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Element Air-Joint Operations: Indian Armed Forces

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With the official creation of the Chief of Defence Staff (CDS), it is hoped that jointness will be the main driver that will get a major push. Real jointness is when land, air and naval commanders jointly formulate, train, orchestrate and implement war plans. The employment of Forces in the modem battlefield to achieve military objectives requires the coordinated effort of two or more services. To achieve military objectives, the Forces must be capable of neutralisation, destruction and capture. The combat power of each military force possesses certain intrinsic capabilities to produce these effects. Matching capabilities to missions is the essence of joint operations. By integrating and coordinating their actions, each force would make a unique contribution to the attainment of the primary objective.

To fight together, they need to train together. A 'joint doctrine' of the Indian Armed Forces was

Key Points

- Real jointness is when land, air and naval commanders jointly formulate, train, orchestrate, and implement war plans.
- The combat power of each military force possesses certain intrinsic capabilities to achieve neutralisation, destruction and capture of adversary forces. By integrating and coordinating their actions, each force would make a unique contribution to the attainment of the primary objective.
- The Integrated Defence Staff (IDS) was created to foster coordination and support prioritisation across the different branches of the Armed Forces. A lot more would have to be done by the Chief of Defence Staff (CDS) to create conditions to foster inter-service coordination in planning, execution of operations and force planning.
- The importance of the application of airpower in support of the surface and maritime campaigns is well-established. For the land and maritime war to be won, the air dominance must be established first. The inherent speed, reach, flexibility, coupled with the advantages of an elevated platform, enables rapid engagement of ground targets far deeper in the enemy territory.
- Application of airpower in coordination with surface firepower can allow simultaneous engagement of different targets, thus preventing the enemy from concentrating its forces in space and time.
- The density and lethality of projectiles in the air are increasing in the Tactical Battle Area (TBA) and so is the use of electromagnetic spectrum. Airspace management is critical to allow freedom of operational action to all elements yet prevents 'blue-on-blue fratricide'. Network centricity, real-time communications, online real-time sharing of tactical picture and data would enable all the users to operate in the same battlespace, in a mutually supporting manner, with adequate safety.
- The 'Defence Cyber Agency', 'Defence Space Agency', and 'Special Operations Division' would be a great beginning. Jointness is essential at strategic, operational and tactical levels.
- Ultimately, joint planning and conduct of operations across all the domains such as land, air, sea, space and cyberspace is real jointness and crucial for success in any war.

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released in April 2017.[1] This is the second such doctrine after the first was released in 2006. The Doctrine provides for deeper operational synergies among the Indian Army (IA), Indian Navy (IN) and Indian Air Force (IAF). The core aim is to coherently deal with all possible security threats facing India. India is geo-politically the most threatened nation in the world with very serious land boundary disputes with its two nuclear weapon powered neighbours—China and Pakistan. Also, Pakistan has been running a proxy war through infiltrated terrorists and using sympathisers working as insider cells. The document lists the range of transnational security threats, the proxy war in Jammu and Kashmir (J&K) and Left-wing extremism. India also remains concerned about the presence and role of external powers in the Indian Ocean Region (IOR). The fragile security environment in the Afghanistan-Pakistan region also lends a possibility of it being a conduit for the eastward spread of fundamentalist and radical ideologies. There are also suggestions that the Islamic State recruits from South Asia may return after the organisational collapse in the Middle East.

The Integrated Defence Staff (IDS) was created in 2001 based on the recommendations of the group of ministers after the Kargil War.[2] It was meant to foster coordination and support prioritisation across the different branches of the Armed Forces. In the last two decades, it has helped to streamline joint training and operational equipment prioritisation. But a lot more is needed to be done. The CDS is expected to create conditions to foster inter-service coordination in planning, execution of operations and force planning.

The new doctrine brings in the 'surgical strikes' as a viable feature in counter-terror operations. While small action teams across the Line of Control (LoC) were part of a sub-conventional portion of the spectrum of military operations for years, the well-publicised retaliatory surgical strikes, after the Uri Brigade Attack, have brought such action in the formal doctrinal limelight. Similarly, the Balakot airstrike, as a reprisal for the Pulwama terror attack, had set a new normal. There is a need to integrate the 'layered hierarchies' of the national security structures. Ultimately, joint planning and conduct of operations across all the domains such as land, air, sea, space and cyberspace is important and crucial for success in any war.

Joint Doctrine 2017

India has moved to a proactive and pragmatic philosophy to counter various conflict situations. The Joint Doctrine proposes joint training of personnel as well as a unified command and control structure besides pushing for a tri-service approach for modernisation of the three forces. The Doctrine facilitates the establishment of a broad framework of concepts and principles for jointness. The LoC and the Line of Actual Control (LAC) will have to be protected with effective deterrent capabilities.

The Doctrine enunciates the steps for the establishment of the 'Defence Cyber Agency', 'Defence Space Agency', and 'Special Operations Division'. The special forces operations will be conducted by specially selected troops of the IA, IN and IAF, who are trained, equipped and organised to operate in hostile territory in the land, air and sea domains. Clearly 'jointness' is essential at strategic, operational and tactical levels. The key to this would

be the joint training and exercise of the various arms of all the three forces.

The Doctrine mentions the 'Integrated Theatre Battle' to ensure decisive victory in a network-centric environment across the entire spectrum of conflict in varied geographical domains. This would require a new guiding philosophy for the evolution of warfighting strategies. Currently, the Joint Operations Committee (JOCOM) is the integrated structure at a strategic level under the Chiefs of Staff Committee (COSC) to conduct and plan operations. The Doctrine envisages coordination with relevant agencies like the Research and Analysis Wing (RAW), Intelligence Bureau and other Intelligence organisations as part of the Joint Intelligence Committee under the National Security Adviser.

Importance of Airpower

The importance of the application of airpower in support of the surface and maritime campaigns is well-established. For the land and maritime war to be won, it is imperative that air dominance be established first. The inherent speed, reach, flexibility, coupled with the advantages of an elevated platform, enables rapid engagement of ground targets far deeper in the enemy territory. Application of airpower in coordination with surface firepower can allow simultaneous engagements of different targets, thus preventing the enemy from concentrating its forces in space and time. Countering the threat from enemy airpower allows unhindered own surface operations. Air also greatly supports Intelligence, Surveillance and Reconnaissance (ISR). Modern warfare is characterised by speed of the battle and timely dissemination of the data and integrated air picture received from aerial platforms. It requires high-speed processing and fusion to form meaningful actionable situational awareness (SA) and high-speed networks for the last-mile distribution. Air transportation supports intra- and inter-theatre movements of troops and equipments. Helicopters support inter-valley transfers. They also support air logistics. All this is crucial for the progress of the land campaign with the requisite tempo. The Joint Doctrine for air-land operations is an important document for the employment of military power in a joint operation scenario. There is a need to re-visit such documents at regular intervals to factor in the conceptual and technological advancements and changing nature of warfare.

The Indian Air Force's Primary Air Operations

The IAF would conduct its offensive operations to degrade the enemy air that aims against the Indian state and the IA and IN assets. Surveillance and reconnaissance operations will begin much earlier and will be ongoing. Fighter aircraft, unmanned aerial vehicles (UAVs) and satellites will be used. Command, Control, Communications, Computing, Intelligence and Information (C4I2) networks will be used to disseminate information. IAF will mount a counter-air campaign to achieve and maintain the requisite degree of control of the air. These operations would be directed against the enemy's airpower. Achieving control of the air would prevent the enemy from using its air assets while permitting freedom to own airpower. No country has won a war in the face of an enemy air superiority. Any air campaign must be preceded by Suppression of Enemy Air Defences (SEAD) using strikes and Electronic Counter

Measures (ECM). The IAF is responsible for the Air Defence (AD) of Indian air space. IAF uses a network of radars and AD fighter aircrafts along with surface-to-air AD missiles and guns. AD support for offensive air missions would be provided by fighter escorts.

Air Land Battle

The aim of air-land operations is to seek, strike, destroy or degrade the enemy forces at each stage of the battle. The ability of airpower to target enemy vulnerabilities in depth provides a vital capability in space and time dimensions. This capability helps the ground forces achieve quick and decisive results. Air operations would degrade the enemy's airpower and reduce its capability to interfere with the operations of own land forces and deny enemy land forces the freedom of unhindered operations.

Air Sea Battle

The Indian Air Force would use the maritime strike aircraft to hit enemy maritime forces within the range of shore-based aircraft. With aerial refuelling and standoff cruise missiles, the range of such operations would be significantly extended. IAF will also provide AD to own ships and installations within the Air Defence Identification Zone (ADIZ). The IN has its integral air assets for both AD of its fleet and to carry out anti-shipping and submarine strikes. IAF and IN will coordinate to enhance the airpower.

Space: A Force Multiplier

The thin line dividing the earth's atmosphere and space is fast disappearing. Aerospace will thus, more or less be a common medium. All the arms would require the use and harness the space-based platforms for operational purposes. Space-based assets will greatly support ISR for SA and targeting. Communication satellites will support secure communications and command and control. Navigation satellites like Global Positioning System (GPS), Global Navigation Satellite System (GLONASS) or the Indian Regional Navigation Satellite System (IRNSS) called NavIC, will help manoeuvre and precision strikes and inter-service operational coordination. Meteorological satellites are crucial for weather prediction and operational planning. Data from Geodetic satellites is important for trajectories of ballistic missiles and the guidance of cruise missiles.

Aerial Force Multipliers

Technological advances and acquisition of 'state-of-art' equipments enhance the operational capabilities exponentially. Elevated radars and control systems such as Airborne Warning and Control System (AWACS) or Airborne Early Warning and Control (AEW&C) are crucial for the SA and control of air, land or sea battle. Aerostats also allow a high altitude vantage point for radar to penetrate deep into enemy territory. The radar picture will be shared with the surface and maritime forces. Maritime patrol aircraft, Boeing P-8I of IN will be used by IAF aircraft for maritime strikes. Other force multipliers include Flight Refuelling Aircraft (FRA), stealth, long-range air-to-air missiles, cruise missiles and glide bombs, UAVs, long range ground radars and enhanced night fighting capability.

Civil Air Assets and Infrastructure

The air assets of civil aircraft operators will be of great use to the armed forces, especially to the Army

to augment and hasten the movement of troops and materials across theatres. Operational commanders would utilise all civil infrastructure and resources available in their respective theatre to enhance their combat potential. Stability operations would warrant intimate civil-military cooperation.

Dynamic Air Dominance

Offensive intent is essential to achieve success. Dynamic air dominance is a concept where modem air dominance fighter aircraft, supported by AEW&C and FRA would be able to dominate airspace of finite dimensions for the specific period of interest. It is dynamic, because the airspace required to be dominated, would keep on changing with the progress of the battle. This would provide a degree of freedom of action to the land forces Commander to operate in a relatively secure aerial environment.

Effect Based and Parallel Operations

A larger number of targets can now be attacked simultaneously in a short period. Air can take on deeper targets as the surface forces engage relatively closer ones. Therefore, tactical, operational and strategic level targets can be engaged simultaneously instead of sequentially. Joint planning and execution would help achieve campaign objectives. When operations are planned and executed to achieve the desired effects that contribute directly to achieving the desired outcomes, they are called Effect Based Operations (EBO). EBOs focus on causing functional paralysis, while conserving their own resources. The first step is to identify the required effect. EBOs are linked to identifying the enemy vulnerabilities and centres of gravity. EBO is the approach to all air operations.

Shaping the Battlefield: Offensive Air Operations

Before offensive land operations are launched, air operations must focus on unbalancing the enemy and shaping the battlespace. Air offensive may be launched in advance or simultaneously. Interdiction strikes are carried out to prevent enemy mobility, targeting mechanised forces already on the move, and defeating adversary's plan to move his reserves. The synergy between land-air forces at each stage of the battle is crucial for decisive results. In the mountains, targeting the enemy at the dominating heights, vital passes, bridges and enemy airfields would be important. Heliborne and airborne forces may be used to augment the offensive capability of ground forces to gain mobility and surprise. Air would also support the army's mobilisation for the offensive. Air attacks could also be part of the 'pre-offensive deception plan'. Creating air superiority in time and space will be part of shaping of the battlespace.

Air Support: Defensive Land Operations

Indian Army's defensive operations could be for the security of its own forces or building a base for strike forces and to create a favourable situation for offensive operations. All defensive actions must also be offensive in nature. The IAF would need to blunt the adversary's offensive. The enemy has to be kept engaged to wrest the initiative from the enemy. Preemptive airstrikes on likely launchpads could completely upset the enemy's design. Aerial

reconnaissance will be crucial using IAF Synthetic Aperture Radar (SAR) and Long Range Oblique Photography (LOROP) sensor pods. The availability of real-time information would be essential. Once the enemy offensive has been discerned, all available firepower including air, armour and artillery would be pressed in, to cause heavy enemy attrition.

Counter Surface Force Operations and Air Interdiction

Indian Air Force will conduct Counter Surface Force Operations (CSFO) by attacking enemy ground forces that are engaged in combat by Battlefield Air Strike (BAS). It will attack enemy forces, which are preparing to join the ground battle by Battlefield Air Interdiction (BAI) strikes. IAF will target enemy reserves, reinforcement and re-supply many kilometres behind through Air Interdiction (AI). The target prioritisation would be planned jointly. Typical targets would include troop and vehicle concentrations, supply trains and convoys, amphibious forces, communication centres, and bridges, railways and waterways. Correct identification of bomb line, target acquisition, risk of collateral damage and the possibility of fratricide have to be factored. Some of these aspects can be overcome by employing Precision Guided Munitions (PGMs), appropriate tactics and procedural control.

Airspace Management in Tactical Battle Area

In a joint warfare scenario, the airspace over the battlefield would have more than one user and hence, there is a need for an efficient organisation for airspace management to settle conflicting requirements and avoid fratricide. The density and lethality of projectiles in the air are increasing in the Tactical Battle Area (TBA) and so is the use of electromagnetic spectrum. Network centricity, real-time communications and online real-time sharing of tactical picture and data would enable all the users to operate in the same battlespace, in a mutually supporting manner, with adequate safety. There is a need to establish organisations and procedures that leverage the available technology for synergistic application of airpower. It is critical that procedures are so evolved, that maximum freedom of action is available to all weapons and 'Hold Fire' or 'No Fire' restrictions be imposed only for shortest duration in time and space.

The Army and Navy are responsible for AD of integral assets. Effective AD depends on the integration of sensors, weapon systems, the security of communications, real-time transfer of data, accurate data analysis process and sound decision support systems of all the services and the ability of the entire system to remain operational under attack. The Joint Air Defence Centre (JADC) would exercise control over the ground-based AD weapon systems in the TBA and coordinate with IAF's Integrated Air Command and Control System (IACCS) for the safety of the aircraft transiting through TBA. IA helicopters and UAVs will have freedom of flight up to a certain height, beyond which the AD clearance will be required from the Air Defence direction Centre (ADDC). Integrated Air Command and Control System (IACCS) and its integration with the Army-automated C&R system, would be handled at the JADC level. A plethora of electronic devices like radars and communication systems operating in the TBA, underpins the need for

resolving the Electromagnetic Interference (EMI)/ Electromagnetic Compatibility (EMC) issues. Some of these areas including JDAC, JOCOM and roles of TAC and GLO, among others, require joint revisit every 5 years. Armed forces may wish to have a standing committee for this purpose. This will become even more relevant when the proposed Air Defence Command is deliberated about.

Air Transport and Airborne Operations

A significant part of the peacetime utilisation of IAF's transport and helicopter fleets are used to support and maintain IA in mountainous areas. The initial pre-war effort will be to reposition the IAF assets. Thereafter, the move of Army combat forces and assets will follow. IAF undertakes special operations whenever required for inserting troops into enemy territory and to carry out clandestine and psychological operations. Due to their inherent flexibility, airborne forces are capable of being employed on various strategic and tactical missions. Airborne operations are generally in furtherance of land forces, plans and involve close cooperation with them. It could involve para-dropped forces or air-landing near the objective area. Helicopters are used for insertion and extraction of combat forces directly into action through Special Heliborne Operations (SHBO). For the successful execution of these operations, control of the air in time and space for the desired duration is essential. The planning includes intelligence, Dropping Zones (DZs), routing, deception, escorts, alternate DZs, etc. Airborne operations involve landing of troops from air in hostile territory. Air also requires sustaining these forces till the link-up or withdrawal.

The Attack Helicopters

Attack Helicopter (AH) is a potent platform. IAF has its missions like CSAR, anti UAV, radar busting, among others. AH is also a powerful option to engage armoured vehicles and its night capability can be well-exploited. AH has the advantage of the Nap-of-the-Earth (NOE) concealed approach and very quick reaction. However, it is vulnerability to Quick Reaction Missiles (QRMs), especially, in the mountainous terrain that needs to be factored in.

Joint Training and Exercises

Joint training in peacetime is essential not only to practice joint procedures and techniques, but also to put to test the structures and the communication systems. Joint exercises also bring out capabilities and limitations of each service which the commanders and staff must be made aware of. Joint training in peacetime should, therefore, be based on the doctrines formulated, so that lessons learnt are applied to overcome the drawbacks. These should not be 'tick mark exercises' to complete the annual training plan, but to draw lessons for improvement. Exercise must be planned jointly with all services to derive learning points. The conduct and operational procedures necessary to meet all likely contingencies should be worked out and practiced as realistically as possible. Key areas could be joint procedures, CSFO, inter-service secure communications in the EW environment, AD in the exercise area, airspace management, JADC procedures, para drops, etc. Joint exercises must be conducted during different seasons of the year and in varied terrain conditions. Live firing exercises are effective ways of demonstrating

the capabilities of each service. Fine-tuning and validation of joint war plans, doctrines and Standard Operating Procedures (SOPs) should also be done through realistic war games. Humanitarian Assistance and Disaster Relief (HADR) and other forms of aid to civil authority and international peacekeeping, is another area where joint operations or coordination is required. Inter-service cross-posting or training of operational planners at each other's operations rooms should help understand complexities and challenges faced by sister services. More and more officers and other ranks need to do tri-service billets and cross-postings for better synergy.

Way Ahead

In addition to the existing three domains of land, sea and air, the new domains of Space, Cyber, Special Forces and Information Operations require greater tri-service synergy. The Defence Cyber Agency, Defence Space Agency and Armed Forces Special Operations Division are positive steps forward. Information Operations would also require inter-service coordination. The Joint Doctrine 2017 has generated new emphasis on 'jointness'. The broad contours of CDS responsibilities are emerging. It is a great first step for improving 'Jointness'.

Notes

1. HQ IDS, available at https://www.ids.nic.in/IDSAdmin/upload_images/doctrine/JointDoctrineIndianArmedForces2017.pdf
2. Brigadier (Retd.) Vinod Anand, 'Integrating the Indian Military: Retrospect and Prospect', *IDSA, Journal of Defence Studies*, 2008, available at https://idsa.in/jds/2_2_2008_IntegratingtheIndianMilitary_VAnand

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