Exercise Gagan Shakti 2018 - Comprehensive Test of Air Power

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In a massive signal to its neighbours and assurance to Indian public, the Indian Air Force (IAF) conducted the biggest air war exercise 'Gagan Shakti 2018' from 08 to 22 April 2018. This all-India exercise employed all IAF fleets, including the newly inducted indigenous Light Combat Aircraft (LCA) 'Tejas'; upgraded Mirage-2000, MiG-29 and AN-32; new transport aircraft C-17 Globe Master III and C-130J Super Hercules, and the Hawk trainer. It exploited its force multipliers like Airborne Warning and Control System (AWACS), Airborne Early Warning and Control (AEW&C), Flight Refuelling Aircraft (FRA), and Intelligence, Surveillance, and Reconnaissance (ISR). Joint Special operations were carried out utilising both transport aircraft and helicopters. 1100 aircraft of various types were deployed. All personnel across the IAF, including those at peace and training stations were mobilised. War-like scenarios were exercised both on western and northern borders. The aim of this exercise was real time coordination, deployment and employment of Air Power in a short and intense battle scenario, including a two-front war. Air operations were in all terrains - Punjab plains, Rajasthan desert, high altitude in J&K, Uttarakhand and Northeast. There were long-range maritime missions, realistic aerial combat, air-to-surface attack and weapon release, paratrooper-assault and medical evacuation missions. Concept of accelerated operations, network centric operations, Effect Based Operations (EBO), flexible use of airspace, simulated Combat Search and Rescue (CSAR), special operations with IAF Commandos 'Garud', mass casualty evacuation from highway and Advance Landing Ground (ALG) Operations, to name a few, were tested. Operations with the Indian Army included Counter Strike Force Operations (CSFO), airborne operations, air-landed operations, and inter-valley troop transfer. There were elaborate maritime air operations with the Indian Navy. The logistics back-up and stamina of the IAF and the ability

to sustain continuous operations through day and night were put to test. IAF also practiced and validated Humanitarian Assistance and Disaster Relief (HADR) drills, and mobilisation of air ambulance transport aircraft and helicopters.

Preparatory Phase

Preparation for the exercise began nine months in advance. To sustain such a large scale of operations on a 24x7 basis, the training status of entire IAF was enhanced. All qualified and medically fit crew up to 48 years of age were given re-validation training. Over 1,400 officers and 14,000 men were pulled out of training and other establishments and deployed for the exercise, to augment existing operational resources. The repair and maintenance agencies had been forewarned to ensure availablity of sufficient spares and arrange speedy repairs of aircraft as and when required. The serviceability in many fleets was lifted up from 60 per cent to as high as 85 per cent. Quick loading and unloading of aircraft and cutting down of turn-around time was fine-tuned. The physical move of spares, weapons and personnel was tested.

Force Mobilisation

The exercise was conducted in two phases so that all Commands got adequate opportunity to test the efficacy of their preparedness. Phase-I of the exercise involved activation of Western, South Western and Southern Air Commands, with affiliated Army and Naval formations. Phase-II of the exercise involved activation of Western, Central, Eastern and Southern Air Commands. Re-deployment for Phase-II involved relocating the forces so as to be effective at the new locations within 48 hours. This was made possible by round the clock operations of heavy-lift transport aircraft like C-17 and IL-76 as well as by employing a large number of tactical airlift aircraft like C-130 and AN-32 aircraft. IAF also used civil chartered-flights and trains for mobilisation of resources. For joint operations, IAF's joint command and control structures such as Advance Headquarters and Tactical Air Centres with Army, and Maritime Air Operations Centre and Maritime Elements of Air Force with Navy were activated. Army troops and combat vehicles were deployed to simulate Tactical Battle Areas in all Commands and some of the Army exercises were dovetailed with air operations for simulation of realistic battlefield environment. Ships were deployed, both in the Arabian Sea as well as in Bay of Bengal, for anti-shipping strikes by IAF maritime aircraft operating from bases on the East and West coast, as well as from island territories.

Fighter Aircraft Operations

9000 out of the total 11000 sorties flown were by fighter aircraft. Fighter aircraft undertook surge operations i.e. generating maximum number of sorties in a 24 hours cycle. These included long range missions with concentrated live and simulated weapon releases across all air-to-ground ranges in India. An Air Defence umbrella was created to facilitate ground operations. All the eight indigenous LCA fighters were deployed at forward bases with close-combat and Beyond Visual Range (BVR) air-to-air missiles in a simulated scenario apart from air-to-ground weapons. LCA employment in the operational matrix of the IAF also highlighted its strengths and shortcomings. Hawks flew close support missions. The IAF has consistently encouraged the development of indigenous aircraft said Air Chief Dhanoa. Su-30s flew very long range missions.

Special Operations with Indian Army

IAF inducted an Indian Army's parachute battalion in airborne assault operation on the night of 14 April 2018, in the desert sector. This assault included para-drop of 560 paratroopers, combat vehicles and GPS guided cargo platforms. The landing force was dropped behind the simulated enemy lines to soften up the likely resistance to own armoured offensive. The airborne force comprised six C-130J and seven AN-32 aircraft launched from multiple IAF bases. The force was provided aerial surveillance by AWACS and protected by a flight of SU-30 air superiority fighters. The high risk airborne operations are planned based on accurate intelligence and dynamic air-dominance by own forces is a critical requirement. Joint special-airborne-operations conducted in Northeast Sector involved Strategic Forces dropped by combat free-fall from AN-32 and C-130. IAF commandos 'Garuds' were inserted to establish control over an ALG, making it conducive for landing a C-130 carrying light field gun to reinforce Indian Army. Airborne assault missions also involved combination of airdrop of 'Combat Rubberised Raiding Craft' and combat ready commandos by night at a high altitude large water body. IAF's capability to take-over and secure a civil airport under control of hostile elements was tested by inducting IAF Garud commandos who used stealth and clockwork precision.

On 12 Apr 2018, Special Heli Borne Operations (SHBO) mission was conducted by 2xMI-17 V5 helicopters.

Inter-Valley and High Altitude Operations

IAF fighters, transport aircraft and helicopters carried out extensive flying in the mountains on the northern border with China. Fighters carried out Close Air Support (CAS) and interdiction missions. Heavy transport carried out inter theatre movements from western to the eastern sector. All ALGs were activated and their support services mobilised for seamless conduct of operations. The C-17, C-130 and AN-32 landed at the forward ALGs. A C-130 flew-in artillery pieces at Mechuka ALG near Tibet border. ALGs were also used for conducting Inter Valley Troop Transfers (IVTT), SHBO, Air Landed operations and Special Operations. SU-30s also operated from the Pasighat ALG in the Northeast sector. The ALGs are known for unpredictable weather, undulating terrain, narrow flight approaches and very short runways and air operations require extreme precision and professionalism. IVTT operations were carried out in Uttar Bharat Hills and at the Tezu-Walong in the Northeast sector. An IAF Mi-171V airlifted a light field gun in Arunachal Pradesh. In the mountainous terrain the movement of the troops from one valley to another is a challenging task. By road it could take couple of days. IVTT operations help to reposition the desired acclimatised forces within a couple of hours. These operations will be crucial during war with China in the Northeast region.

Maritime Operations with Indian Navy

On 14 April 2018 the IAF conducted maritime air operations in support of Indian Navy on the Western sea board, with the aim of air dominance and deep strike validation over the extended area of interest in the Indian Ocean Region (IOR). Combat enablers like the IL-78 Flight Refuelling Aircraft (FRA) flew in conjunction with IAF's maritime fighter aircraft, Su-30 and Jaguar, carrying long distance anti shipping weapons to address both near and in depth targets using the potent BrahMos and Harpoon anti-ship missiles. The long-range strike concept was validated when the Su-30s, airborne from a base on the East coast engaged multiple targets, in the Western seaboard, at distances beyond 2500 Km, and landed at a southern base, thus covering a total distance of 4000 Km, in a single mission. These joint operations had Indian

Navy's P-8I MR aircraft and AWACS of IAF in support. In Phase–II targets over the Eastern sea-board right up to the Malacca Straits were addressed. IAF's maritime aircraft in this phase operated from bases in the Southern peninsula and Andaman and Nicobar Islands. These joint coordinated operations showcased IAF's ability to support the Navy to dominate the IOR and effectively address any misadventure by an adversary in our area of interest.

Precision Fire-power and Network Centric Operations

IAF has acquired latest stand-off precision weapons for all its 4th Generation plus fighter aircraft fleets; weapons that are more lethal and can be delivered from greater ranges with precision. More lethal weapons delivered with greater precision not only reduce aircraft required to neutralise target, but also limits collateral damage. Standoff firing ranges enhance aircraft safety from the enemy air defence. A large number of precision weapons of different categories were dropped from various platforms, both in day and night. All the weapons achieved their designated points of impact creating the desired damage. While the detailed professional analysis of overall effect on war is a continuous process, the initial indications are encouraging. Secure information grid of Air Force (AFNET) and the Integrated Air Command and Control System (IACCS) were used to enable all operations. It greatly enhanced situational awareness of all elements and enabled real time data transfer between airborne weapon systems and ground based systems.

Casualty Evacuation and Medical Operations

A mass casualty air evacuation drill was carried out in the northern sector. A C-17 aircraft was converted for this role with stretchers in the main cabin. 88 casualties were airlifted from Leh and taken to Chandigarh airbase. An indigenously developed Patient Transfer Unit (PTU) capable of providing in-flight critical care to patients was used. After landing at Chandigarh, these patients were evacuated to Command Hospital, Chandimandir. For swift transfer of the patients in ambulances to the hospital, a green corridor was made in liaison with Chandigarh civil authorities. Eastern Air Command (EAC) conducted mass casualty air evacuation drill on 19 April 2018, from Air Force Station Chabua in

Assam to International Airport, Kolkata and further to Command Hospital (Eastern Command), Alipore by road. During the Exercise, IAF also formalised the concept of a Forward Surgical Centre (FSC). FSC was set up at the remote forward base at Naliya in the Kutch region of Gujarat with the aim of enhancing the medical capabilities at the forward base located away from a service hospital, thus enabling immediate life and limb saving surgery and stabilisation of the patient. A dedicated surgical team, equipped to undertake six to eight surgeries a day was in place. FSCs were also established at Phalodi and Sirsa forward airbases. Such FSC would even support the Army formations in the region.

Air Systems Serviceability and Maintenance

A major highlight of the exercise was a very high availability and reliability of all combat assets including aircraft, missile systems and radars. IAF was able to achieve 80 per cent serviceability of aircraft while radars and surface to air guided weapons maintained a serviceability of 97 per cent, which included some of the legacy systems that were over 40 years old. Focussed effort enabled a dispatch rate of more than 95 per cent for the combat aircraft, 100 per cent availability of combat-support systems and almost 100 per cent dispatch rates of combat-enablers. This was possible due to good planning and dedicated efforts of all air-warriors as well as support by Defence Public Sector Undertakings (DPSUs) like Hindustan Aeronautics Limited (HAL), Bharat Electronics Limited (BEL) and Defence Research and Developmet Organisation (DRDO). High tempo operations also enabled the IAF to ascertain its logistics stamina and the ability to sustain continuous operations through day and night. Contingencies such as repair of battle damaged aircraft and relocation of essential services due to enemy air action were also practiced.

Contingencies Simulation and Civil Coordination

The exercise also focussed heavily on base security aspects. Simulated drills of enemy infiltration into operational areas were practiced. Dedicated contingencies simulated sustaining operations in a Chemical, Biological, Radiological and Nuclear attack scenario. Bomb disposal procedures were practiced. The Military Engineer Services (MES) was activated for simulated bombed runway

repairs. Different techniques for repairing runway after bomb damage were practiced in addition to restoration of essential services and mass casualty evacuation at forward bases. Extensive coordination with Territorial Army units and local civil administration was undertaken to refine response during various security and administrative contingencies. The procedures and paperwork related to war time casualties was rehearsed. Intense operations of this magnitude, in a short span of time, involved very close coordination with Airport Authority of India for airspace coordination. It was an endeavour of the IAF to conduct this exercise with negligible disruptions of civil traffic anywhere in the country. IAF had also activated a number of civil airfields to support combat operations during the exercise.

Exposure to MoD Decision Makers

Raksha Mantri Smt Nirmala Sitharaman watched the exercise from close quarters. She visited IAF's eastern most fighter airbase at Chabua. Accompanied by the Air Chief, BS Dhanoa, she witnessed operations by Su-30 MKI fighters, C-17 Globemaster aircraft and rocket loading on Mi-17 V5 helicopters at Pasighat ALG. She witnessed an assault drill by the IAF's Garuds, who had landed earlier by the C-17 Globemaster. She also witnessed coordinated strike packages of Su-30 aircraft delivering Laser Guided
1000 lbs, conventional 1000 lbs and 100 kg bombs, and Mi-17 V5 Helicopters in the armed-role delivering 80mm rockets on simulated targets at the Dullong Mukh air-to-ground firing range in Assam. She also witnessed accelerated fighter operations at Chabua and attended a briefing on employment of air-power in the defence of Eastern Sector. The Raksha Mantri announced clearance of development of seven more ALGs. The Defence Secretary Sanjay Mitra was given an exposure of a Su-30 flight at Sirsa airbase. The mission was flown in a dense network-centric environment as a part of the exercise. The mission gave him a firsthand assessment of operational preparedness and the combat effectiveness of the air warriors in a real time operational scenario. It is important that the politicians and bureaucrats understand the tough military life and importance of operational procurements.

Reassurance and Exposure to Indian Public

For the first time IAF Media Control Centre was very active and ran a media blitz and kept the public fully briefed on the progress of exercise and educated them on the type of operations. It also reassured them that the three Services work very closely, and despite depleting numbers, IAF will do everything to defend the nation from an attack from the air, and create a favourable air situation for the surface forces. Indian masses have a clear message that any misadventure of a two-front war by our neighbours will be met with appropriate response.

IAF is Combat Ready

IAF for the first time exercised its entire Operational machinery at this massive scale to validate IAF's concept of operations and war-waging capability. IAF's overall fire-power and delivery accuracy has been greatly enhanced with induction of newer and upgraded platforms. LCA, though still in small numbers has begun its operational innings well. A significant part of the exercise being in Arunachal was a clear signal to China that India has built significant strength in the region. Geographically, IAF stands at an advantage vis-à-vis the People's Liberation Army Air Force (PLAAF) with a few airfields in Tibet. Efficient exploitation of combat support assets, including use of enablers like AWACS, AEW&C, FRA, Transport aircraft and ISR assets are critical. Special operations employing transport aircraft and helicopter as well as SFs were tested. New strategies and tactics, especially of recently inducted or upgraded assets and equipments were validated. Apart from wartime drills, IAF also validated various HADR drills. Achieving better operational synergy between the three Services, in application of combat power was a great plus. The logistics stamina of the IAF and the ability to sustain continuous operations through day and night were put to test. As the Commanders and crew change over, there is a need to conduct similar scale exercises every few years. They not only hone the skills, but also bring realism in maintenance and administrative tasks. Air warriors displayed agility and great team spirit.

The greatest achievement was an accident free record of this massive air exercise. Also there were no ground casualties and air warriors maintained high morale. The hands-on Air Chief

Dhanoa led the exercise from the front. He visited various formations in the western and eastern sectors during live action, reviewing operations. A large number of teams are analysing the aircraft and ground recordings and reports to come to meaningful operational lessons and tweak decisions. The IAF continues to live up to its motto *'Nabh Sparsham Deepatam'* meaning 'Touching the Sky with Glory'. Exercise Gagan Shakti was meant to achieve this high ideal.

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