# Army Aviation 2030:
## Bright Future

**BS Pawar**

### Introduction

On November 01, 2011, the army aviation corps (AAC) completed 25 years of its existence, though its history dates back to August 1947 when the assets of the erstwhile British 1 Air Observation Post (Air OP) flight, were divided between India and Pakistan. From operating the Auster, Krishak and Pushpak two-seater fixed-wing aircraft as part of the air force in the initial stages of the Air OP growth, to the induction of French Allouette light observation helicopters (rechristened as Chetak and Cheetah) in the early 1970s, the birth of the AAC in November 1986 and the celebration of its Silver Jubilee this year has been a long and challenging journey, notwithstanding the growth impediments. Despite its stunted growth and curbed status, this fledgling arm of the Indian Army has acquitted itself with glory, be it the 1965 and 1971 Wars, virtually going unarmed into battle (true to its motto), as part of the Indian Peace-Keeping Force (IPKF) in Sri Lanka or the Kargil conflict, as well as counter- insurgency operations in the northeast and Kashmir Valley. The icing on the cake has been the unrelenting operations in the Siachen Glacier, the final frontier and the highest battlefield in the world. Routinely operating at 20,000 ft and above and on the extreme fringes of the helicopters flight envelope, the army aviation corps has virtually been the lifeline of the troops deployed in the glacier— a feat unparalleled anywhere in the world. The arm has also earned accolades for its professionalism, dedication and contribution as part of United Nation (UN) missions, especially in Somalia and Congo, where it continues to field a contingent of four Cheetah helicopters and support staff. It is in recognition of this extraordinary performance and achievements of the

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arm that the president of India has decided to honour the army aviation corps by presenting it the Regimental Colours this year.

However, despite its achievements since becoming a full-fledged arm in 1986, its growth has been haphazard and continues to be plagued by many infirmities, foremost being the opposition of the air force to its expansion plans, related to both role and assets. Essentially, the opposition relates to turf, with the air force holding on to those assets that logically must come under the ambit of the army. It will be pertinent to mention here that the army in the UK, USA and Pakistan had to go through a similar struggle to break away from its respective air force and form a full-fledged air arm of its own, comprising all types of helicopters as well as fixed-wing aircraft. While in the case of the UK and USA, the governments had to intervene, in Pakistan, the army aviation got autonomy from the Pakistan Air Force in 1958 but became a full-fledged corps only in 1977 purely due to the dominance of the army in affairs military. The Pakistan Army Aviation has in its inventory all classes of helicopters, including attack as well as fixed-wing aircraft for logistics and communications. A senior Pakistan Army general, while addressing the corps, rightly remarked that the army aviation, from being a toothless supporting arm, had become a fully independent, hard hitting arm of manoeuvre. In contrast, our own army aviation corps remains a reconnaissance and observation force with a few light utility helicopters (Dhruv/ALH) joining its inventory. At present, the army aviation assets are inadequate for the size of the Indian Army and the tasks it is required to perform. The expansion of the AAC is, therefore, imperative. The army aviation should possess a mix of light fixed-wing aircraft and all categories of helicopters, including attack helicopters/gunships for various roles like reconnaissance, surveillance, combat fire support, airborne command posts, combat service support, special operations and logistics.

## Transformation: Indian Army

The nation today is besieged by myriad and complex sets of external and internal security challenges. The regional and global trends show a strategic shift towards balance of interest rather than balance of power. While modernisation is the current thrust of the armed forces, the army has lagged behind in this very crucial aspect. Furthermore, modernisation basically seeks to address the aspects of obsolescence, voids and critical deficiencies based on technology upgradation and induction. To deal with such multifarious threats, there is a need to transfer the army towards a capability-based force, rather than a threat-based one, tempered with credible deterrents and stamina to scale up the tempo of operations. The force should be prepared for the emerging security environment and complex challenges of the 21st century. Transformation of the Indian Army is imperative to keep pace with the current and perceived changes in its security perspective. The aim is to improve the operational and logistical functioning, as also the related organisational structures to make the army more lethal, agile, and versatile, and a networked force, capable of providing for a wide range of options across the full spectrum of conflict. Military modernisation and capability development is a capital intensive venture, with long gestation periods. However, the geo-political realities of our region dictate that we modernise rapidly to meet the emerging security challenges and enhance our capabilities. The focus of the army needs to be on precision firepower, air defence, army aviation, and the future infantry soldier as a system, network-centricity, as well as achieving battlefield transparency through improved surveillance, night vision and target acquisition. The future battle space envisages integrated employment of all arms based on the combined arms concept in order to develop optimal combat power, wherein the army aviation will be a key player due to its inherent characteristics and, hence, requires reinventing and transforming itself in the context of future challenges.

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## Role and Employment Philosophy

The nature of future wars will be short notice, short duration and high intensity with deeper and wider combat zones covering the conventional as well as sub-conventional spectrum. In our context, these wars/conflicts are likely to be limited in nature and probably confined to the mountains, be it on our northern or eastern borders. The army aviation, due to its inherent characteristics can exploit the terrain and has the potential to provide tremendous flexibility throughout the spectrum of operations. This integral force can focus on the integration and synchronisation of the aviation effort within the framework of the land forces commanders' operational concept. The army aviation is a third dimension centrepiece, providing the commander an exponential leverage to harness its components and achieve decisive victory by providing operational, tactical and logistical mobility. It operates in the ground regime and, therefore, is virtually a component of land power. In the future battlefield, the army aviation will be in the forefront, shaping the battle space by projecting the force, sustaining the force and delivering decisive combat power at critical times anywhere in the battlefield by direct fire and launching air assaults. Its focus is to enhance ground mobility and exploit manoeuvre. It accelerates the tempo of operations while remaining an integral part of the combined arms team. Aviation assets are force multipliers that provide the field force commanders the capability to conduct operations across the entire range of military conflict.

The primary mission of the army aviation is to fight the land battle and support ground operations. Its battlefield leverage is achieved through a combination of reconnaissance, mobility and firepower that is unprecedented in land warfare. The army aviation as the manoeuvre force in the third dimension is the centrepiece of the land force operations. Reconnaissance, attack, utility and cargo helicopters complemented by light fixed-wing and support services like air traffic control and logistics, are all required to support the army in its range of military operations.

The army aviation's greatest contribution to battlefield success is the ability it gives the field force commander to apply decisive combat power at critical times virtually anywhere on the battlefield. This may be direct fire from aviation manoeuvre units or the insertion of overwhelming infantry forces delivered

into combat by air assault. This versatility is the very essence of the army aviation. One of the major challenges facing the armed forces today and which is likely to continue in the future is counter-insurgency/counter-terrorist (CI/CT) operations. The protracted nature of CI/CT operations may seem to negate the need for a war-fighting doctrine that emphasises speed and tempo. It actually invites the pure application of terms, where speed is relative and exploits the natural advantages in mobility of security/ special forces through use of helicopters. However, in our context, the use of helicopters for these operations has been restricted to troop carriage, logistics, surveillance and casualty evacuation. We have been reluctant to use the gunships/attack helicopters due to concerns about collateral damage. This could be a concern in built-up areas, but in the remote mountainous terrain and jungles, this option needs to be looked at by the army, and drills evolved accordingly. The use of armed Cheetah helicopters (Lancer) against a large body of terrorists holed up in the Pirpanjal ranges of Jammu and Kashmir (J&K) during Operation 'Sarpvinash' in 2002 is an apt example of the use of gunships without causing collateral damage in such operations. The Americans in Afghanistan, the Russians in Chechnya and the Pakistanis in the Federally Administered Tribal Areas (FATA) are using both assault and attack helicopter combinations to great effect in their operations, but the resulting collateral damage on a number of occasions is a matter of grave concern. We certainly need to guard against actions such as those of the Sri Lankan Army against the Liberation Tigers of Tamil Eelam (LTTE) and what the Pakistan Army is doing in the FATA areas with such weapon systems, resulting in massive collateral damage with adverse consequences.

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**Special Operations:** The recent Operation 'Geronimo' by the US Special Forces (Navy Seals) to eliminate Osama bin Laden in suitably modified Black Hawk helicopters clearly illustrates the requirement of dedicated/ suitable helicopters for special operations. While the army aviation corps is looking at a special operations squadron equipped with the 10 to 12 ton class of helicopters, it must be ensured that these helicopters have suitable stealth features as well as

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special equipment on board, as was the case with the modified Black Hawks. For surgical operations of this kind, insertion and extraction are the most crucial phases and need proper training and coordination between the helicopter crew and special forces personnel.

**Concept of Close Air Support:** There is a need to take a fresh look at the concept of close air support in the tactical battle area (TBA) and the role of attack/ armed helicopters. The present concept of close air support is a relic of World War II, driven by range limitations of surveillance, target acquisition and engagement capability of land-based platforms. The availability of unmanned aerial vehicles, missiles and long range artillery platforms (40-120 km) has changed all that, as today, surface-based platforms can cover the entire tactical battle area. This also brings into focus the role of attack and armed helicopters in providing intimate close air support in the tactical battle area. In Afghanistan, the forces on the ground have been more comfortable with the intimate and quick support provided by the attack/ armed helicopters in their operations due to the visibility and proximity factors as well as the response time. However, helicopters have their limitations, especially due to weather and, therefore, the fighter ground attack aircraft will continue to be relevant, though with a diminished and limited role in the tactical battle area.

**Air Defence and Air Space Management*:*** There are two areas of concern which need to be addressed in order to ensure effective and successful use of army aviation assets in the tactical battle area. These are air defence and air space management. Suppression of air defence by defensive measures or a combination of offensive and defensive capabilities would be essential to ensure unhindered employment of the third dimension in support of ground forces. Air space management in the tactical battle area is a very important factor and requires detailed planning and coordination to ensure optimum utilisation of all weapon systems operating in the tactical area. The air space over the tactical battle area must be controlled by the force commander responsible for the conduct of battle. A suitable height band needs to be worked out below which the army and above which the air force will control the air space related to the TBA. The management of air space in the TBA is a complex issue with a plethora of weapon systems and airborne sensors operating in a confined space required to be synergised for optimum effect.

## Present Force Structure

The present force structure of the army aviation corps inhibits it from being able to perform the roles envisaged, due to its puny size, by most parameters. The arm has been unable to grow to its natural size due to numerous factors highlighted earlier. The growth plan formulated for 2027 also does not fully address the requirements of an operational AAC, capable of fighting and supporting the army in 2050. Today, the AAC has the largest number of helicopters amongst the three Services, but a majority are of the reconnaissance and observation class (Chetak and Cheetah).These helicopters are vintage, having been in service for the last 40 years and need immediate replacement. The corps has very few helicopters to carry out a number of extremely specialised roles in the tactical battle area. While the induction of the light utility helicopter has commenced, the medium- and heavy-lift helicopters which form the core of the tactical lift capability, continue to be with the air force. Hence, the dependence of the army on the air force for tactical movements continues to be near total. A similar situation exists with regards to attack helicopter units, which despite being an integral part of the land battle, remain with the air force. Their optimum employment in such a scenario is not possible in the present set-up. The army's requirement of small fixed-wing aircraft (Dornier class), in limited numbers for important roles like command and control, aerial communication hubs, logistics, including casualty evacuation and communication flights has also not fructified due to the objections of the air force. This, despite the fact that the Indian Navy, the Indian Coast Guard and even the central police forces like the Border Security Force have fixed-wing aircraft in their inventories. A survey of military aviation organisations, within and outside the country, reveals the inadequacies of our army aviation.

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## Army Aviation: 2030

The operational diversities of the Indian Army, coupled with a variety of terrain, extensive deployment in the mountains and high altitude areas require assets that are capable of operating across this environmental spectrum. To make the army aviation a potent force capable of supporting the Indian Army operations across the entire spectrum of conflict in the TBA, it must have a

mix of both, helicopters and fixed-wing aircraft, with helicopters available in a larger numbers. The helicopter fleet should consist of attack helicopters, armed helicopters (gunships), heavy, medium and light utility (lift) helicopters and light observation helicopters. There also would be a need for specialised helicopters suitably modified for special operations. The aim is to make the force a capability-based organisation rather than an equipment and inventory-based structure, implying commensurate induction of man, machine, organisational and infrastructural requirements. Optimum asset utilisation and air space management in the tactical battle area will require significant application and forethought. Application of aviation resources to disaster management has attained significance in the context of requirements for growing economic and support stability operations. This would need to be factored in for optimum resource utilisation as compared to the insulated approach for combat scenarios only. New dimensions in tactical night operations as a direct result of sensor and avionics capabilities, with the ability to operate at low levels at night will yield great dividends .In view of the above, what are the broad structures and force levels that the army aviation should possess to make it a potent arm of the Indian Army whereby its combat efficiency is enhanced to the maximum extent?

There is a requirement for a dedicated reconnaissance and observation unit for every division to cater for the reconnaissance of commanders, direction of artillery fire and casualty evacuation from inaccessible areas. This has been adequately catered for in the accretion plans but the present helicopters (Cheetah and Chetak) have outlived their utility and need immediate replacement. The trials for their replacement are in their final stages, with the French Eurocopter and Russian Kamov in the fray. Both the helicopters being evaluated are night capable and are modified for fitment of sensors for transmitting real-time information to ground stations during reconnaissance missions. There is also a need to look at some of the independent brigades located in the mountains being allotted this resource

**Utility/Lift Helicopters:** In the utility or lift category, the army needs to develop capabilities for lifting up to a company at corps level, a battalion at command level and a brigade at army level. For this, the assets required would be light, medium and heavy helicopters as well as some light fixed-wing aircraft.

In the light utility category, induction of the Hindustan Aeronautics Limited (HAL) manufactured Dhruv (ALH) has commenced. Four units have already been raised and are operational, including one in high altitudes. A total of seven such units is planned for induction, each having ten helicopters. This gives the

capability to the field force commander to move within the tactical battle area up to a company level force at the critical juncture of the battle without having to look over his shoulder. The ALH helicopter is an all weather, night capable, twin-engine machine with state-of-the-art avionics. The availability of this resource will give additional tactical capability to the field commanders in the planning and execution of their operational planning. The ALH has recently been test evaluated for high altitude operations with the fitment of a more powerful engine, the "Shakti" being produced by HAL in collaboration with the French Turbomeca. This will give a major boost to enhancing the load carriage capacity while operating in high altitude areas, specially the Siachen Glacier. In the medium lift category, the air force continues to stonewall all attempts of the army to acquire a suitable helicopter in the 10-12 ton class. At the same time, they are not prepared to let go of the MI- 17 helicopters held with them. These are presently being refurbished for night operations and additional MI 17-V are being acquired for replacing the ageing MI-8 helicopters. This capability is basically required for intra-theatre move of reserves and equipment, including ammunition and for special operations. The HAL is looking at the feasibility of a joint venture with a foreign vendor for a 10-12 ton class multiple purpose utility helicopter (the army's nomenclature for this helicopter is tactical battle support helicopter), but very little progress has been made in this regard so far. The army needs to pursue this approach more vigorously to acquire this class of helicopters, which when suitably modified, will be the army's mainstay for special operations. In the heavy lift category, the resources are almost non-existent with only one unit of Russian MI-26 helicopters presently held with the air force. The induction of the ultra light howitzer into the army (trials completed), for deployment in the mountains has triggered the requirement for suitable heavy lift capability, with helicopters capable of carrying these howitzers under slung in the mountains. The process for acquisition of this class of helicopters has already commenced under the aegis of the air force, despite being army assets. In the fray are the American Chinook CH-47 and the Russian MI-26. The requirement is to have four to five such units with 10 helicopters each at command level to give the capability to the theatre commander to move up to a battalion, as well as for transporting/lifting heavy equipment/light guns intra-theatre, including logistical support. The operational tasks and roles of this class of helicopters leave no doubt with regards to their ownership.

**Attack/Armed Helicopter:** Mechanised warfare in the plains and desert terrain requires the integration of the third dimension with the mechanised

forces in terms of attack and armed helicopters. These helicopters would also be required to undertake operations in the mountains—the Kargil conflict is an apt example where this weapon system was ideal for employment. However, the available MI-25/MI-35 was not capable of operating at those altitudes. There is a requirement for each strike corps, including in the mountains, to have a dedicated, state-of-the-art attack helicopter unit. The pivot/holding corps in the plains and deserts should have armed helicopters/gunships as part of their aviation assets. This will provide a formidable weapon system to the force commander to be applied in the TBA.

**Armed ALH***:* The armed version of the ALH called the ALH weapon system integrated (ALH WSI) is at an advanced stage of development and is likely to enter service by the end of this year. Though not a typical attack helicopter, it has an array of comparable weapon systems to include guns, rockets, air-to-air, and air-to-ground missiles (ATGM). Integration of the weapon systems less the ATGM is currently going on at HAL. However, the main weapon in the arsenal of the armed/ attack helicopter, the ATGM, has neither been developed nor acquired. The indigenously produced Nag anti-tank missile (air version 'Helina') which is stated to be a third generation fire and forget missile, is not ready and not likely to be available in the near future. As per reports, the army is scouting for a suitable air-to-ground missile in the world market to equip its initial armed ALH units. Thereafter, it is expected that the 'Helina' would hopefully be ready for induction into the armed forces. The armed ALH units would be part of the key pivot/holding corps, ideal for employment in the cold start strategy.

**Attack Helicopters***:* Today, this is the weakest link in the capability of the AAC. The meagre resources held—two units of attack helicopters, MI-25/MI-35,—though under the nominal command of the army, are, in fact, manned, controlled and operated by the air force. These helicopters of Russian origin are vintage, though a certain amount of upgrade has been carried out to make them night capable. The trials for their replacement are currently on. In the fray is the state-of-the-art modern-day attack helicopter, the American Apache Longbow AH 64D and the Russian MI-28 (Havoc). Both are state-of-the-art modern-day attack helicopters with an array of lethal weapon sub-systems to include guns, rockets, air-to-air and air-to-ground missiles as well as helmet mounted targeting systems and advanced self-protection suite. The Apache has been extensively used in the Iraq Wars as well as the in the ongoing operations in Afghanistan.

In this context, the development of the light combat helicopter (LCH) by HAL is a milestone achievement. The LCH aims to gatecrash the exclusive club

of the state- of-the-art light attack helicopters which include Eurocopters Tiger, Bells AH 1Z Super Cobra and China's ultra secret Zhisheng 10 (Z-10). The LCH is a derivative of the ALH and the weaponised ALH. The LCH is being designed to fit into an anti-infantry and anti-armour role and will be able to operate at high altitudes (16,000 ft), a distinct advantage over other attack helicopters and will be an asset for our mountain formations. Unlike the ALH, the LCH will have tandem seating cockpit and stealth features, but will carry the same weapons package now being qualified on board the ALHWSI. Two test flights were carried out during 2010 and the helicopter is expected to enter service by 2014. The LCH/ attack helicopter units will be the main punch of the land force commander and must be inducted into the AAC and operate in support of the strike corps, in both the plains and mountains.

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**Organisations:** The army aviation needs to develop organisations that enhance aviation capabilities to support the concept of operations of field commanders. The force structure should be tailored to meet the evolving operational requirements. In addition, the aviation organisation should include appropriate maintenance and logistic support elements required to maintain the force. Corps Headquarters should have 'aviation brigades' orbatted to them to provide proper command and control, and ensure optimal utilisation of all diverse aviation assets located within the corps. In fact, unlike the air force which operates out of its bases during war, army aviation units will require to operate from forward composite aviation bases which would cater for the security of helicopters as well as provide essential maintenance, fuelling and arming facilities. There would also be a requirement of some forward armament and refuelling points to be established in the forward zone for helicopters operating on specific missions, to cater for their replenishment in terms of fuel and ammunition. It is understood that the concept of aviation brigades has already been validated operationally. Each aviation brigade will have 3-4 aviation squadrons/units, reconnaissance and observation elements, light/medium/heavy lift capability and attack/armed helicopters, including maintenance support units.

**Infrastructure Development:** While we have talked about the main equipment and organisations, there is also an urgent requirement to build suitable infrastructure and have it in place to absorb the new equipment and organisations. Support services like airfields, air traffic control, meteorological equipment, maintenance equipment, etc, would also need upgrading and refurbishing. Lastly, the most important facet, the training facilities for the training of aircrew and ground crew, need modernisation. The importance of simulators for this purpose cannot be over-emphasised. A modest start was made with the installation of the fixed base Cheetah simulator in 2005 at the Combat Army Aviation School at Nasik. Currently, HAL, in a joint venture with a Canadian firm (CAE) has come up with a full motion simulator for training of ALH pilots. Keeping in mind the vast expansion plans of the AAC in the coming years and induction of sophisticated state-of-the- art equipment, the simulators will be the way forward for future training methods as they are cost and time saving.

## Conclusion

The army aviation needs to play a vastly enhanced role in land operations in the coming years. This is only possible if the arm grows, both quantitatively and qualitatively. For dominating the tactical battle space of the future, the army must go beyond fielding light observation and light utility helicopters and the control of attack helicopters by proxy. The need is to create a dedicated and operational army aviation corps capable of night operations, with air crew who are not only proficient in flying but are associated full time with army manoeuvres, operational thinking and ground tactics, and also spend time in the field. Resistance from the air force will persist, but the army will have to take a firm and unambiguous stand for its legitimate and logical demands. Turf battles are part of every nation's defence forces but the experience of other nations clearly illustrates that each Service needs a viable integral aviation component for it to retain the capacity to include air encounters as part of its personal armoury. The integration of all combat elements of the fighting force, including combat aviation resources, under the unified command of the field force commander, trained, administered and employed in combat, with common operational procedures and ethos, will lead to a greater degree of synergy at all levels. While the modernisation process has commenced, it is woefully slow and needs to be fast tracked. The army aviation is the arm of the future, a force multiplier which can tilt the balance in any future conflict.