircraft-artillery

31. "Russian Crew Wins Aviadarts 2017 Int'l Air Contest in China" © Sputnik / Evgeny Biyatov, WORLD0647 10.08.2017Get short URL: https://sputniknews.com/world/201708101056338077-russian-crew-aviadarts-china/. Accessed on August 29, 2018.
32. Pentagon 2015 Report to Congress on China's Military Power, May 8, 2015; USNI News; https://news.usni.org/2015/05/08/document-pentagon-2015-report-to-congress-on-chinas-military-power. Accessed on September 1, 2018
33. DoD Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2018; https://media.defense.gov/2018/Aug/16/2001955282/-1/-1/1/2018-CHINA-MILITARY-POWER-REPORT.PDF. Accessed on September 2, 2018.

that has a very high rate of fire. Attention is also being given to ground-based LIMAN jammers.[34] Civil-military integration is also being assessed to ensure sustenance of the military in a long duration war without the need for a long logistics chain;[35] possibly the PLA fears that this 'tail' would be interdicted by the IAF. This 'fear' resulted in their abrupt pull-out from the regions they had advanced to (till Misamari, near Tezpur) during the concluding phases of the 1962 India-China War.

From the above, it is clear that the PLA is 'gearing up' for a possible conflict in the future; the capability is being developed, the intent (to wage a war) could possibly depend on geopolitical compulsions as might arise in the future.

The message for us is clear – we need to stay prepared 24x7 to counter this threat.

THREATS IN THE FUTURE

Many armchair strategists feel that in the future, the chances of classic force-on-force kinetic warfare – that is currently driving the acquisition of military hardware – would be low. However, militaries, being the traditional last bastion to ensure national security, always follow a conservative approach and prepare for the final onslaught, wherein, once all options of unrestricted war fail to meet the desired ends, conventional war-fighting, as the final option, might be resorted to by the enemy. Their apprehension is that conventional military asymmetry at such times could prove disastrous,

34.. The LIMAN is designed to protect ground targets against aircraft attacks by means of jamming hostile aircraft navigation and radio communications links with airborne or ground support platforms. The LIMAN automatically searches and intercepts radio communication and navigation-aid signals, whether fixed or frequency-hopping. It can jam a specific frequency or can be used to barrage jamming across a large portion of frequency band to deal with frequency-hopping (HAVE QUICK) systems. The maximum jamming range is 450 km; "The Ground Mobile Air Defense Electronic Countermeasure (ADEC) System which Received Designator LIMAN," UKROBORONSERVICE; https://en.uos.ua/produktsiya/sistemi-zashchiti/47-nazemniy-mobilniy-kompleks-radiopodavleniya-liniy-navedeniya-aviatsii-liman. Also see https://media.defense.gov/2018/Aug/16/2001955282/-1/-1/1/2018-china-military-power-report.pdf

35. "Chinese Military Holds Drill in Tibet to Test Factors that Influenced 1962 War with India", *Hindustan Times*, June 30, 2018; https://www.hindustantimes.com/world-news/chinese-military-holds-drill-in-tibet-to-test-logistics-weapon-support-civilian-integration/story-MJwjXeTxfDAJOl5ZZEEwBI.html. Accessed on September 2, 2018.

paving the way for defeat at the hands of the more powerful aggressor; it could end up in conceding to the 'unfair' demands of the enemy. Accretion of military arms in a focussed manner, keeping the (purely conventional) military threats in the future in mind cannot, therefore, be ignored.

The type of conflict that has been ongoing in Ukraine since 2014 has been referred to variously as Russia's New Generation Warfare or Seventh Generation Warfare.

Obviously, the West – read the US and North Atlantic Treaty Organisation (NATO) – had been so engrossed in their own affairs that their lack of commitment to provide timely help virtually resulted in an abandonment of Ukraine. Russia could not have timed its intervention better, and it succeeded in annexing Crimea without a whimper from the world – the usual resolutions from the UN condemning the act notwithstanding!

What do we need to learn from this? Is the age of anarchy back? Has the world forgotten the Treaty of Westphalia, signed as far back as 1648?

Hitler, of course, rescinded the Peace of Westphalia once his conquest of Europe began. Now, is it Russia's turn to repeat the feat? And, of course, if Russia does something, can China be far behind?

We have already seen the beginnings of the 'creeping invasion' of territories in the South China Sea (SCS) by China. The world is still trying to decide how to deal with a China that is growing stronger, by the day, militarily and economically – enough to question the US' likely intervention in the SCS for providing assistance to its allies in the region, viz. Japan, South Korea and Taiwan (the Republic of China). Towards this, China has not only built up its Anti-Access/Area Denial (A2/AD) capability by operationalising anti-ship ballistic missiles like the the DF-21D, but has also built runways on islands in the Spratlys (Fiery Reef, Mischief Reef and Subi Reef) and the Paracel group of islands (at Woody Island). Use of these runways and infrastructure – that can accommodate up to 100 Gen 4+/Gen 5 aircraft – for coercion and area denial in operations that will remain below the threshold of all-out war is likely to be the *modus operandi* of the Chinese in the future. There are already signs of the 'Little Blue Men' – the Chinese Coast Guard and the maritime militia – who are operating in the grey zone (at levels

China has demonstrated its ability to transmit secure data (including video calls) at distances as large as 6,800 km with the launch of the quantum communications satellite – Micius – in August 2016. It has already set up five ground stations across the country from where secure communications can be exchanged.

below all-out war) and continuing to harass and intimidate fishermen and militaries of regional nations in the SCS region; no solution appears to be in sight to challenge the 'new normal' and the hybrid warfare set in motion by the Chinese in the region.

With the creation of a cyber army, China's emphasis on electronic warfare [using High Altitude Long Endurance (HALE) Unmanned Aerial Vehicles (UAVs) as platforms], and with the continued development of directed energy weapons, China has made clear its intentions of the likely form of warfare it would resort to in its next major military engagement: "*information operations (IO) – including cyber, electronic, and psychological warfare* – (that would be) *integral to conducting modern warfare*."[36] In an attempt to expand its influence beyond the First Island Chain, China has begun to exercise its long range bombers – the H-6K – in the Western Pacific. Armed with Air Launched Cruise Missiles (ALCMs), these bombers pose an existential threat to US air assets based in Guam. This is in consonance with China's efforts at 'breaking out' from the confines of the Taiwan Straits to areas further afield. The H-6K bombers were escorted by Su-35 fighters that undertook air-to-air refuelling for the mission flown on May 11, 2018. The demonstration was aimed at projecting China's ability – in the future – to undertake "*informatized local wars" – regional conflicts defined by real-time, data-networked command and control, and precision strike*.[37]

China has demonstrated its ability to transmit secure data (including video calls) at distances as large as 6,800 km with the launch of the quantum communications satellite – Micius – in August 2016, and the first long distance quantum secured video call between researchers in China and

36. n. 34, p. 73.
37. Colin Clark, "China 'Likely' Training Bomber Pilots To Hit US, Allied Targets," *Breaking Defence*, August 17, 2018; https://breakingdefense.com/tag/second-island-chain/. Accessed on September 2, 2018.

Austria in December 2017[38] that lasted 75 minutes (with a total of approximately two GB data being transmitted securely). It has already set up five ground stations across the country from where secure communications can be exchanged.[39] That some of these ground stations are in the TAR indicates the military intent of the (almost certain) use of this capability in the future to protect its command and control system in the region.

The CONOPS (Concept of Operations) that are likely to be favoured by nations possessing such capabilities would be to try and control the electromagnetic spectrum before the fighting breaks out. This would include an attempt to degrade/neutralise the enemy's command and control structure through cyber attacks (as part of information operations) and carry out jamming of communication and radar systems and GPS satellites of the adversary. Protection of own assets would be an integral part of such operations. China is focusing on information, cyber, space and counter-space operations.

It is only through a joint approach to warfare that the synergies of the core competencies of the individual Services can be realised. Today, each Service has capability in the cyber realm as well as the EW domain. Synchronisation of the efforts in these areas to not only protect own systems but also launch a strong cyber and EW attack on the enemy's C2 nodes would prove to be the game changer.

NEED FOR JOINT TRAINING (TO TACKLE FUTURE THREATS)

It is only through a joint approach to warfare that the synergies of the core competencies of the individual Services can be realised. Today, each Service

38. Emily Connover, "A Quantum Communications Satellite Proved its Potential in 2017, Intercontinental Video Call Sets Distance Record for Cryptography via Entangled Photons, December 13, 2017, *ScienceNews*; https://www.sciencenews.org/article/global-quantum-communication-top-science-stories-2017-yir. Accessed on August 31, 2018.
39. These are located in Xinglong (near Beijing), Nanshan (near Urumqi), Delingha (37°22′44.43′′N, 97°43′37.01′′E), Lijiang (26°41′38.15′′N, 100°1′45.55′′E), and Ngari in Tibet (32°19′30.07′′N, 80°1′34.18′′E); "Real-World Intercontinental Quantum Communications Enabled by the Micius Satellite," January 19, 2018, University of Science and Technology of China; https://phys.org/news/2018-01-real-world-intercontinental-quantum-enabled-micius.html#jCp. Accessed on August 31, 2018.

has capability in the cyber realm as well as the EW domain. Synchronisation of the efforts in these areas to not only protect own systems but also launch a strong cyber and EW attack on the enemy's C2 nodes would prove to be the game changer. Psychological operations and information operations are other areas where synchronisation of efforts would pay greater dividends. Interaction with the civil intelligence agencies would need to be maintained – and encouraged – to adopt a 'whole of nation' approach to tackle a future Doklam type grey zone incident that almost turned ugly; it had the makings of the 1962 conflict as the Chinese had begun calling India's action (at Doklam) an "intrusion".

How can Headquarters Integrated Defence Staff (HQ IDS) help the Services to synergise their efforts in keeping with its motto: "*Victory through Jointmanship"?*

The training calendar for the three Services should be coordinated by HQ IDS so that the synergy required for fighting today's high-tech wars can be achieved through joint training. Although one cannot train for all contingencies that are likely to be faced during war, once interoperability issues are resolved during intense peace-time training, the few cases which have not been practised, could be tackled by the intrinsic flexibility and adaptability among own warriors.

Interoperability issues among the three Services need to be ironed out during peace-time, realistic exercises like the recently concluded IAF's Exercise Gagan Shakti 2018.

IS A CHANGE IN THE HIGHER DEFENCE ORGANISATION OF INDIA NECESSARY?

The stellar role played by the Indian armed forces in winning all the wars fought since Independence – except in 1962 when the air force was not utilised – appears to have been all but forgotten by the recent proponents of Integrated Theatre Commands. They seem to have forgotten the individual core competency of each Service that was on display throughout the conduct of these wars. Jointness too played an important role, as we have seen earlier in the paper.

There were, however, instances during the 1965 India-Pak conflict when air power, although available, was not utilised in support of own ground forces. This was as a result of the procedures for seeking immediate air support not being streamlined and, in some cases, not being cleared by the controlling formations.[40] Lack of reliable secure communications between the Tactical Air Centres (at Corps HQ) and controlling Air Force Wings (where fighter aircraft were based) was another deficiency in providing timely air support to the army.[41] These deficiencies were made good by the time the next war came along and the degree of close support in the 1971 War was exemplary.

Whenever joint training was carried out prior to the conduct of the operation(s), the results were exceptional (e.g. the Tangail airdrop). The blunting of the Pakistani armoured thrust in the Longewala sector by IAF Hunters is a testimony of the close support provided by the IAF to the beleaguered Indian Army troops in the area; in the process, the IAF prevented what would have been a major embarrassment to the Indian armed forces had the Pakistan Army been successful at Longewala. All the actions by the IAF to gain air dominance in East Pakistan in early December 1971 prepared the ground for the Indian Army to continue its operations against Lt Gen Niazi's forces unhindered by enemy air; an Army on the move is certainly an easy target for air forces, as opposed to a dug-in, defensive army.

Sheer grit and outstanding leadership of the young officers and jawans of the army was on display while evicting the intruders from the Kargil heights against defying odds and against a well entrenched enemy who occupied the dominating heights and had a veritable storehouse of ammunition and weapons – including shoulder-fired SAMs (Stingers). Here too, the IAF, once inducted (on May 26, 1999), provided full support to the army to 'soften' the positions being occupied by the intruders; most operations were well coordinated through joint planning at the Corps HQ. Eventually, through a round-the-clock bombing effort and interdiction of supply dumps,

40. Indian Army's 15 Div was launched on a major highway towards Lahore without informing the IAF. On being attacked by the PAF, close support was requested by 15 Div. the request was forwarded to the Corps HQ, but was not authorised by the Corps HQ. Singh, n.7, pp. 129-131.
41. Ibid., p. 131.

the enemy's will to continue was broken. The Indian Army carried out a commendable job to evict the intruders from the heights they had wrongfully occupied.

Does such an outstanding performance by any military in winning its nation's wars in the past then require the armed forces to move away from the established organisational set-up that has served the nation well so far? Does it really require a change in the higher defence organisation either?

The reluctance of the Services in the US to operate as an integral joint force and the continued parochialism that existed led to several operational blunders. Also, there were serious differences within the Services when it came to prioritising defence acquisitions; each wanted a greater piece of the pie. This led to the introduction of the Goldwater-Nichols Act (GNA) in 1986 – a reform in the higher defence organisation of the US.

However, thirty years down the road, and with the more technologically advanced nations posing as peer competitors to the US military, *"getting better technology into the hands of the war-fighter faster is an imperative"* as outlined in a report by the Naval Postgraduate School of the US .[42] The report recommends a review of the GNA 1986 to shorten the acquisition cycle even further if the US military is to stay ahead of the competition "to defend the country".[43]

With a concept of bipartisan budget support – as outlined in the Bipartisan Budget Act 2018 of the US – certain defence spending is authorised to the government that is in office.[44] Political machinations by opposition parties in India, on the other hand, opposing induction of critically needed weapon systems/technologies have mostly had a deleterious effect on acquisitions that impact national defence. This is one area that needs to be addressed urgently while considering 'structural reforms' in the higher defence organisation.

42. Dale P. Bond, Scott M. Davis, Aaron D. Pearsall, *The Goldwater-Nichols Act of 1986: 30 Years of Acquisition Reform* (California: Naval Postgraduate School, Monterey, December 2016), p86; http://www.dtic.mil/dtic/tr/fulltext/u2/1030707.pdf. Accessed on September 3, 2018.
43. Ibid., p. 86.
44. Seamus P Daniels and Todd Harrison, "Making Sense of the Bipartisan Budget Act of 2018 and What It Means for Defense", February 20, 2018; CSIS; by https://www.csis.org/analysis/making-sense-bipartisan-budget-act-2018-and-what-it-means-defense. Accessed on September 3, 2018.

The post of the Chief of Integrated Defence Staff to the Chairman of the Chiefs of Staff Committee (CISC) was created in 2001 as a result of the proposals made by the Group of Ministers, based on the recommendations of the Kargil Review Committee to fulfil the pressing need for an institutional framework for higher management of defence. The Integrated Defence Staff was expected – on lines similar to those set out by the GNA 1986 – to bring about a modicum of rationality to the defence acquisition procedure. Also, it was expected to play a pivotal role in coordinating joint operational planning among the three Services. However, this has not happened despite 17 years having passed since its formation. To be fair to the institution of the IDS, although great effort has been expended to streamline the acquisition process, the final clearances by the apex body – the CCS – have, however, been beyond the control of IDS.

At the sharp end of the stick, it has been found that the Services always deliver a war-winning strategy when the chips are down. This does not mean that no reform is required; on the contrary, certain realignment in the overall functioning of the Chief of Staff Committee (COSC) – duly supported by HQ IDS – is considered inescapable. Some suggestions are discussed below:

- **Joint training** among the various Services, to increase interoperability, to be given the highest priority. The COSC needs to designate HQ IDS as the nodal agency to drive this training. Cyber, electronic warfare, information operations to be given the highest priority during such joint training. For time-sensitive targeting, greater emphasis to be placed on coordination of resources of all the Services and agencies for accurate Intelligence, Surveillance, Reconnaissance (ISR) inputs. The special forces of all three Services also need to train jointly for tasks that could require each other's core competencies for success.
- The COSC to ensure **joint planning** for operations – in consonance with the Raksha Mantri's (RM's) Op Directive, and also as 'war-gamed' by the Directorate of Net Assessment (part of HQ IDS) – by inviting representatives from all three Services.
- While the role of each Service cannot be ignored in joint war-fighting, assignment of priorities for the CONOPs to be followed to achieve

national aims – and consequent **outlining of roles and missions for individual Services –** need to be carried out by the COSC.

- Greater emphasis to be placed on **cross-training of officers** at the middle seniority levels – preferably after having completed a command tenure – to better appreciate the nuances of the other Services more comprehensively; exposure to each other's CONOPs would have already been achieved earlier during joint Service exercises.

Presently, the Service chief who has been longest in the chair is appointed as the chairman of the COSC. Besides looking after his own Service, the chairman also administers the Strategic Forces Command (SFC) as well as the Andaman and Nicobar Command. This requires the chairman COSC to devote time and effort to understand the nuances of the critical aspects of the SFC as he is an important functionary in the Nuclear Command Authority chain of command. This additional responsibility, therefore, would impact his primary responsibility as a Service chief. Appointment of a Permanent Chairman COSC (PC COSC), as recommended by the Naresh Chandra Committee, would free the chairman COSC of this responsibility as there would now be a 'full time PC COSC' to look after this responsibility. This, then, is an urgent requirement in restructuring the higher defence organisation.

IS A THEATRE COMMAND STRUCTURE RELEVANT FOR INDIA?

During World War II, North Africa and England constituted one air theatre, while Europe was considered another theatre.[45] Geographically, the North African theatre is more than three times the area of India, yet it was considered one air theatre. All US air forces were placed under one air theatre commander – Gen Carl Spaatz. However, when Spaatz was asked by Gen Eisenhower, the Commander-in-Chief (C-in-C) of all US forces in North Africa, to stand down the US Eighth Air Force from carrying out its operations in the European theatre to support the air effort against

45. Col F. Randall Starbuck, *Air Power In North Africa, 1942-43: An Additional Perspective* (United States Air Force; US Army War College Class of 1992), p. 6; http://www.dtic.mil/dtic/tr/fulltext/u2/a251886.pdf. Accessed on September 3, 2018.

Rommel in North Africa, he successfully resisted this and emphasised that the strategic bombing effort of the Eighth against Germany should not be stopped. Eisenhower conceded to this and resolved the issue by creating another numbered air force – the 12th Air Force – for supporting the US' ground offensive in North Africa.

That Gen Carl Spaatz was able to resist the arm-twisting 'proposal' of his superior – Gen Eisenhower – is a rarity and a 'risk' not many senior officers would be willing to take today if placed 'under command'. It also showed the lack of air sense in the top military leader in the North African theatre who was fixated on achieving his tactical aim at the cost of the larger, strategic aim of winning the war.

The above situation arose at a time when the radius of action (roa) of fighter aircraft was only a few hundred kilometres; they depended on nearby bases for providing close support to the army. The bombers, on the other hand, could engage targets at further ranges but could not be provided fighter escort at all times due to the range limitations of fighter aircraft; most bombing raids were, therefore, undertaken by night. Today, when the roa of most Gen 4/Gen 4+ multi-role aircraft is in excess of 1,500 km – and which can be enhanced by more than three times that figure with in-flight refuelling – confining such aircraft to only a limited theatre would be sub-optimal utilisation of costly strategic assets. They should not be 'parcelled' away to theatres where their utilisation for strategic tasks would not be under the control of the 'air theatre commander' – the Chief of Air Staff (CAS) of the IAF.

This ability of fighter aircraft to operate across the country was amply demonstrated during Ex Gagan Shakti 2018 held in April 2018 when Su-30 aircraft, operating from Kalaikunda Air Force Base in Eastern Air Command 'engaged' targets in the Arabian Sea near Lakshadweep before recovering at Thanjavur air base in southern India – covering more than 4,000 km and refuelling in the air several times during the mission.[46]

46. Jugal Purohit, "Wargame Gaganshakti: What Is The IAF Saying?" Salute, May-June 2018; https://salute.co.in/wargame-gaganshakti-what-is-the-iaf-saying/. Accessed on September 3, 2018.

The Flight Refuelling Aircraft (FRA) and the Airborne Warning and Control System (AWACS) aircraft are force multipliers that are few in number because of their high acquisition cost. Their utilisation is centrally controlled by Air HQ for specific missions. Unity of command – particularly for control of strategic air assets – is a tenet that needs to be respected while considering utilisation of scant resources for strategic tasks.

Creation of Theatre Commands in India, merely to assuage the need for 'on call' air effort – to be used at the whims of the commander – is decidedly not the most intelligent way of utilising the strategic assets of the IAF.

In view of the above, this author is of the opinion that Theatre Commands do not merit consideration in the Indian context. What is more important is to energise the **joint training** regimen among the three Services to improve interoperability and prepare them for various likely scenarios where joint operations are envisaged.

CONCLUSION

The performance of the IAF in all the wars fought so far has proved decisive. **Joint operations** have been, and always will remain, the *mantra* for IAF operations in the future also. This, however, needs dedicated effort during peace-time, realistic training to iron out interoperability issues before the bullets start flying around. **Joint planning** for operations will prove decisive as the nature of warfare in the future would require greater synergy between the Services to partake – and share – their core competencies in the conduct of information operations, cyber, electronic warfare, space and counter-space operations and special forces operations. Creation of a PC COSC towards restructuring of the higher defence organisation is recommended. Integrated Theatre Commands are not a viable proposition for a country the size of India, having air assets that can be flexibly deployed across its length and breadth, as required.

Joint training has been the icing on the cake during past wars which has provided results far greater than can be achieved by a single Service alone. Its paramountcy for the conduct of future wars will remain.