AIRLIFT WISDOM OF YORE

ASHOK K CHORDIA

RUMMAGING AIRLIFT HISTORY

Long before the invention of the parachute and the aeroplane, Napoleon Bonaparte threatened England with an invasion by French soldiers carried over the English Channel in hot air balloons.[1] The French emperor did not carry out his threat but the carriage of men, military equipment, arms and ammunition through the medium of air did shape the outcome of many a war in the last century, and those fought in the first two decades of the present century. On some occasions, airlift[2] has even steered the course of history. Besides war, it has also determined the way countries and organisations deal with Humanitarian Assistance and Disaster Relief (HADR) and other operations for which timely delivery of men and material is extremely critical. Despite its dire importance in warfighting, HADR and nation building, airlift has generally been the focus of *less-than-due* or intermittent attention of the stakeholders. A travel back in time to rummage history for some of the less observed and acknowledged wisdom might enable better exploitation of the airlift resources in the future.

Group Captain **Ashok K Chordia** is a Non Resident Senior Fellow of the Centre for Air Power Studies, New Delhi.

1. Chris Ellis and Mike Verier, *Elite Attack Forces: Airborne at War* (New Jersey: Chartwell Books Inc., 2007), p. 6.
2. As different from the nuanced terms like, airborne operations and air-landed operations, the term *airlift* is being used here to talk about the act of "picking men and cargo from a point A and delivering them to a point B through the medium of air using an airborne platform".

Prior to World War II, airlift was seen as some kind of speciality service, capable of carrying small, precious cargoes like diphtheria serum. And, even during the War, airlift had been tentative, with mixed results, and accepted with varied responses by those in command and authority.

Brigadier General Billy Mitchell had visualised parachute landing of large numbers of troops behind enemy lines during World War I but his idea could not be implemented for want of parachutes, aircraft and trained personnel. Prior to World War II, airlift was seen as some kind of speciality service, capable of carrying small, precious cargoes like diphtheria serum. And, even during the War, airlift had been tentative, with mixed results, and accepted with varied responses by those in command and authority.

The effectiveness of airborne troops, as propounded by Mitchell, was demonstrated soon after World War I when six soldiers parachuted from a Martin Bomber at Kelly Field at San Antonio, Texas. They landed safely, and in less than three minutes after exiting the aircraft assembled their weapons and were ready for action. The American decision makers were not sufficiently impressed, so the US went rather slow on building an airborne force.

The Soviets, however, viewed the war potential of air transportation differently—they were awed by the possibilities. They were among the first to consider paradrop as a means to induct ground forces into battle. They introduced static line parachuting as a national sport and encouraged people to join the Airborne Corps. They formed their first parachute units by 1928 and in 1933, paradropped troops and a small combat tank. In March 1935, they dropped two battalions of infantry and landed 18 passenger gliders in Kiev. Later still, in the summer of 1935, they paradropped a thousand troops and air-landed 5,000. Between September and October 1936, they dropped 1,200 paratroopers at Minsk and 5,200 at Moscow.[3]

3. This chronology and statistics have been compiled by the author from different books/internet sites and may vary from source to source.

The Soviet example enthused the British, the Germans and the French. As a result, beginning in the mid-1930s, several European countries followed suit. The British organised parachute forces in 1936 and used them continually in their manoeuvres. The Germans, too, under Major Kurt Student,[4] began building the capability. They worked quickly to develop an effective military parachute organisation. Their glider units were an outcome of the sport-gliding programme that developed flying skills, while Germany was under the restrictions imposed by the Treaty of Versailles.

By 1940, Germany had 4,500 paratroopers and 12,000 men formed an air infantry division designed as an air-landed follow-up to a parachute assault. A force of 700 Ju-52 transport planes was available to carry these troops into combat.

The Spanish Civil War (1936) saw Germany send a few Ju-52 aircraft to Spanish Morocco, where members of the Nationalist Army, and their leader, Francisco Franco, were confined and were unable to sail across the Strait of Gibraltar. They airlifted 20,000 stranded troops to Spain in 677 sorties[5] enabling the Nationalist Army to consolidate and win the war. This triggered the development and consolidation of airlift capability by many countries. By 1940, Germany had 4,500 paratroopers and 12,000 men formed an air infantry division designed as an air-landed follow-up to a parachute assault. A force of 700 Ju-52 transport planes was available to carry these troops into combat.

Then, in Belgium, on May 10, 1940, in a daring pre-dawn raid, nine flimsy fabric covered gliders landed 71 German paratroopers at the fort at Eben-Emael and overpowered the Belgian troops in just over 30 minutes. That raid opened the gateway for the Germans to enter Belgium and France.[6]

4. Kurt Student, as a young Captain, had seen the demonstration of the airborne assault capability of the Soviets and was determined to develop similar capability for Germany.
5. Pamela Feltus, "Airlift and Transport Operations", *Air Power*, p. 1, at https://www.centennialofflight.net/essay/Air_Power/cargo/AP19.htm. Accessed on April 2, 2021.
6. E. M. Flanagan Jr., *Airborne: A Combat History of American Airborne Forces* (New York: Ballantine Books, 2002), p. 6.

ONE AIRBORNE OPERATION, DIAMETRICALLY OPPOSITE INFERENCES

Ideally, the success at Eben-Emael should have nudged the Germans to exploit their airlift resources to the fullest to realise their military ambitions, but the very next year, they suffered heavy losses in Crete (Operation Mercury, May 1941)—3,774 killed or missing; 2,120 wounded.[7] A large number of them were killed after landing safely, when they were running helter-skelter trying to get hold of their personal weapons which had been dropped separately in small containers.[8] The German experience was traumatic—their victory turned out to be *pyrrhic*. The Allied forces (comprising British, Australian, New Zealand and Greek soldiers) also suffered many casualties—3,990 dead; 1,925 wounded and 17,090 captured. The losses on both sides were heavy and deserved a well informed and weighted reassessment of airborne operations.

Crete had many lessons which were followed up for many years after the War. Airborne Individual Weapon Containers were developed for paratroopers to carry personal weapons. With limited success, countries even experimented with firing of a weapon while the paratrooper was still descending under the canopy of his parachute. The Soviets experimented with dropping manned vehicles which could go into battle instantly on touchdown. They tried platforms whose landing was cushioned by rockets, which fired in the proximity of the ground. That said, the two warring sides drew hurried and diametrically opposite inferences from the debacle in Crete about the effectiveness and usefulness of airborne operations. With the war raging in Europe, they reacted fast and decisively.

Hitler concluded that the surprise element of airborne assaults had been lost forever—they were a costly tactic whose time had passed. He gave up on airborne operations; Germany never again launched a major airborne operation during the rest of the War. The well trained and highly motivated

7. "Battle of Crete", at http://en.wikipedia.org/wiki/ Battle _of _Crete. Accessed on April 2, 2021.
8. Carriage of personal weapons by paratroopers drew much attention during WWII. The Russians worked diligently to address this issue and improved the equipment and the procedures considerably.

fallschirmjäger (the German parachute rangers) were mostly used as 'normal' infantry thereafter.

The British saw their own losses in isolation—disregarding the German losses—and attributed them to the effectiveness of the German airborne assault. Following this, the British and the Americans trained large numbers of pilots and paratroopers. So that the effort to bolster their airborne capacity was not interrupted by the War in Europe, the British commenced paratrooping training in India too. Paratroopers' Training School was established at Chaklala (now in Pakistan). To begin with, only two (later increased to five) Vickers' Valencia aircraft were spared for paratrooping training. They were considered ideal due to their slow speed. A modest beginning was made by using the fourteen parachutes the British instructors had brought from England as personal baggage.[9] The first experimental test jump was carried out in October 1941 in Karachi. After independence, India established Paratroopers' Training School in Agra.

During the rest of World War II, and in the decades following it, countries have made judicious use of their airlift capabilities and reaped huge dividends. Discussed in the following sections are some instances which demonstrate not only the limitlessness of possibilities but also the pitfalls on the way.[10]

AIRLIFT PLATFORMS—A MATTER OF MEANS AND ENDS

For long, fixed wing and rotary wing transport aircraft have epitomised airlift platforms. But there have been instances when other than these 'conventional' means of airlift have been used to great effect. As stated earlier, in the airborne assault on the fort at Eben-Emael (Belgium, May 1940) nine flimsy (fabric covered) gliders airlanded 78 *fallschirmjägers*[11] in the midst of action. The success of that airborne operation opened the gateway for the Germans for further invasion of Belgium, France and other

9. K. C. Praval, *India's Paratroopers: A History of the Parachute Regiment of India* (Delhi: Vanity Books, 1993), p. 21.
10. These have been organised contextually rather than chronologically.
11. German paratroopers.

low countries. Again, in 1943, glider-borne German paratroopers rescued Benito Mussolini from Imperatore Hotel at Gran Sasso (Operation Eiche, Italy), in the Apennine Mountains where he had been imprisoned after his ouster.[12] The numbers airlifted by gliders on those two occasions were small, yet the results were spectacular.

Theoretically speaking, it is possible to use any airborne platform to deliver critically required payload; it need not necessarily be a 'conventional' transport aircraft or a helicopter. What matters is the end state. The IAF, unable to use its transport aircraft across the high Himalayan mountain ranges, used Tempest fighters to airdrop ammunition at the besieged fort at Skardu during the Kashmir War (1947-1948).[13] Around the same time (1948-1949), the city of Berlin needed 38 tonnes of salt per day. Carriage of this daily necessity corroded the metal alloys used in the aircraft and the cables. British Sunderland flying boats, which were treated to resist corrosion caused by seawater, were used to land salt on Havel Lake. This arrangement worked well during the warm weather days. In winter, when the lake froze, salt was carried in panniers slung in the bomb bay of special section of Halifax Bombers.[14]

Airships, likewise, are less acknowledged flying machines whose airlift capabilities can be exploited imaginatively. They were much in use in the 1930s. They went into oblivion after the Hindenburg disaster (Lakehurst Naval Air Station, 1937) when an airship burst into flames in media glare. It has taken decades for the stakeholders to realise and accept the fact that hydrogen gas was not the main cause for the disaster; it was the highly inflammable paint used on the surface of the ill-fated dirigible which caused the ghastly fire.

The development of *lighter-than-air* flying machines has recommenced with renewed interest. They are already being used for airlift of unwieldy

12. Otto Skorzeny, *Skorzeny's Special Missions: The Memoirs of Hitler's Most Daring Commando* (South Yorkshire: Frontline Books, Kindle Edition, 2011), loc. 1432.
13. Air Commodore Jasjit Singh (Retd.), *The ICON: An authorized biography of the Marshal of the Indian Air Force, Arjan Singh, DFC* (New Delhi: KW Publishers, 2nd edn., 2011), p. 165.
14. Lt. Gen. William H. Tunner, USAF, *Over the Hump* (Washington, D.C.: Office of Air Force History, USAF, 1985), p. 205.

over-dimensional items of equipment like the blades of windmills that cannot be carried on winding roads across jungles and hilly terrain. If *Skylifter*, an Australian firm, succeeds in its attempts, it will be able to build an airship that will carry up to 150 tonnes over 1,000 km.[15] The firm seeks to carry entire hospitals in times of distress. Imagine on a day, not too far off in the future, UAVs operating from a *Mother Airship*, hovering on a disaster zone, making pinpoint deliveries of medicines, food packets and water to people stranded on roof tops—more people benefiting from aerial delivery with practically no losses. Or, imagine unmanned airships carrying tonnes of water to dowse fires in contaminated zones, as in Fukushima.

Addressing the vulnerability of crew of an *airborne troop carrier*, Lockheed Martin and Kaman Aerospace have jointly designed pilotless cargo aircraft to deliver vital supplies to territories infested by roadside bombs. A remote-control version, the K-MAX Unmanned Multi-Mission Helicopter has been designed for hazardous missions. It is meant to deliver supplies to the battlefield, as well as peaceful situations involving chemical, biological, or radiological hazards. The helicopter version was put to operational use in Afghanistan.[16] The prototype delivered 100,000 pounds of cargo in 50 unmanned missions in January 2012.[17] According to Air Vice Marshal Manmohan Bahadur, "The operationalisation of robotic aerial logistic delivery has brought in a new paradigm in battlefield logistics supply and could be a watershed in a world whose index of casualty sensitivity is decreasing by the day."

War zones like Afghanistan have increased the threat to aircraft crews and airlift platforms conducting manned medical and casualty evacuation operations. This increased threat puts additional lives at risk—not only are the casualties at risk, but so are the members of the evacuation team, including the aircrew. Some other experiments with robotic aircraft have met

15. "Giant airship that can carry entire buildings 2000 kms," *The Times of India*, Wednesday, October 6, 2010, p. 21.
16. "Cargo Drone to Rescue of Areas Strewn with Bombs", *The Times of India*, Monday, January 9, 2012.
17. Paul McLeary, "K-MAX Chugging Along in Afghanistan", posted in *Asian Week* (online) on February 3, 2012, accessed on June 22, 2012.

Cherished characteristics of military airlift platforms include: ruggedness, requiring minimum servicing and maintenance; multirole with all-weather and night operations capability; capability to operate in high ambient temperature conditions even at high-altitude airfields; high cruising speeds and good slow flying characteristics; long range and radius of action with STOL/ VTOL operations from semi prepared and unprepared surfaces; a large passenger/ cargo compartment allowing maximum possible payload, rear loading capability using integral ramps and stealth to the extent possible, and capacity to carry armament.

with initial successes. As per a NATO report, Urban Aeronautics an Israeli firm has developed *AirMule*, a ducted-fan craft for unmanned evacuation of wounded soldiers from combat zones. It has been specifically designed for logistics and medical missions (resupply and medical evacuation). The prototypes still have to prove in operations.

THINKING OUT OF THE BOX

Cherished characteristics of military airlift platforms include: ruggedness, requiring minimum servicing and maintenance; multirole with all-weather and night operations capability; capability to operate in high ambient temperature conditions even at high-altitude airfields; high cruising speeds and good slow flying characteristics; long range and radius of action with STOL/VTOL operations from semi prepared and unprepared surfaces; a large passenger/cargo compartment allowing maximum possible payload, rear loading capability using integral ramps and stealth to the extent possible, and capacity to carry armament.

A few of these requirements are conflicting, for example, large payload conflicts with short take-off. Therein come the judicious use of the available technology, and the ingenuity of the men behind the machines. A jet pack fitted on the fuselage of the C-119 Packet aircraft, months before the India-China War (1962), reduced the take-off runs and enabled operations from

high-altitude airfields. Again, thanks to this modification, Packet remained a workhorse of the IAF for many years until induction of An-32 aircraft in the 1980s. In another display of ingenuity, Skunkworks (Lockheed Martin) fitted rockets on the fuselage of C-130 Hercules aircraft to achieve a near VTOL capability for a second rescue plan of the American hostages in Iran (Operation Credible Sport, 1980). There is no limit to innovation.

With no earth movers and heavy road rolling equipment, service personnel and the refugees led by Lieutenant Colonel Pritam Singh had built a 600-yard runway in six days at Poonch. That was 1947. Today, it should be possible to create similar infrastructure even more expeditiously, wherever required.

INFRASTRUCTURE ALONG THE BORDER

Creation of infrastructure of any type costs a fortune and great effort in manning and maintaining it. It is neither humanly possible nor prudent to create assets all over—along the border, in particular—to counter the adversary, or to meet the demands placed on the Disaster Management organisations by occasional disasters. And then, there is no guarantee that the adversary would give an opportunity to reap benefits of the infrastructure. An option, after creating the bare necessary permanent infrastructure, is to develop capability and capacity to create assets expeditiously.

For the US, that has expeditionary agenda and a force to match it, it makes sense to have such capability. The US Navy's Construction Battalions (CBs), better known as Seabees have a history of building bases, bulldozing and paving thousands of miles of roadway and airstrips, and accomplishing myriad other construction projects in a wide variety of military theatres. They constructed six 8,500+ feet runways at the rate of one runway per 53 days; over 18 km of taxiways; hard-standing to accommodate over 400 bombers, and accommodation for 50,000 personnel and office complexes, on the islands of Tinian and Saipan in the Pacific in a record time of less than a year during World War II. In midsummer

1945, Tinian became the largest single, and the busiest, airport in the world. Nearly 19,000 combat missions were launched from these islands including the sorties that dropped atomic bombs on Nagasaki and Hiroshima.[18]

About 2,600 Seabees were deployed in about 20 different countries around the globe supporting a variety of humanitarian missions and contingency operations as late as in 2009. Seabees were among the first forces in Afghanistan after the 9/11 attacks to upgrade and repair airfields.[19]

With no earth movers and heavy road rolling equipment, service personnel and the refugees led by Lieutenant Colonel Pritam Singh had built a 600-yard runway in six days at Poonch.[20] That was 1947. Today, it should be possible to create similar infrastructure even more expeditiously, wherever required—be it Daulat Beg Oldi or any Advanced Landing Ground (ALG). There is more to learn from the following example.

At the peak of the Berlin Airlift, need was felt to construct a runway at Tegel in the French sector of Berlin. It had to be built from scratch. The earth movers, other heavy machinery and construction material required for the purpose could not be moved into Berlin by surface means due to the restrictions imposed by the Soviets. Besides, such airlift of construction material and machinery would be at the cost of critical food supplies. The problem was circumvented in steps. First, the need to airlift construction material was obviated by utilising the bricks and the rubble caused by the Allied bombing of the buildings in Berlin. Then, the heavy items of equipment were dismantled into smaller parts. And finally, those dismantled parts which could not be airlifted (owing to their dimensions or weight) were *cut* into smaller manageable parts; airlifted to Berlin, and then, *welded* together into their original forms.[21] All this was done in record time.

18. "The Use of Tinian Island During World War II", at http://web.mst.edu/~rogersda/umrcourses/ge342/ Tinian %20Island.pdf. Accessed on April 9, 2021.
19. "Additional Seabee Battalions Deploying to Afghanistan", Story Number: NNS091222-01; Release Date: December 22, 2009, 7:58:00 AM on Navy.mil, the official website of the US Navy, at http://www.navy.mil/search/display.asp?story_id=50316. Accessed on April 9, 2021.
20. Air Marshal Bharat Kumar (Retd.), *An Incredible War: IAF in Kashmir War 1947-1948* (New Delhi: Knowledge World, 2nd edn., 2007), p. 179.
21. Lt. Gen. William H. Tunner, n. 14, pp. 211-12.

In today's age and time, it should be possible to create infrastructure at a very rapid rate. Three points need to be borne in mind: One, a pool of highly skilled and dedicated men capable of creating infrastructure of any kind would be an asset; possibly teams that could be paradropped. Two, ensuring earmarked sources of failsafe supply of construction material in all parts of the country. Three, ability to deliver (airland or paradrop) construction materials and equipment wherever required at short notice. A potent airlift capability can, to a great extent, do away with the need of creating and maintaining less essential infrastructure.

TONNAGE VERSUS EFFECTIVENESS

Generally, tonnage is a yardstick used to evaluate airlifts—the weight airlifted over distance and time—the more the weight airlifted over the greater the distance in less time, the better. In addition, during HADR missions, evaluation is based on the casualties evacuated or lives saved. This thought process needs to change, as brought out by the following examples.

It is a recorded fact that one in every three aircraft (i.e., nearly 65 per cent of the airlift effort) to Berlin carried coal. Without coal the city could not survive. More than personal comfort, it meant light and power, and water and sewage. Coal generated the power which ran pumps and other municipal facilities. So, no one bothered about the quantity of coal being airlifted, until an interesting study revealed that beans, otherwise an excellent foodstuff for the hungry citizens of the beleaguered city—cheap and rich in both carbohydrates and protein—was not a practical food because it took a lot of time to boil and needed a large quantity of coal for cooking.[22] Focus on *ready-to-eat* food and substitutes for beans in the later stages led to greater effectiveness of the airlift.

The Air Force (or the civilian airliners that are required to provide airlift) has little say in matters related to the nature of load provided for airlift. Tonnes of barbed wire were airdropped at Senge and Se La during the 1962

22. Lt. Gen. William H. Tunner, n. 14, p. 203.

War with China.[23] To what avail? Six decades after the war, it would be unfair to comment on the effectiveness of those supplies from the air or on the compulsion to prefer 'barbed wire' to winter clothing and ammunition for the troops. But, for sure, a little thoughtfulness on the part of the load provider can make a huge difference to the effectiveness of an airlift.

Operation Cactus (the Maldives, November 1988) to rescue President M. A. Gayoom was launched at an extremely short notice. Because of the urgency and for reasons of secrecy, people had been briefed on a *need-to-know* basis. The result was that everyone turned up at the tarmac with what one thought was most essential. Thus it was that artillery guns and goose necks vied with kitchen utensils and field mess furniture for the limited space in the aircraft. Major (later, Major General) Harkirat Singh had to intervene to calm tempers between the loadmaster and the Quarter Master.[24]

The Indian Air Force (IAF) is called upon to airlift relief material during natural calamities which have started recurring with the regularity of the equinoxes (exaggeration intended). With reference to the airlift operations undertaken during the Uttarkhand Disaster of 2013, there is much to introspect. Within the first ten days, the IAF (as apart of Operation Rahat) airlifted over 13,000 people and dropped over 200,000 kg of relief material in more than 1,500 airlift sorties. The rescue work continued unabated despite the crash of an Mi-17V5 helicopter killing all 20 on board. The Indian Army (Operation Surya Hope) saved over 2,700 pilgrims in over 600 sorties in the same period. When it was all over, the statistics did not talk about the many more lives that could have been saved had the planners been more pragmatic in the choice of the loads airlifted. At a time when people were dying for want of food, water, medicines, blankets and other necessities, the IAF was tasked to airdrop firewood for cremation of the dead. The few helicopter-loads of firewood airdropped

23. Wing Commander M. Sadatulla (Retd.), *1962 War: Supplying from the Air* (New Delhi: KW Publishers, 2012), pp. 76, 78.
24. Group Captain Ashok K. Chordia (Retd.), *Operation Cactus: Anatomy of One of India's Most Daring Military Operations* (New Delhi: KW Publishers, 2018), p. 88.

would hardly have been sufficient to cremate thirty or forty people (out of the thousand and more dead) but the same tonnage of medicines and food would have saved many more lives. This a sensitive issue, but priorities need to be laid down with open mind and at a time when the country is not facing a crisis.[25] Another thing that sounds ridiculous is the sorties that are devoted to airlifting the so-called VIPs and the media persons. A study on the cost of airlift—in terms of *additional* lives lost—for such avoidable purposes could be an eye-opener.

"For India to be better prepared to meet disasters, it needs to levitate into becoming another kind of country."

—Santosh Desai[26]

EDUCATION OF STAKEHOLDERS

Professionally trained aircrew and aircraft are a constant in matters of airlift. One thing that makes a great difference—one that can make or mar an airlift effort—is the education of the other stakeholders. Here are some examples that shed light on this extremely important aspect.

During the Berlin Airlift, there was a curious case of a large number of pilots (flying bags of charcoal into Berlin) experiencing sluggish controls. An investigation revealed that 'over-enthusiastic' loaders were packing, on an average 15 per cent extra coal in each bag (purportedly) weighing a hundred kilograms. But while preparing the manifest they were accounting for a hundred kilograms per bag. It amounted to a tonne and a half 'extra and unaccounted' weight on each C-54 aircraft. It had to be conveyed to the loading crews that their overzealousness was *hurting*, not helping, the airlift effort.[27] In the same context, it was reported that about 300 to 400 pounds of coal dust was being carried back in the nooks and corners of each aircraft without people realising it. This revelation led to special

25. Group Captain Ashok K. Chordia (Retd.), "Airlift During Disasters: The Uttarakhand Experience: Can We Save More Lives?", CAPS Issue Brief 90/13, July 11, 2013.
26. Santosh Desai, "A catastrophe called disaster", *The Times of India*, Monday, June 24, 2013, p. 6.
27. Tunner, n. 14, p. 204.

instructions to 'clean' each aircraft after transporting coal. This cleaning was not very effective and forced the use of vacuum cleaners. Notwithstanding the efforts, mechanics could find charcoal dust in *Skytrain* and *Skymaster* as late as in the 1960s.[28]

During the *Over the Hump*[29] airlift, there is one freak instance of an aircraft crashing on the take-off run. It so happened that the Chinese troops who were made to travel in that aircraft were not *volunteers*. They were scared of flying. When the aircraft started rolling for take-off, the troops started jumping out of the open door on to the runway. In seconds, all the troops rushed to the aft end of the aircraft. This caused a sudden overweighting of the tail, leading to a premature take-off and eventual crash.[30] They were still uneducated unsafe passengers when, in the later years, their anxiety had been sufficiently allayed. They would build a fire on the floor of the aircraft to keep themselves warm. Still worse—they would not hesitate to push a buddy out of an aircraft in flight—just for fun.

Education of 'other stakeholders' is a universal issue. India is no exception. Comical as these may appear, the following incidents leave much for introspection. During Operation Pawan (Sri Lanka, 1987-1990), Indian Airlines aircraft were requisitioned to airlift some Indian Army formations. At Pune, the ignorance of the loading norms led the troops to *push in* a large battalion flagpole through the doorway of the aircraft. When they failed to load it *in* because of its size, they tried to 'lash' it on top of the aircraft. If that was not enough, they loaded live ammunition in the hold of the aircraft without the knowledge of the aircrew. The exact details were neither declared in the manifest nor conveyed to the aircrew. The pilots of the Indian Airlines aircraft, like the airlifters of coal of Berlin, had a tough time flying the overloaded aircraft. When, on reaching the destination, the crew of the aircraft came to know that the aircraft had been overloaded with mortar ammunition (something which

28. Roger G. Miller, *To Save a City: The Berlin Airlift, 1948-49* (Texas: Texas A&M University, 2000), p. 155.
29. *Over the Hump*: These airlifts were undertaken by (mainly) the US Air Force from India and Myanmar (then Burma) to supply the Chinese forces fighting the Japanese Army.
30. Tunner, n. 14, p. 126.

needs special clearance and prior permission), they were alarmed and vowed never to fly the Indian Army again.[31]

Equally alarming is the case of personnel detailed to load the guns and ammunition on behalf of 17 Para Field Artillery during the preparation for airlift of troops to the Maldives (Operation Cactus, November 1988). When they were told to reduce the weight, they did not physically *cut down* on their load, but just *pruned it on paper*.

It is almost axiomatic that an aircraft parked on the tarmac contributes *nothing* to the achievement of airlift goals. But, for the airlift aircraft to be airborne all the time (or most of the time), extra sets of aircrews, medically fit and well-rested, is an understandable necessity.

Flouting of airlift norms (even if deliberate) by the stakeholder is mainly because of lack of education. This aspect must be borne in mind by all concerned with the success of airlift operations. Education alone can prevent catastrophe.

THE AIRCREW

It is almost axiomatic that an aircraft parked on the tarmac contributes *nothing* to the achievement of airlift goals. But, for the airlift aircraft to be airborne all the time (or most of the time), extra sets of aircrews, medically fit and well-rested, is an understandable necessity. Not really! During the 1962 War with China when the IAF transport aircrew were overworked, having been on their feet for nearly 48 hours, young fighter pilots (who had flown Mystère aircraft) with no experience on the type (IL-14), took control of the transport aircraft after take-off and flew the machine till landing, to give in-flight rest to the fatigued transport pilots.[32] This spirit of *Mission First* is unique to military pilots (the three services).

31. General V. K. Singh, cited in Air Marshal Bharat Kumar, *Operation Pawan: Role of Airpower with IPKF* (Delhi: Manohar, 2015), pp. 79-81.
32. Air Marshal Bharat Kumar (Retd.), *Unknown and Unsung: Indian Air Force in Sino-Indian War of 1962* (New Delhi: KW Publishers, 2013), p. xiii.

Airlifts are the lifeblood of military operations and HADR missions. Over the years, aircraft evolution and new techniques have turned airlift into a very specialised art.

During the airlift of Indian expatriates from Kuwait (1990), problems cropped up even before commencement of the airlift. One set of Air India crew was stranded in Kuwait having flown in an earlier flight. The Air India pilots and staff "threatened" that unless the crew were got out of Kuwait, they would ground the flights. According to K. P. Fabian who was then the Head of the Gulf Division in the Ministry of External Affairs, "The threat was indeed serious."[33] The IAF placed six IL-76 aircraft along with crew under the operational control of Air India for the evacuation. They operated from Mumbai and effected at least 25 per cent of the air evacuation. More importantly, the IAF pilots evacuated Indians from Basra and Kuwait[34]—difficult airports to operate from, considering the clouds of war. The Air India pilots operated from Amman, a relatively *safer* airport.

IN CONCLUSION: A VALUABLE QUESTION

Airlifts are the lifeblood of military operations and HADR missions. Over the years, aircraft evolution and new techniques have turned airlift into a very specialised art (read, *Art of War*). There is much to airlift operations than brought out through a few random examples cited above. It is important to revisit these operations, and many others, to be able to draw maximum advantage from similar operations in the future.

Through revisits, it is relatively simple and easier to learn, educate and build on the HADR capabilities; not so much with regard to wartime military airlifts, because each of the warring sides (the 'blue' force and the 'red' force[35]) draws its own inferences and conclusions. In a future war, both sides are better prepared.

33. K. P. Fabian, "Biggest Ever Air Evacuation in History", Oral History, *Indian Foreign Affairs Journal*, vol. 7, no. 1, January-March, 2011, pp. 93-107.
34. Air Marshal A. K. Goel (Retd.), Director Operations (Transport & Helicopter) at Air Headquarters at the time of the airlift, in an interview by the author on January 31, 2013.
35. The 'friendly' force and the 'enemy' force, in military parlance.

Redo is not an option.

A good way to go about—after revisiting historical airlifts and assessing the current capabilities—is to seek answers to the valuable question: How can an airlift operation (airborne operation/air-landed operation or HADR, etc.) be repeated with greater probability of success?