

# AIR POWER

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CENTRE FOR AIR POWER STUDIES, NEW DELHI



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## **CENTRE FOR AIR POWER STUDIES**

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To be an independent **centre of excellence on national security** contributing informed and considered research and analyses on relevant issues.

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## ➤ EDITOR'S NOTE

The year 2019 seems to be getting more eventful with each passing quarter. The shooting down by Iran's Islamic Revolutionary Guards Corps (IRGC) Aerospace Force, on June 20, 2019, of the American drone – an RQ-4A Global Hawk High Altitude Long Endurance (HALE) Unmanned Aircraft System (UAS) – that Iran insists had violated its sovereign air space, almost became the tipping point for a military conflagration in West Asia. It is now believed that, in retaliation, US fighter aircraft that were airborne for a mission to strike Iranian targets were asked to stand down barely ten minutes before the strike when President Trump realised that the strike by US aircraft could lead to 150 plus civilian deaths; not a fair exchange for the loss of an Unmanned Air Vehicle (UAV). President Trump had, instead, imposed additional sanctions on Iran in an effort to create a greater financial strain on Iran's already fragile economy

In this quarter, the world has witnessed the beginning of an entirely new type of asymmetrical warfare that was just waiting to happen, and that has possibly heralded a change in the nature of future wars. The attack by eighteen drones and seven cruise missiles on Saturday, September 14, 2019, on the Saudi Aramco oil facilities was so deadly and so accurate that almost 50 per cent of the kingdom's oil production was knocked out; it accounted for almost 5 per cent of global oil production, or 5.5 million barrels per day! Crude oil prices saw a hike of 15 per cent when the markets opened on Monday, September 16. Stability was restored in a few days as strategic oil reserves held by the US were released by President Trump.

Abqaiq is considered the world's largest oil processing facility and crude oil stabilisation plant, with a processing capacity of more than 7 million barrels per day (bpd). The second target – Khurais – is the country's second

largest oil field. Half of Saudi Arabia's oil production had been knocked out as a result of these professionally executed strikes that hit the separation towers (where the oil and gas are separated), the large spheroid containers that drain off the water, and various other pieces of steel superstructure, all essential for stabilising the crude oil ready for export.

The drones that were used for the attacks were likely the 'Houthi Qasef-1', a loitering munition that is an upgraded version of the Ababil-II family of UAVs, produced by Iran's Aircraft Manufacturing Industrial Company (HESA). The upgrade has likely been carried out by Houthis trained in Iran. The Houthis are believed to have been using this variety of drone against Saudi air defence units that employ the sophisticated US-supplied MIM-104 Patriot Surface-to-Air Missile (SAM) system, targeting its radar in a classic Suppression/Destruction of Enemy Air Defence (SEAD/DEAD) mission; once the missile system is 'blinded', other strikes then follow. This appears to have been their *modus operandi* in recent times too and is believed to have been successful.

The other weapon system employed for the attacks was possibly the Ya-Ali land attack cruise missile, or its variant, the Quds-1.

The very fact that the cruise missiles and drones (loitering munitions) hit critical nodes in the oil and gas extraction and export process facility, signified that the attack was not just another rebel attempt at hitting a big target like an oil field, hoping to cause 'some damage'; it was a well-planned mission with precise Desired Mean Point of Impact (DMPI) identified for each drone/cruise missile. The accuracy of the drone/cruise missile to engage 17 targets with pin-point accuracy (as seen from the pictures that have been doing the rounds post the strike) indicates a very high degree of sophistication in the terminal navigation and attack system employed. The accuracy of the attacks does suggest that advanced guidance systems such as terrain contour matching, or a digital scene-matching area correlator, could have been used.

Were the air defences employed for protection of these vital assets of the Saudi kingdom not adequate to meet the threat? Of course, they were. The Royal Saudi Air Defence Force boasts of a robust layered air defence shield

around all of its economic targets as well as the capital city with a mix of long range, medium range and point defence weapons linked to radars. The 'Peace Shield' is considered to be the most advanced Integrated Air Defence Command and Control system in the world.

In view of the success of the drone/cruise missile attack, this event is a stark reminder of how wars in the future are expected to play out. 'Hit-and-run' tactics by a perpetrator who, by all accounts, is nameless – a non-state actor – and who uses low cost, low technology weapons to upend a thriving military force armed with some of the most sophisticated weapon systems in the world, and succeeds in imposing grievous economic costs on the latter, is surely a cause for reflection by militaries across the globe. The threat of retaliation using overwhelming force has not cut ice with the Houthis as they have not been deterred by the continuous onslaught of Saudi and coalition air forces carrying out attacks against them since March 2015, using some of the world's most advanced aircraft – the Typhoon (Eurofighter), F-15, F-16, Su-24, Tornado, etc. Also, the coalition that is engaged in Operation Decisive Storm consists of Saudi Arabia, Egypt, Morocco, Jordan, Sudan, the United Arab Emirates, Kuwait, Qatar, and Bahrain. What is noteworthy is that although the Saudi-led coalition operates with impunity over Yemen – as it has absolute air dominance over the area – it is challenged occasionally by Houthi SAMs that are mostly air-to-air missiles adapted to fire in the surface-to-air role.

The September 14 drone/cruise missile strike raises important questions and suggests serious reflection by militaries to not only adopt suitable counter-measures against the threat from drones of the loitering munitions variety, but also from mini UAVs that could sneak in at tree-top level and cause damage to soft-skinned targets. The recent incidents of Pakistan using drones to drop AK-47s, counterfeit currency and narcotics to modules of the Khalistan Zindabad Force (KZF) in the Tarn Taran region of Punjab comprise a worrisome development that has wider ramifications for the security of the nation. Counter-measures against such a threat would need a 'whole-of-nation' approach to include the active participation of the aerospace industry, both public and private.

Close on the heels of this development, an Orange Alert was sounded by the Indian Air Force (IAF) at five airfields in the northern region of the country on September 25, in response to an intelligence input that Jaish-e-Mohammed cadres could attempt a suicide attack against these airfields. These incidents appear to be a direct consequence of the revoking of the special status of Jammu and Kashmir (J&K) on August 5, 2019, that ended its statehood as well. Tensions between India and Pakistan have spiked since then, with Pakistan even threatening India with a 'nuclear war.' With the abrogation of the provisions of Article 370 and Article 35A – that gave special autonomous status to J&K – and the creation of a separate Union Territory for J&K (with a legislature), and Ladakh region (without a legislature), the Pakistan Army has been left completely befuddled as its *raison d'être* appears to be at stake.

The list of events in the quarter does not end with West Asia or South Asia. Northeast Asia appears to have had its own share of excitement on July 23 over the Takeshima/Dokdo Islands that are claimed by both Japan and South Korea. Two Russian Air Force Tu-95 bombers entered the Korean Air Defence Identification Zone (KADIZ) at around 0700h local time and were then joined by two People's Liberation Army Air Force (PLAAF) H-6 bombers in a joint patrol over the Sea of Japan and close to the disputed islands. As these aircraft were leaving the KADIZ, a Russian A-50 Airborne Warning and Control System (AWACS) aircraft entered the KADIZ at 0900h local time and entered South Korean/Japanese territorial air space by overflying the Dokdo/Takeshima Islands. The Republic of Korea Air Force (ROKAF) scrambled F-16 and F-15 fighters to intercept the A-50. In a display of 'unwarranted aggression', the ROKAF F-16 fired warning shots against the A-50. The A-50 left the area and re-appeared about half an hour later and flew over the islands once again. The ROKAF F-16 once again fired warning shots against the intruding aircraft that left the area thereafter.

The incident is significant as it showcases the growing proximity of the militaries of Russia and China in their first ever long range joint air patrol. Also, it highlights the chances of miscalculation between the fighter aircraft from the two air forces that were scrambled to intercept the ingressing

Russian and Chinese aircraft; particularly at a time when the two nations are in the throes of an ongoing trade dispute. Both also have claims over the islands. The timing of the joint patrol, therefore, appears to have been well orchestrated (by the Russians, or was it the Chinese who were behind this?). Any untoward incident between the fighters of the Japanese Air Self-Defence Forces (JASDF) and the ROKAF was, however, carefully avoided although Japan had also scrambled its fighters in response to the violation of its own ADIZ that overlaps the KADIZ. The action of firing warning shots against the A-50 by the ROKAF aircraft was unacceptable to Japan as it lays claim to the islands; Japan lodged a protest with South Korea over the same.

The presence of the A-50, as well as the PLAAF KJ-2000 AWACS aircraft in the area appears to be not merely to provide cover to their respective bomber aircraft; intelligence gathering of the South Korean Air Defence set-up, besides mapping the frequencies of the new inductions – the JASDF F-35s – appears to have been the real motive.

As we go to press, we bid farewell to the outgoing Chief of the Air Staff, ACM BS Dhanoa, who has had a brilliant tenure leading from the front. Exercise Gagan Shakti - 2018 made the world sit up and take note of the IAF's capabilities to generate a total of 9,000 sorties by fighters alone in the two 'surge' phases of the exercise. Even the Chinese looked at the IAF with a new-found respect! The Balakot strike, of course, was the crowning glory of ACM 'Tony' Dhanoa's exceptional career; methodical planning and flawless execution helped change the narrative for tolerance to terrorist activity in the subcontinent.

We have a new Chief of the Air Staff – ACM RKS Bhadauria. Our congratulations and best wishes go out to the new chief for a meaningful and successful tenure at the helm.

Happy reading



# AIR POWER AT BALAKOT: EXPLOITING FLEXIBILITY FOR STRATEGIC EFFECT

MANPREET SETHI

*The lesson of a century of air power is unambiguously clear, that while air power cannot win wars by itself, no war can be won without it.<sup>1</sup>*

No one today questions the centrality of air power in wars. The US has already shown its air prowess in the many wars it has fought far away from its mainland. But these were mostly with countries that had little air power of their own to pit against the world's most advanced air capabilities. Even in the case of wars between countries whose air forces are roughly evenly placed against each other, the edge is sure to rest with the side that undertakes better employment of the available assets. However, not just in overtly declared and fought wars, but also in situations less than wars, air power has a role to play as an instrument of deterrence, and if and when that fails, then as a potent tool for imposing punishment. India's use of air power at Balakot was a clear case of exploiting the inherently flexible nature and reach of this instrument for achieving strategic effect by undertaking precise, punitive strikes on terror infrastructure allowed

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1. Jasjit Singh, "Some Reflections on the IAF", *AIR POWER Journal*, Vol. 1, No. 1, Monsoon 2004 (July-September). Reproduced as chapter 1 in this volume.

**India's use of air power at Balakot was a clear case of exploiting the inherently flexible nature and reach of this instrument for achieving strategic effect by undertaking precise, punitive strikes on terror infrastructure allowed to thrive on Pakistan's soil for use against India.**

to thrive on Pakistan's soil for use against India.

In an article written in 2007, Air Cmde Jasjit Singh, the well known national security strategist, had highlighted the need for India to acquire good Reconnaissance, Surveillance and Target Acquisition (RSTA) capabilities to ensure the ability to punish Pakistan for its use of terrorism. Twelve years down the road, India gave a live demonstration of this through the Balakot air strikes. This was an action taken by the Indian Air Force (IAF) in response to the terrorist attack on a convoy

of paramilitary forces at Pulwama on February 14, 2019, in which 40 Indian soldiers were killed.

Given India's long history of suffering terrorist attacks fomented and supported from across the border, Rawalpindi was assumed to be behind this attack too. But, even before New Delhi could point a finger towards Pakistan, the Jaish-e-Mohammed (JeM), an outfit well known to operate from Pakistani territory with help of its military, owned up to the brazen and barbaric attack. The organisation has since been banned by Pakistan, and its leader Masood Azhar has been designated a global terrorist after China finally lifted its block to the move in May 2019. India had long demanded this action and was backed by all the major powers (except China). Finally, the desired result came about because of the high pressure that built upon Pakistan after the Pulwama incident. This once again shone the spotlight on Islamabad's actions that were not in compliance with its many commitments on eschewing terrorism, including to the Financial Action Task Force (FATF). Imposing the ban on the JeM became one move for it to prove its bonafides.

India has no illusions, however, that this spells a change of heart on the part of Pakistan's strategy of using terror. Therefore, the preparation to avoid/handle such incidents in the future, has to remain a point of focus for

New Delhi. The objective of this paper is to examine the role that air power played in the punitive action taken after the Pulwama attack. It needs to be highlighted here that the paper makes a case for air power in general without attribution to which military Service (army, navy or air force) has the ownership of the air assets.

The first two sections of the paper examine what the air action at Balakot achieved, and why air power can be an effective and prudent instrument of choice for inflicting punishment and raising the costs for what Pakistan has long perceived to be its low cost strategy. The third section of the paper offers some suggestions on the kind of capabilities that India must invest in to enhance its deterrence value and effectual exploitation when compelled towards its use. However, before getting to these specific sections, the paper first dwells upon the challenge posed to India by Pakistan's strategy of using terrorism from behind the shield of its nuclear capability. Understanding this would help place the use of air power at Balakot in context.

**Pakistan's nuclear strategy proclaims a low threshold for the use of its nuclear weapons, including through low-yield weapons in the battlefield. The obvious purpose of such a posture is to deter India from using its conventional military strength against terror strikes by invoking the risk of an inevitable escalation to the nuclear level.**

### **PAKISTAN'S USE OF TERRORISM AND INDIA'S DILEMMA**

Use of terrorism by Pakistan against India is neither a new phenomenon (having gone on for over two decades), nor a secret any longer. Its intentions and the concomitant build-up of nuclear and conventional military capability, as also the terrorist infrastructure meant for waging a proxy war against India, is today openly accepted by its military leadership as also acknowledged by the international community. In fact, while Pakistan has followed a strategy of covert warfare from the time of its creation in 1947, the acts of terrorism acquired a new lease of life, pace and intensity once the

Pakistan Army became confident of its nuclear weapons capability. These weapons have since served as the shield from behind which it can carry out acts of terrorism. Pakistan's nuclear strategy proclaims a low threshold for the use of its nuclear weapons, including through low-yield weapons in the battlefield. The obvious purpose of such a posture is to deter India from using its conventional military strength against terror strikes by invoking the risk of an inevitable escalation to the nuclear level.

In this game, Pakistan's nuclear weapons are less for 'nuclear' deterrence and more for providing immunity to the country to wage other modes of conflict. Pakistan, in fact, uses the risk of escalation to achieve two objectives: one, to deter India from using its superior conventional military capability in response to the proxy acts of terrorism executed by groups sponsored and trained by the Inter-Services Intelligence (ISI) or the Pakistan Army; and, secondly, to magnify the fears of the international community by suggesting the possibility of a nuclear exchange in the region. Pakistan assumes that a 'concerned' international community would restrain India from using military force. Therefore, its nuclear weapons, in Pakistani perception, "give it the immunity to execute its strategy of bleeding India through a thousand cuts, while curbing India's response to merely dressing its wounds without being able to strike at the hand making the injuries."<sup>2</sup>

Considered objectively, there are three ways in which India can respond to Pakistan's strategy of covert warfare under the nuclear shadow. One of these, which has largely been followed since 1989, is to maintain high defences and respond to terrorist strikes by fencing the borders better, or intercepting as many infiltrators as possible through timely intelligence and necessary action; a second way of handling the situation has been to reach out to those constituencies in Pakistan that are willing to be reasonable, that do not perceive an existential threat from India and are sympathetic to change the course of Pakistan's behaviour from a largely negative to a positive line of action. Unfortunately, these do not hold much sway in the national decision-making and, hence, despite India's attempts in this direction, no

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2. Manpreet Sethi, "Defeating Pakistan's Nuclear Strategy", *AIR POWER Journal*, Vol. 6, No. 1, Spring 2011 (January-March), pp. 105-122.

substantive results are evident. Not much can be expected either, unless there is substantive change in the domestic power structure of the country; a third way of dealing with the situation is to act more offensively in order to impose punishment, not merely on the proxy actors, but the handlers of these proxies.

As is evident, the Indian government has predominantly been engaged in the first and the second types of responses in dealing with Pakistan's terrorism strategy. But, it is also evident that there are limits to the success that can be obtained by purely following these approaches. For Rawalpindi, the seat of military power in Pakistan, proxy war is a low cost strategy, raking in rich dividends for it. Therefore, the costs have to be somehow raised to bring about a change in this policy.

A realisation of this fact, frustration with the failure of the relatively softer diplomatic and economic actions resorted to over decades, the availability of apt military instruments, besides a strong political resolve to try other tools, led to India's response to the terror attacks in 2016 and 2019 being different from that in the past. India showed that it would not be deterred from military action, if it considered it necessary to undertake one. So, in the wake of the terrorist attacks on Uri on September 18, 2016, surgical strikes were carried out by the Special Forces (SFs) of the Indian Army on terrorist camps across the Line of Control (LoC) in Pakistan Occupied Kashmir (POK) on the night between September 28 and 29, 2016. And, in response to the JeM attack on the Central Reserve Police Force (CRPF) convoy in Pulwama in 2019, the IAF was authorised by the political leadership to conduct air strikes on terrorist targets deeper inside Pakistan, beyond POK.

### **THE BALAKOT ACTION: WHAT DID THE USE OF AIR POWER ACHIEVE?**

On February 26, 2019, a dozen IAF Mirage 2000 aircraft equipped with the Israeli-built SPICE (Smart Precise Impact and Cost Effective) 2000 bombs flew across the international boundary between India and Pakistan to target an intelligence-identified terrorist camp in Balakot in Khyber

Pakhtunkhwa. Fitted with a robust guidance system that uses the onboard Global Positioning System (GPS), Charge Coupled Device (CCD), Infrared Radiation (IR) sensors to pick up the target in adverse weather/low-light (night) conditions, and scene matching capability (for pin-point accuracy), the SPICE-2000 navigates accurately to an intended target 60 km away. The SPICE-2000 was, therefore, found appropriate for the mission. The Mirages were reportedly accompanied by four Sukhoi-30s to provide air cover. Two surveillance aircraft, the Israeli Phalcon Airborne Warning and Control System (AWACS) and the indigenous Netra Airborne Early Warning and Control (AEW&C) system, were deployed, as were two IL-76s for mid-air refuelling.<sup>3</sup>

A few hours after the air strikes, the foreign secretary of the Government of India, presented a prepared statement at a press conference, in which he stated,

Credible intelligence was received that JeM was attempting another suicide terror attack in various parts of the country, and the *fidayeen jihadis* were being trained for this purpose. In the face of imminent danger, a pre-emptive strike became absolutely necessary. In an intelligence led operation in the early hours of today, India struck the biggest training camp of JeM in Balakot ... this non-military pre-emptive action was specifically targeted at the JeM camp.<sup>4</sup>

The government spokesperson took pains to underline that in view of the intelligence inputs received, India had acted in self defence by targeting the building that housed the trainees. This was done with precision weapons, taking utmost care not to cause civilian or even military casualties.

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3. Raj Chengappa, "Balakot: How India Planned IAF Strike in Pakistan—An Inside Story", *India Today*, March 15, 2019, <https://www.indiatoday.in/magazine/cover-story/story/20190325-balakot-airstrikes-pulwama-terror-attack-abhinandan-varthaman-narendra-modi-masood-azhar-1478511-2019-03-15>

4. "Text of Foreign Secretary's Statement on Air Strike". *Hindu Business Line*, February 26, 2019. Available at <https://www.thehindubusinessline.com/news/text-of-foreign-secretarys-statement-on-air-strike/article26372848.ece>

While Pakistan acknowledged the IAF's intrusion of its air space, and its own aircraft scrambled in response, it denied that any damage had been caused on the ground, except to some pine trees on nearby hills. Pakistan's Climate Change Minister, Malik Amin Aslam, described this as a case of "ecological terrorism" and announced the intention of his country to lodge a protest at the UN! Meanwhile, in an emergency meeting of the National Security Council held the same day, the Pakistani prime minister made it clear that his country would retaliate at a time and place of its own choosing.

As promised, the counter action came the next morning with 24 Pakistan Air Force (PAF) aircraft, a mix of the F-16, JF-17 and Mirage-5. According to media reports, "Mirage-5 tried to bomb the Indian Army's 25 Division headquarters, and an ammunition and logistics depot close to the brigade headquarters in Poonch."<sup>5</sup> Whether it was a pre-planned move on the part of Pakistan not to deliberately hit Indian military targets but only to "lure Indian fighters",<sup>6</sup> or a case of luck that the bombs did not fall on Indian Army installations, in either case, another round of escalation was prevented. One of the Indian MiG 21 Bisons that scrambled in response to the PAF aircraft on February 27, entered into a dogfight with an F-16 and suffered a hit. The pilot had to eject and he fell across the LoC in POK. He was captured by the Pakistan Army and freed 60 hours later after much drama. His capture and the efforts that went into his being handed back to India proved to be sobering developments. No further military action took place by either side thereafter. The relationship has since settled down into an uneasy state and the future looks troubled.

It is beyond the scope of this paper to analyse the future of Indo-Pak relations. Its purpose, rather, is far more narrow – to examine the role that air power played in the retaliation that India decided to launch after the Pulwama attack. It was the first time since 1971 that India decided to use this instrument. And, it was also the first time that military jets were granted political permission to penetrate the Pakistani air space to hit at targets

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5. R. Prasannan, Namrata Biji Ahuja and Pradip R. Sagar, "Inside Story of India's Air Strike and Pakistan's Counter Attack", *The Week*, March 2, 2019, <https://www.theweek.in/theweek/cover/2019/03/02/stealthy-skydivers.html>

6. Ibid.

**The important point of the IAF action was not whether it managed to kill 2 or 20 or 200 terrorists or the extent of damage caused to structures. Its significance lay in something far more than the material destruction. It exposed the ineffectualness of the Pakistan projection of an automatic connection between Indian military action and its use of tactical nuclear weapons.**

deeper inside the country.<sup>7</sup> Most war-games simulating Indo-Pak crises have accepted that India's initial military response to a Pakistani terror trigger would be confined to POK. But India chose to buck the template. So, what did the air strikes achieve?

A lot of focus of the Indian television channels was on the exact number of casualties that the air attacks managed to cause and the demand for its proof. But, the number of terrorists killed or the amount of damage caused on the ground was really an insignificant dimension of this episode. It must be remembered that

in Pakistan, any number of terrorists can quickly be recruited without much effort; the training imparted to the recruits ranges from as little as two weeks to a few more weeks, depending on the complexity of the terrorist operation. Damaged buildings can be reconstructed easily too. Therefore, the important point of the IAF action was not whether it managed to kill 2 or 20 or 200 terrorists or the extent of damage caused to structures. Its significance lay in something far more than the material destruction.

India's air strikes questioned long held assumptions and created new mind space for retaliation possibilities. Three things particularly stand out and must be recognised for the paradigm shift in India's response strategies. *First of all, the significance of the action lay in India's debunking of Pakistan's nuclear strategy of brinkmanship.* It tested the assumption that Pakistan's nuclear weapons have tied India's hands and provided Rawalpindi with a *carte blanche* for provocative acts. In fact, it exposed the ineffectualness of the Pakistan projection of an automatic connection between Indian military action and its use of tactical nuclear weapons. Meanwhile, the resolve exhibited

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7. Everyone well remembers the restrictions that were imposed upon IAF operations during the Kargil operation in 1999.

in the conduct of the air strikes showed an appetite for risk taking which India had shied away from for many decades.

The IAF strikes at Balakot showed that India would not be deterred by the posture of a low nuclear threshold and could conduct military action when it so desired. The surgical strikes had done something similar in 2016. But those had been confined to POK. These air strikes went deeper into Pakistani territory and delivered a message of the availability of capability and resolve.

This is not to suggest that India was unconcerned about the possibility of escalation. Some kind of retaliation at the conventional level was expected. But the IAF strikes demonstrated India's willingness to take that risk and shifted the onus of escalation back to Pakistan, while deterring it from action by exhibiting capability and resolve.

*The second significance of the air strikes lay in the rather intelligently calibrated use of military capability by India.* New Delhi well recognises the change in circumstances since 1998. The essence of this was well put by Martin van Creveld, a well known analyst on war, when he wrote, "From Central Europe to Kashmir, and from the Middle East to Korea, nuclear weapons are making it impossible for large sovereign territorial units, or states to fight each other in earnest, without running the risk of mutual suicide."<sup>8</sup> Of course, factors other than nuclear weapons are also impacting the nature of warfare and transforming it from total to limited. But, nuclear weapons with the adversary do cast a shadow that must be accepted. This is not to suggest that force cannot be employed in the presence of nuclear weapons, even though this exactly is Pakistan's contention. It only implies that force needs to be employed differently, "in a manner whereby the risk of escalation to the nuclear level is minimised

**Precise use of air power on carefully chosen targets, where India scrupulously kept away from causing any military or civilian damage to its neighbour did manage to send a powerful message of resolve, while indicating no desire for a military engagement.**

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8. Marin van Creveld, *On Future War* (London: Brassey's, 1991), p. 194.

because the targets are chosen so as not to threaten the survival of the state or its critical elements.”<sup>9</sup>

The surgical strikes in 2016 and the air strikes in 2019 demonstrated how India can tailor military actions to keep them well below Pakistan’s nuclear threshold. India has shown the ability to exploit available capabilities to extract maximum effect with an eye on least risk. Of course, the national leadership is cognisant of the fact that the risk of any military action can never be zero. But, precise use of air power on carefully chosen targets, where India scrupulously kept away from causing any military or civilian damage to its neighbour did manage to send a powerful message of resolve, while indicating no desire for a military engagement.

In a related sense, the *third myth busted in the recent use of air power was that its use is necessarily escalatory*. This has been long held conventional wisdom in India, particularly since the non-use of air power in the war with China in 1962. The impression that had gained ground then, and since, was that because air power widely expands the envelope in which destruction could be caused, it held a high risk of escalating wars. Surely, if the air strikes were to take place as a case of area targeting or indiscriminate bombing on non-combatants or economic targets deep inside another nation’s territory, it would call for a counter action that could exacerbate the extent, intensity or scope of further military action. But, this would have been true when the ability to conduct attacks against targets on the ground from the air was more inaccurate and the risk of collateral damage was high enough to make political leaders unwilling to take them.

Better Information, Surveillance, Reconnaissance (ISR) and precision strikes, however, have significantly altered air strike capabilities to ensure minimum collateral damage while making the strike more effective with less force. In the current circumstances, therefore, air power has demonstrated the ability to be used discriminately, especially customised to avoid escalation. Its inherent flexibility and spatial reach allows it to be tailored to handle a delicate situation.

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9. Manpreet Sethi, *Nuclear Strategy: India’s March Towards Credible Deterrence* (New Delhi: Knowledge World, 2009), p. 297.

### **AIR POWER AS AN INSTRUMENT OF CHOICE**

The use of air power as an instrument for imposing punishment creates space for the use of force below Pakistan's low projection of its nuclear threshold. If precision is matched with the right choice of target, the use of air power gains further legitimacy. Of course, any military action against another sovereign nation could create pressures on the adversary to respond. Pakistan felt compelled to do so too. But given the signal inherent in the nature of the Indian strike, it did so in a manner by which it got to prove a point about its own capability, but consciously stayed clear of escalation. This gave space to both countries to manoeuvre towards de-escalation.

In contrast, if India had used land forces, the situation could have become more difficult and long drawn. Once engaged in combat, the army cannot be disengaged unless one side either concedes defeat or a ceasefire is agreed to. Land forces are best suited for territorial occupation and for deterrence by denial. But, when land grab is not the politico-military objective and the requirement is to punish in order to deter future actions, then which instruments are most apt for action? Obviously, ingress into Pakistani territory with an aim of territorial occupation to achieve this objective makes no sense. But, hitting out at the terrorists, their leaders, and the infrastructure that supports their activities, does. Therefore, these become the logical and legitimate targets for retaliation and the instruments that can get to them would automatically be the preferred tool of choice.

Balakot underscored the utility of the air arm to meet this objective. Here it must be underscored that the strikes from the air could have been executed by the air assets owned by the army, navy or air force. In this particular case though, in view of the location of the target and the availability of the matching capability to hit, it was best found with the IAF. The important point here is not which military Service was used. All of them belong to the nation and are raised to meet national interests. The issue at hand is the unique attributes of air power that lend themselves to strikes that can be used for flexible response and to cause maximum effect.

**Air power, by its characteristic of transcending borders and terrain barriers, offers the unique ability to punish an adversary without having to defeat him first. The need to apply punitive force for political-military effect but at significantly reduced risk of escalation to nuclear levels makes air power a handy instrument to use and less escalatory than sending the army across borders.**

The advantage of flexibility that is offered by air power came in most useful at Balakot. It allowed the element of surprise since the aircraft could take off from any airfield (air-to-air refuelling facilitated this), with any combination of weapon systems on board, use precision strikes to ensure calibrated use of force, and enable the benefit of quick escalation and de-escalation. In an essay written on the concept of limited wars in the year 2000, Air Cmde Jasjit Singh had expounded the necessity of military operations that could be used to quickly raise the tempo for strategic effect while also offering

the advantage of quick winding down in order to avoid the risk of further escalation. He wrote, "In the years ahead, air (and missile) power will be the central tool for conventional deterrence, as well as controlled punitive strikes for coercive diplomacy. Naval power, in this regards, would play a close second."<sup>10</sup> For two nuclear armed states, such instruments are of particular importance to avert or minimise the possibility of things spinning out of control.

The Balakot episode provides a case study of the possibilities of use of the air instrument for effective punishment with strategic reach, speed, surprise and calibrated lethality. It serves as one of those military instruments that offers the advantage of flexibility of employment, calibrated control over military engagement, and, hence, over escalation. It visibly demonstrates resolve while simultaneously offering the option of speedy disengagement.

Air power, by its characteristic of transcending borders and terrain barriers, offers the unique ability to punish an adversary without having to

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10. Jasjit Singh, "Dynamics of Limited War", *Strategic Analyses*, vol. 24, no. 7, October 2000.

defeat him first. The need to apply punitive force for political-military effect but at significantly reduced risk of escalation to nuclear levels makes air power a handy instrument to use and less escalatory than sending the army across borders. By ensuring a high modicum of control over engagement and disengagement, air power can be seen to be not just a tool of war, but a means of deterrence and statecraft too.

**India's preparedness to take more such actions, as and when necessary, in the case of future acts of terrorism from across the border, calls for deep thinking on the kind of equipping of the armed forces that is necessary.**

#### **FUTURE REQUIREMENTS TO RAISE COSTS FOR PAK STRATEGY OF TERRORISM**

Pakistan has long believed that terrorism is a low cost strategy for keeping India unsettled. The only way India can hope to change Pakistan's propensity to use the abundantly available and inexpensively trained terrorists is by raising the costs of its activities across all spectra – economic, diplomatic, political, and military – especially to the Pakistan armed forces and the intelligence establishment.

Raising costs, however, cannot be a one-action exercise. It must comprise a number of actions across a range of realms in a sustained manner over time to have an impact. The Indian air strikes at Balakot, as also the surgical action across the border in 2016 in response to the terrorist strike in Uri, managed to cost Pakistan's military a loss of face. In both cases, the armed forces were not able to 'save' their country from a response across the border that targeted terrorist training or launch camps. In both instances, the armed forces were left red-faced and it was a chip off their credibility.

India's preparedness to take more such actions, as and when necessary, in the case of future acts of terrorism from across the border, calls for deep thinking on the kind of equipping of the armed forces that is necessary. According to Air Chief Mshl BS Dhanoa, "In the Balakot operation, we had technology on our side, and we could launch precision stand-off weapons with great accuracy.

In the subsequent engagements, we came out better because we upgraded our MiG-21 Bisons, and Mirage-2000 aircraft ... The results would have been further skewed in our favour had we inducted the Rafale aircraft in time.”<sup>11</sup>

In order to ensure that the technological edge is maintained to be able to use air power effectively for deterrence and for strategic effect in the case of deterrence breakdown, the acquisition of the right capabilities is a must. The requisite number of aircraft in the right mix of high and less than high end aircraft,<sup>12</sup> equipped with the right weapon systems, particularly of the Beyond Visual Range (BVR) capability, the right kind and number of force multipliers and the training that goes with it are obvious requisites. Better stand-off capabilities of aircraft and weapon systems will ensure better reach as well as own safety. Better air defence will also ensure better protection of own assets. Neither can be ignored. Deep basing of aircraft would allow India to make maximum use of the advantage of its geographical expanse or strategic depth.

At the same time, a very high level of importance needs to be placed on intelligence gathering that utilises all possible instruments and assets in space, at sea or on the ground. Only this can enable the right choice of targets for precise action, with zero collateral damage. International and national legitimacy for actions will rely heavily on this. India’s ability to undertake precision strikes enabled by accurate intelligence was a demonstration of its capability. Though the action was unprecedented and fraught with the risk of escalation, it was nevertheless seen as justified by most political leaders across world capitals only because of the choice of target, enabled by good intelligence.

This article has purported the relative advantage of the use of air power as an instrument of deterrence, and for its effective use in case deterrence fails. A reading of this article must not be taken as an argument for the use

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11. “Technology on India’s Side in Balakot Operation: IAF Chief”, *Economic Times*, April 16, 2019, <https://economictimes.indiatimes.com/news/defence/technology-on-indias-side-in-balakot-operation-iaf-chief/articleshow/68889661.cms?from=mdr>

12. Air Chief Mshl Dhanoa, Chief of the Air Staff, was right in pointing out that for a developing country like India, with its resource constraints, having to arrive at this mix is necessary.

of only the IAF as the only offensive arm to deal with the challenge posed by Pakistan. The use of maritime power, including its air assets, would have its own advantage, especially of surprise, which is critical for a punitive strike. But it would also entail risks to the maritime assets at sea. The pros and cons of use of naval force for punitive action will, therefore, have to be weighed against its vulnerabilities. Meanwhile, let us not forget that even the insertion and return of the SFs after an operation in enemy territory would also demonstrate the effective use of air power. Therefore, it is the advantages of reach, precision, speed and quick escalation and de-escalation that skew the balance in favour of air power.

Meanwhile, it must also be remembered that India's strategic culture favours the use of force always as a choice of last resort. As stated earlier, India absorbed many incidences of terrorism because it chose to remain focussed on economic growth and development. Distractions of military action were avoided. The Indian society and economy have shown the resilience to withstand such strikes and move on. But, tolerance has its limits. Owing to many internal and external factors, the need for punitive action was felt by the government of the day since other economic and diplomatic instruments had failed to change Pakistan's course of action.

Through the use of precision air power in Balakot, India signalled that its fight with Pakistan is not with the citizens of the nation, but with the terrorists and the elements of the deep state that use them to mount a proxy war. Rather intelligently, the Pakistan Army keeps itself out of harm's way, letting the terrorists bear the losses of life, while unabashedly taking credit for keeping India's ability to retaliate in check by showcasing its own strength, particularly drawn from its nuclear weapons. For long, this has been a win-win strategy for the Pakistan armed forces. However, with its recent military action New Delhi has shown its resolve to craft a new approach to cross-border provocations. Use of air power in Balakot has demonstrated a strategy that will not shy away from exploiting the flexibility offered by air power for strategic effect.

# INDIA'S ENTRY INTO THE ANTI-SATELLITE CLUB

**DHIRAJ KUKREJA**

## **INTRODUCTION**

The Indian Space Research Organisation (ISRO) is the space agency of the Government of India (GoI), with a vision to “harness space technology for national development while pursuing space science research and planetary exploration.”<sup>1</sup> ISRO was initially conceived as the Indian National Committee for Space Research (INCOSPAR), by Dr Vikram Sarabhai, to formulate the Indian space programme, under the leadership of the then Prime Minister, Jawaharlal Nehru; to begin with, it was placed within the ambit of the Department of Atomic Energy (DAE) in 1962, and became ISRO in 1969, while continuing under the DAE. It was only in 1972 that the GoI set up the Space Commission and Department of Space (DOS), and brought ISRO under the DOS; space activities, thus, became institutionalised under ISRO.

India's satellite programme began on April 19, 1975, with the launch of its first satellite, *Aryabhata*, by the Soviet Union. This was followed by the launch of the *Rohini*, the first satellite to be placed in orbit by an indigenous Satellite Launch Vehicle, the SLV-3, which was subsequently followed by the development of two other rockets, namely, the Polar

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1. “Vision and Mission Statements”, [www.isro.gov.in](http://www.isro.gov.in). Accessed on August 11, 2019.

**Even as the importance of space in national security is being understood and acknowledged, India continues to maintain a policy of non-militarisation of outer space, persistently arguing against it in both domestic and international fora.**

Satellite Launch Vehicle (PSLV) for placing satellites in the polar orbit, and the Geosynchronous Satellite Launch Vehicle (GSLV) for placing satellites into the geostationary orbits. With the development of these home-grown launch vehicles, with indigenously-developed cryogenic engines, ISRO placed India firmly on the 'world space map', to the extent that today, ISRO launches satellites for other nations too, and at a fraction of the cost of the 'Big-3'.

#### **BACKGROUND TO THE INDIAN ANTI-SATELLITE MISSILE**

ISRO has been exploring space for scientific research, cartography, earth observation, communications and a host of other uses. The initial satellites, Aryabhata and the Rohini series, were considered to be experimental satellites. Thereafter, the Indian National Satellite System (INSAT) was initiated, which is a series of multi-purpose geostationary satellites, built and launched by ISRO; this was followed by the Indian Remote Sensing (IRS) series, and Radar Imaging Satellites (RIS). Apart from these series, there has been a host of other satellite launches for meteorology, ocean monitoring, communication satellite for the South Asian Association for Regional Cooperation (SAARC) region, and navigation satellites as an indigenous Global Positioning System (GPS). ISRO is also working towards manned flight in space and has plans for building its own space station.

These space-based assets are not merely for civil purposes, but have military uses too. An Integrated Space Cell, under the Integrated Defence Staff Headquarters (IDS HQ) of the Ministry of Defence (MoD) has been set up to utilise more effectively the country's space-based assets for military purposes and to look into threats to these assets.<sup>2</sup> Even as the importance

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2. Rajeswari Pillai Rajagopalan and Arvind K. John, "A New Frontier: Boosting India's Military Presence in Outer Space", *ORF Occasional Paper#50*, January 2014.

of space in national security is being understood and acknowledged, India continues to maintain a policy of non-militarisation of outer space, persistently arguing against it in both domestic and international fora. The potential use of space assets for enhancing national security, including technology dominance, was always understood by the political leadership, however, the objective was not given any importance, and, hence, remained on low priority. Indian space forays, therefore, comprised predominantly a civil space programme, even while remote sensing satellites in the past provided outputs for the military.

The launch of the GSAT-7 satellite, India's first dedicated military satellite, has shown that this policy is now undergoing a change; regional and global geo-political situations have steered India to change its approach. Despite a slow start, India is now progressing towards developing the necessary military characteristics in its space programme. Indeed, the balance may be shifting in favour of national security arguments, more so today than ever in the past. The political leadership seems to have appreciated that as space-faring nations across the world are assigning an increasingly militaristic role to their space assets, India's inaction will not only leave it unprotected, but also lagging behind in terms of critical capabilities. India's space policy articulation has, thus, been attempting to attain clarity, even though the GoI continues to adhere to its stance of opposing militarisation of space.

With an emphasis on non-militarisation, India continued to oppose the use of space assets for offensive capabilities. This was clearly manifested in its opposition to the US Strategic Defence Initiative (SDI), commonly known

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as the Star Wars programme, in the 1980s and to the space race between the USA and USSR during the Cold War, including their respective Anti-Satellite (ASAT) tests. India, along with a majority of other nations, expressed criticism at these developments, since it was felt that they were contributing to the growing conventional and nuclear arms races. Smt Indira Gandhi, then prime minister, raised the issue at the UN General Assembly (UNGA) in September 1983. However, it was her Foreign Minister, Shri PV Narasimha Rao who, in a much more hard-hitting statement, said, "Extension of the arms build-up to outer space would mean a permanent goodbye to disarmament and peace and would plunge mankind into a perpetual nightmare. The escalation that might follow would either blow up the entire globe to smithereens or reduce humanity to a state of utter helplessness making it a permanent hostage to terror from within and hegemony from without."<sup>3</sup>

While the Indian stand reflected its aversion to militarisation of space for anti-missile or ASAT purposes, *per se*, India did show partiality to the use of space in other military activities, such as surveillance or communications, thus, agreeing to the use of space for passive purposes. It, however, raised the issue of differentiation between militarisation and weaponisation.

A change in India's reconsideration of its opposition to space militarisation became visible with the turn of the century. This was first perceptible in India's reaction to US President George W. Bush's National Missile Defence (NMD) speech in May 2001, and thereafter in India's own interest in a Ballistic Missile Defence (BMD) system (the author was a part of the audience, along with other international students, on the lawns of the National Defence University in Washington DC, where President Bush, accompanied by his Cabinet members, Colin Powell, Condoleeza Rice et al., declared to the world his intentions of proceeding towards NMD, with a reduction in nuclear forces). Even though India's statement, *per se*, supported the unilateral reduction of US nuclear arms and not the US missile defence plan, the quick reaction from India created an impact

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3. "Rao Warns of Arms Race in Outer Space," *Strategic Digest*, vol. 14, no. 3, March 1984, p. 232, cited in Rajagopalan and John, n. 2.

equivalent to that of India supporting the missile defence plans, inviting huge domestic criticism for having displayed support to the NMD, when for all these years, it had spoken against the SDI!

Notwithstanding the domestic critics, India's strong opposition on non-weaponisation of outer space has eased since then, particularly after the Chinese ASAT test in 2007. The Chinese ASAT test also enabled the dismantling of some of the firewalls that existed within the Indian research and development institutions, bringing about cooperation amongst them, prominently between the Defence Research and Development Organisation (DRDO) and ISRO. The threat of the Chinese ASAT, successfully brought forth arguments for the protection of own space assets. In a speech at a conference on Aerospace Power in 2007, Minister of External Affairs, Shri Pranab Mukherjee, reflected on these signs of change in India's space policy: "Following the Revolution in Military Affairs, there is a growing focus on space-based assets to support a variety of military force multipliers. There is an increasing tendency as well to view space assets as critical national infrastructure to be protected or denied to potential adversaries. Satellites play an important role in intelligence, surveillance, reconnaissance, secure communication and delivering accurate firepower on the ground at large distances. Recent developments show that we are treading a thin line between current defence related uses of space and its actual weaponisation."<sup>4</sup> At another lecture at the National Defence College, Shri Pranab Mukherjee argued, "...there are also new sets of challenges which China poses, such as the strategic challenge, as China develops its capabilities in outer space... we would need to develop more sophisticated ways of dealing with these new challenges posed by China."<sup>5</sup> Despite such statements by the senior political leadership, the GoI continued to maintain its stance of non-weaponisation of space, thus, reflecting ambiguity and uncertainty in India's space policy.

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4. Address by Shri Pranab Mukherjee, Minister of External Affairs, at the inaugural session of the international seminar on "Aerospace Power in Tomorrow's World," February 4, 2007, available at [www.mea.gov.in](http://www.mea.gov.in). Accessed on August 1, 2019.

5. Address by Shri Pranab Mukherjee, Minister of External Affairs at the National Defence College, New Delhi, November 3, 2008, available at [www.mea.gov.in](http://www.mea.gov.in). Accessed on August 1, 2019.

**As of December 2018, the IRS system comprises the largest assemblage of satellites for civilian use in operation today in the world, which also have dual military use; of the 14 satellites in operation, four satellites are for the exclusive use of the military that include the GSAT-7 and 7A, which were launched for the Indian Navy and Indian Air Force respectively.**

## **INDIA'S MILITARY SPACE PROGRAMME**

With the changing geo-politics, in the region as well as in the world at large, resulting in an increasing emphasis on the display of hard power, even in space, India has been, slowly but surely, modifying its stance. Referring to the growing threat to India's space assets, more so after the Chinese ASAT test of 2007 and the US shooting down of its own satellite the following year, then Defence Minister Shri AK Antony, announced, on June 10, 2010, the formation of the Integrated Space Cell, under the aegis of

HQ IDS, for better and more effective utilisation of the national space assets, as the first step towards an Integrated Space Command!

India's satellites and their launch vehicles have had military spin-offs since long. While the 150-200 km range Prithvi missile is not a by-product of the Indian space programme, the intermediate range Agni missile is a derivation from the programme's SLV-3. The IRS and INSAT satellites, mainly intended and used for civilian-economic applications, also have military off-shoots.<sup>6</sup> In 1996, the MoD had temporarily blocked the use of the IRS-1C by India's Environmental and Agricultural Ministries to monitor ballistic missiles near India's borders; in 1997, the Indian Air Force's (IAFs) "Air Power Doctrine" included, for the first time, the use of space assets for surveillance and battle management.<sup>7</sup> As of December 2018, the IRS system comprises the largest assemblage of satellites for civilian use in operation today in the world, which also have dual military use; of the 14 satellites in operation, four satellites are for the exclusive use of the military that include the GSAT-7 and 7A, which

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6. "Indian Space Research Organisation", [https://en.wikipedia.org/wiki/Indian\\_Space\\_Research\\_Organisation#Satellite\\_programmes](https://en.wikipedia.org/wiki/Indian_Space_Research_Organisation#Satellite_programmes). Accessed on August 2, 2019.

7. Ibid.

were launched for the Indian Navy and Indian Air Force respectively, the other two being the HySIS, and Microsat-R earth observation satellites.<sup>8</sup> Although most of the Indian satellites thus far, are not meant for dedicated military purposes, some have a spatial resolution of one metre or less, which can be put to good use for military applications. Apart from the four satellites mentioned above, some of the other noteworthy dual-use satellites are from the Radar Imaging Satellite (RISAT), and Cartography Satellite (CARTOSAT) series, which are designed for remote sensing and mapping of civilian areas, and assistance during natural disasters.

India's troubled relations with its neighbours, Pakistan and China, could be considered as the main contributory factors that influenced its decision to pursue a military space programme. China's decision to achieve parity with the USA in space technology and in conventional weapons, coupled with India's own desire for national prestige and regional status, are the driving forces behind its space efforts. China's proliferation of space capabilities in India's neighbourhood is something that India is chary of; China has already launched satellites for Pakistan and Sri Lanka in 2011 and 2012, respectively; India definitely did not desire a repeat of what happened in the nuclear realm in South Asia in the 1970s and 1980s.

Today, satellites are an essential component for a well-coordinated and synchronised tactical capability, integrating weapon systems and platforms, missiles, radars and sensors, unmanned vehicles, electronics and communication networks, aerial capabilities, logistics and support systems, and defence forces spread across a vast geographical area. With the Revolution

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8. "Integrated Space Cell", [https://en.wikipedia.org/wiki/Integrated\\_Space\\_Cell](https://en.wikipedia.org/wiki/Integrated_Space_Cell). Accessed on August 2, 2019.

in Military Affairs (RMA), advancement in space capability has, thus, become an integral aspect of all military considerations. As an aspiring global and regional power, India needed to ensure that its defence capabilities were competitive, if not at par, with a majority of the other players. This could only be made possible if India developed its military assets in space and on the ground.

Development of the Indian economy is intrinsically linked to the effective utilisation of information readily made available through its space assets, for which, earlier, the country had to depend upon the goodwill of other nations and its own purchasing/bargaining power. India already has a vigorous and well established civil space programme, appreciated both within the country and amongst other space-faring nations, whose utilisation will only increase as the country develops. As the country's dependence on space-based assets increases, so will its corresponding vulnerability to adversarial attempts to "destroy, degrade, or deny"<sup>9</sup> India's capability in space. So far, it was the lack of political will which was holding India back from realising its full potential; today, there appears to be a change of thinking in that arena.

August 30, 2013, was a red-letter day for the Indian armed forces when a dedicated satellite was launched for the Indian Navy; the GSAT-7/INSAT-4F, also known as the *Rukmini*, launched aboard an Ariane-5 rocket from French Guiana, is a multi-band communication and surveillance satellite aimed to improve the maritime security by keeping a watch not just on the country's 7,000-km-long coastline, but also covering about 1,000 nautical miles (nm) from the east coast of Africa to the Malacca Strait. Apart from surveillance, the satellite provides seamless communication between the navy's aircraft, surface vessels, submarines, and shore-based command and control centres, thus, increasing the overall Maritime Domain Awareness (MDA). With increasing maritime trade and energy transportation by sea, piracy on the high seas off the Somalia coast, and the continuously evolving

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9. KK Nair, "Bridging Rhetoric and Reality: Harnessing Space Capabilities for India's Defence", *Journal of the United Service Institution of India*, vol. CXXXVIII, no. 571, January-March 2008, available at <http://www.usiofindia.org/Article/Print/?pub=Journal&pubno=571&ano=355>, cited in Rajagopalan and John, n. 2.

geo-political situation from the South China Sea (SCS) towards the Indian Ocean Region (IOR), protection of the Sea Lanes of Communication (SLOCs) has become an essential part of national security; the satellite is likely to be replaced by another, the GSAT-7R, in 2020, for which the navy has already placed an order with ISRO in June 2019.<sup>10</sup>

The GSAT-7A satellite, a platform to aid air power, is an advanced communications platform in space, for the most part for the Indian Air Force (IAF) to interlink ground radar stations, air bases, Unmanned Aerial Vehicles (UAV), aircraft-to-aircraft and Airborne Warning and Control System (AWACS), in real-time. While the IAF is using 30 per cent of the capacity as on date, the Indian Army is also using the capabilities of the satellite for its helicopter and UAV operations. Launched on December 19, 2018, the satellite joined a long list of 320 dual-use or dedicated military satellites, more than half of which are operated by the USA alone, followed by Russia, China, and India, which has 14; to boost its network-centric warfare capabilities, the IAF is likely to get another satellite, the GSAT-7C, within a few years, although this platform has a life of about eight years.<sup>11</sup>

### **WEAPONISATION THROUGH ASAT**

A need was felt to develop a multi-layered ballistic missile defence system to protect Vital Areas (VAs) from a missile attack, in the light of the threat from the country's neighbouring adversaries, China and Pakistan, mainly the latter, in view of the constant irrational threats of converting a conventional attack into a nuclear attack. The development of an anti-ballistic missile started in 1999, just after the Kargil War; after a series of tests conducted between 2005-07, on March 6, 2011, India successfully test-fired the interceptor missile, a modified Prithvi missile, for a high-altitude interception.

The successful testing of India's Anti-Ballistic Missile (ABM) can be considered a step towards the realisation of developing an indigenous ASAT

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10. Manu Pubby, "Navy to Buy Rs 1,589 Crore Satellite from ISRO", *The Economic Times*, cited in "GSAT-7", <https://en.wikipedia.org/wiki/GSAT-7#Capability>. Accessed on August 5, 2019.

11. "GSAT-7A", *Ibid*.

capability, necessitated by the ASAT test by China in 2007 and USA in 2008. The requirement was also emphasised by the then Minister of External Affairs, Shri Pranab Mukherjee, in his speech at the National Defence College in November 2008 (see n. 5). Dr VK Saraswat, then director-general of the DRDO, also publicly acknowledged that India was indeed developing and acquiring the necessary technologies needed to destroy an enemy satellite, claiming that the essential elements required to destroy a satellite had been already developed.<sup>12</sup> Further progress and tests on the new exo-atmospheric interceptor missile, the Prithvi Defence Vehicle (PDV), culminated in a successful launch of the PDV in 2014, followed by a real-time interception test against a manoeuvring target in 2017, and then again in April 2019. The GoI nod for the execution of the ASAT test was given in 2016, after the PDV success, and the preparations began in earnest thereafter.

On March 27, 2019, the GoI announced that a modified version of the PDV, similar to the mid-course ground-based interceptor for ABM and officially named the PDV MkII, had been tested against a small satellite. While ISRO initially maintained that it had shot down a 'live' satellite, there was no mention in any subsequent statement giving the specific nomenclature of the satellite. It was in 2017 that ISRO had lost contact with one of its satellites, the RISAT-1, and it was presumed amongst the international space analysts and organisations that it was this that the ASAT test had targeted; ISRO had denied it and said in a news release that the target was the Microsat-R, a satellite specially launched for the test.<sup>13</sup> The ASAT test was code-named "Mission Shakti", and the prime minister announced the landmark success to the nation in a special telecast message. Such was the importance given to it!

After the announcement by the prime minister, it apparently emerged through circumstantial evidence that India may have attempted an ASAT test weeks earlier, but had failed. The Indian government had released, and then cancelled, a Notice to Airmen (NOTAM) for a missile launch from Abdul Kalam Island, earlier known as Wheeler Island, between February 10-

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12. Rajagopalan and John, n. 2.

13. "2019 Indian Anti-Satellite Test", [https://en.wikipedia.org/wiki/2019\\_Indian\\_anti-satellite\\_missile\\_test](https://en.wikipedia.org/wiki/2019_Indian_anti-satellite_missile_test). Accessed on August 10, 2019.

12, 2019; there were also reports in the Indian media of a missile test against an “electronic target” on February 12; anonymous US government officials have reportedly told *The Diplomat* that they detected a rocket launch that failed about 30 seconds into flight. Outside experts confirmed that the date and time of the test corresponded with a pass of the Microsat-R, the eventual target that was destroyed on March 27, strongly suggesting the earlier launch in February was indeed intended to be an intercept.<sup>14</sup> Whether the target was the Microsat-R or the RISAT-1 is still a mystery!

### THE AFTERMATH

The ASAT test has given India the potential to degrade and destroy the communication, surveillance and intelligence gathering capabilities of other nations by taking out their space-based assets. It is, therefore, a potent deterrent, which would make any country think twice before any misadventure against Indian assets. Apart from this, it has also successfully displayed the ability to intercept an Intercontinental Ballistic Missile (ICBM): another deterrent!

This is encouraging news indeed for India, but the ASAT test nevertheless disturbed many in the international community because of their valid fear that it would strengthen the momentum toward more debris-creating tests by other nations in the future. With this test, India joined the select club of the ‘Big-3’ with such means—the USA, Russia, and China being the other members. Although there may be other nations with such a capability, they have not demonstrated their intentions as yet; should further tests be carried out in the future, the debris in space would create a very inhospitable environment for the different types of space endeavours, making this an issue of concern.

The GoI was well aware of these risks in no small measure because ISRO has huge stakes in the peaceful uses of outer space. For a long time, ISRO’s activities have concentrated solely on utilising space to uplift India’s economic development, and, to meet that goal, it concentrated its efforts

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14. Brian Weeden and Victoria Samson, “India’s ASAT Test is Wake-up call for Norms of Behaviour in Space”, Op-ed in *Space News*, retrieved from <https://spacenews.com/op-ed-indias-asat-test-is-wake-up-call-for-norms-of-behavior-in-space/>. Accessed on August 11, 2019.

**In the days after the test, accusations quickly emerged on how the debris would now endanger other satellites. To counter such accusations, DRDO Chairman Dr. Sateesh Reddy, in a press conference, claimed that the kill-vehicle had hit the target in an “almost direct hit in the same plane,” i.e. head-on, to minimise the spread of debris into the higher reaches of space.**

to develop indigenous capabilities that have permitted it to produce everything from launchers to spacecraft. ISRO today is one of the six largest space agencies in the world with a diverse fleet of satellites, and reliable launch vehicles, pursuing impressive endeavours in space science and exploration; it has forged ahead in the utilisation of space to deliver significant developmental benefits, in areas ranging from distance education to telemedicine, to the Indian population as a whole.

Understanding the hazards posed, against the security requirement to protect own assets in space, India proceeded with the test, thus, inviting

adverse reactions in the aftermath. In the days after the test, accusations quickly emerged on how the debris would now endanger other satellites. To counter such accusations, DRDO Chairman Dr Sateesh Reddy, in a press conference, claimed that the kill-vehicle had hit the target in an “almost direct hit in the same plane,” i.e. head-on, to minimise the spread of debris into the higher reaches of space; the GoI also maintains that the test posed a negligible risk to operational satellites at higher altitudes since most of the debris fragments were reentering the earth's atmosphere within two days of the test, and the remainder would reenter within 45 days.<sup>15</sup>

This claim, however, has been met with scepticism, and may be rightly so. An in-depth analysis by a renowned space analyst, Dr Marco Langbroek, of publicly available data from both DRDO and the US military's satellite tracking network, shows that this test wasn't conducted as “responsibly”

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15. Marco Langbroek, “Why India's ASAT Test Was Reckless”, <https://thediplomat.com/2019/05/why-indias-asat-test-was-reckless>. Accessed on August 11, 2019. (Dr Marco Langbroek is a space situational awareness consultant from the Netherlands and has conducted an in-depth analysis to support his claims.)

as the Indian government had claimed, and has termed it as “reckless”! Debris fragments being tracked by the US monitoring stations indicate that fragments did end up orbiting at higher altitudes, well within the altitude range of operational satellites, including the International Space Station (ISS). Reports of the impact not being head-on, as claimed by the DRDO chairman in his media briefing, and the telemetry data released by DRDO, which includes a propaganda video with the time-line, apparently show an upward angle, which would eject the debris to higher orbits.<sup>16</sup>

**The Microsat-R target satellite was in a low orbit of 300 km, which is much lower than that of the ISS and the debris has been confirmed as already being minimal, with most of the pieces having entered the atmosphere and disintegrating.**

Jim Bridenstine, the NASA administrator, on April 1, 2019, was particularly critical of Mission Shakti, going on to say that it was “a terrible thing to create an event that sends debris at an apogee that goes above the International Space Station (ISS). That kind of activity is not compatible with the future of human spaceflight. It’s unacceptable and National Aeronautics and Space Administration (NASA), needs to be very clear about what its impact on us is”. While addressing the employees at NASA, he further stated that “the explosion is supposed to have created 400 pieces of debris, putting the ISS, and the astronauts in danger ... that they are actively tracking the objects, and 24 of them can be headed towards the orbit of the ISS”.<sup>17</sup> This was immediately countered by an Indian industrialist, Anand Mahindra, who, on Twitter, commented, “A case of the pot calling the kettle black. From a nation that created most of the debris in space over decades, this is an audacious statement”!<sup>18</sup> There are other independent space analysts and

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16. Ibid.

17. “Let’s Evaluate if India’s Mission Shakti is an Actual Threat to the ISS”, <https://in.mashable.com/science/2761/lets-evaluate-if-indias-mission-shakti-is-an-actual-threat-to-the-iss>

18. “Mission Shakti: Anand Mahindra Blasts NASA Over Comments on Space Debris”, *Livemint*, April 4, 2019, <https://www.livemint.com/news/india/mission-shakti-anand-mahindra-blasts-nasa-over-comments-on-space-debris-1554273093850.html>. Accessed on August 12, 2019.

organisations, which have also commented adversely on the Indian success, and that the debris would not degrade in 45 days, as claimed by ISRO, but would take much longer. Having mentioned that, the actual probability of a collision seems to be close to negligible. The Microsat-R target satellite was in a low orbit of 300 km, which is much lower than that of the ISS and the debris has been confirmed as already being minimal, with most of the pieces having entered the atmosphere and disintegrating. As of August 9, 2019, there are reportedly 41 tracked pieces of debris in orbit.<sup>19</sup> Space debris is an unavoidable evil of almost every space mission, with over 30,000 pieces estimated to be floating around in space; ironically, a big portion of these is from ASAT missions conducted by the other countries in the past. One, therefore, really wonders, what if a piece of US debris damages the ISS—would NASA then too, pin the blame on India?

Reactions from nations were on predictable lines. While China and Pakistan were cautious in their comments, not really lauding India's achievements, both expressed a desire for "upholding peace and tranquillity in outer-space" and "prevent military threats". Russia welcomed India's statement that the test was not targeted towards any nation, and invited India to join the Russia-China proposal for the formulation of a treaty against weaponisation of space. When questioned by the members of the US Senate on India's compulsion to conduct such a test, the Commander-in-Chief (C-in-C) of the US Strategic Forces Command, Gen John E Hyten, made a mention about threats from space to Indian assets.<sup>20</sup>

Notwithstanding the comments, adverse or otherwise, the ASAT test of March 27, 2019, holds tremendous significance for India, giving it the deterrent against any hostile action against own space assets and the interception capability against an ICBM.

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19. "Dangerous Debris from India's ASAT Test in March Continues to Zip Around in Earth Orbit", *Technology News, Firstpost*, August 9, 2019, as cited in "2019 Indian Anti-Satellite Missile Test", [https://en.wikipedia.org/wiki/2019\\_Indian\\_anti-satellite\\_missile\\_test](https://en.wikipedia.org/wiki/2019_Indian_anti-satellite_missile_test). Accessed on August 10, 2019.

20. "2019 Indian Anti-Satellite Missile Test", [https://en.wikipedia.org/wiki/2019\\_Indian\\_anti-satellite\\_missile\\_test](https://en.wikipedia.org/wiki/2019_Indian_anti-satellite_missile_test). Accessed on August 10, 2019.

**WHAT NEXT?**

Although the orbital debris from Mission Shakti is likely to be short-lived, its political repercussions could last much longer. Other countries with ballistic missile and hit-to-kill technologies may decide that they too need to 'join the club' with a similar capability demonstration. While India continues to claim that the test has not changed its commitment to peaceful uses of outer space, its actions show otherwise and may spur others to follow it. A share of the blame also goes to the US, Russia, and China, that have, all along, created the scenario that offensive counter-space weapons are an important measure of space power and prestige. All three countries are continuing with their efforts to develop, test, and deploy a wide array of offensive counter-space capabilities as they see space as an increasingly important arena for their national security and military capabilities. India, despite misgivings about motivating others to follow its example, judged its national security interests to be paramount and went ahead with the test.

The test validated several emerging Indian ballistic missile defence technologies; it can be concluded that the test had two main aims. One, it established a milestone at a time when competition in space is growing. China, India's regional and global rival, operates about 30 satellites, a majority of which would be used by the military. Apart from the successful high altitude ASAT test by China, it is also, reportedly, developing more ASAT weapons, including lasers, of its own. The second aim was to demonstrate India's capability to retaliate. While exhibiting its ability to target small, fast-moving objects at high altitudes, India has also displayed its capability in striking more difficult targets such as nuclear missiles, at comparatively lower altitudes.

Has the muscle-flexing penalised India diplomatically? The answer depends upon one's perception. It has to be agreed that this test was the first declared ASAT test after China blew up one of its own satellites in 2007, which provoked widespread international condemnation. China's test was at a much higher altitude than India's, at 865 km, debris from which generated almost a quarter of the catalogued objects in low earth orbit a few years

**The USA, Russia and China, are investing heavily towards the development of a wide range of space warfare capabilities. To effectively secure its interests in outer space, hitherto used only for passive military uses, India will need a comprehensive military space policy and the necessary investments to realise its goals in an arena that is fast turning into an active military theatre.**

later, putting other country's satellites at risk. In 2012, India had then reiterated that it would not carry out such a test just for this reason. Although, the current test was at a much lower altitude, it did create debris, some pieces of which may have been thrown in a higher orbit, as it occurred after the USA destroyed a wayward satellite of its own at about the same altitude. As noted earlier, comments and analysis reports have been harsh or neutral, as per the perception of their author!

Is India going to rest on its achievement after the ASAT test or is it moving ahead with more research, just as China is

developing wide-ranging and diverse counter-space capabilities? China's development includes the capacity to mount sophisticated cyber jamming, or spoofing attacks on ground stations, with an aim to hijack or disturb the telemetry, tracking, and command and control systems.<sup>21</sup> Reportedly, India too is working on further ASAT development, such as Directed Energy Weapons (DEWs), lasers, Electro-Magnetic Pulse (EMP) weapons and co-orbital ASAT weapons.<sup>22</sup> Only the possession of such capabilities will then enable India to credibly deter China's space denial programmes below the levels of ultimate physical violence directed at various space systems. Simultaneously, and equally essential would be to establish new institutions that would integrate military activities with the larger civilian space infrastructure at the level of both planning and operations in real-time. In this context, the best deterrent

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21. Ashley J. Tellis, "India's ASAT Test: An Incomplete Success", Carnegie Endowment for International Peace, April 15, 2019, accessed through <https://carnegieendowment.org/2019/04/15/india-s-asat-test-incomplete-success-pub-78884>. Accessed on August 10, 2019.

22. "2019 Indian Anti-Satellite Missile Test", Wikipedia, [https://en.wikipedia.org/wiki/2019\\_Indian\\_anti-satellite\\_missile\\_test#Significance](https://en.wikipedia.org/wiki/2019_Indian_anti-satellite_missile_test#Significance). Accessed on August 13, 2019.

for India would be to improve its capacity to use space, despite the inevitable Chinese interference, with some offensive capabilities.

## CONCLUSION

In intercepting and destroying a satellite in orbit, India has signalled its determination to deter threats to its growing number of space assets. However, India needs to reconcile with a number of issues that are transforming the political and economic nature of outer space, which call for a reorientation of India's national strategy towards outer space. While the ASAT test is an indicator of India's resolve, it may not be enough to claim effective deterrence. The other great space powers, the USA, Russia and China, are investing heavily towards the development of a wide range of space warfare capabilities. To effectively secure its interests in outer space, hitherto used only for passive military uses, India will need a comprehensive military space policy and the necessary investments to realise its goals in an arena that is fast turning into an active military theatre.

Even as India advocates a policy of non-weaponisation and peaceful uses of outer space, with the growing trend to the contrary in its neighbourhood and in the larger global context, India's orientation has to transform. Despite the political leadership recognising this fact (hopefully), the gradual shift in India's space programme is neither clear nor definite. It is time now to make a distinction between India's civil and military space needs, which is borne more out of necessity rather than choice. It is now equally necessary for India to delineate its space programme into civilian and military components with a clear-cut institutional architecture and better budgetary support. The steps initiated thus far, namely, the dedicated military satellites, the better surveillance capabilities, the conduct of the ASAT test, the establishment of a space cell with the armed forces, and the proposed establishment of the office of the Chief of Defence Staff (CDS), should now be converted into firm policy structures as the next step.

After the ASAT test, many strategists in India have stressed the importance of India now having the capabilities to shape the security order in outer space. They recall that India's inability to conduct a nuclear weapon test before the nuclear Non-Proliferation Treaty (NPT) was finalised in 1968, had severely undermined India's position in the global nuclear order, affecting it till today. The policy-makers must prepare for the inevitable evolution in outer space being spurred by technological innovation, commercial competition, and geo-political rivalry. India, in collaboration with allies and partners, would need all its strategic pragmatism, legal acumen and diplomatic skill in shaping new rules for the formulation of international policies for the regulation of outer space.

Outer space is no longer just for lullabies for children; it has changed, and so should our policies!

# WAR IN SPACE: IS INDIA PREPARED?

ANIL CHOPRA

India concluded the first table-top joint war-game called “IndSpaceEx” in the last week of July 2019. Conducted by the military and space scientists, it was a logical next step after India had tested its Anti-Ballistic Missile (ABM) defence systems and achieved many other key milestones pertaining to space, including the recent demonstration of India’s Anti-Satellite (ASAT) capability and the establishment of the new tri-Service Defence Space Agency (DSA). The very hopeful successful moon landing by Chandrayaan 2 will give India a ticket to the extra-terrestrial settlements game. India has consistently supported peaceful exploitation of space, but with the erstwhile superpowers, the USA and Russia having made significant advances, and China quickly moving ahead, India had no choice but to accelerate its operational capability in space. Space is also becoming a great economic enabler and is influencing and supporting every activity on planet earth. The thin line dividing the earth’s atmosphere and space is fast shrinking, with more platforms transiting between earth and terrestrial locations. It has become all the more necessary to acquire the latest space-based technologies. Greater space presence requires capability to launch heavy satellites, increase the number of launches per year, have the ability to launch satellites at short notice, position high accuracy sensors, have advanced electronic and cyber capabilities, and develop kinetic and non-kinetic means

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**Greater space presence requires capability to launch heavy satellites, increase the number of launches per year, have the ability to launch satellites at short notice, position high accuracy sensors, have advanced electronic and cyber capabilities, and develop kinetic and non-kinetic means to defend India's assets and interests in space.**

to defend India's assets and interests in space. Space-based military, and counter-space operations will allow own use of space while denying the adversary the use of space offensively against Indian space or ground-based assets. 'Space Wars' are no longer in the domain of sci-fi movies or video games, but a reality facing the world. Whether India is prepared and what its roadmap ahead is, is a subject being debated among the military and scientific communities.

#### **SPACE DOMAIN**

In very simple terms, 'space' is the vast 3-dimensional region that begins where the earth's atmosphere thins down considerably. Space is usually thought to begin at the lowest altitude at which satellites can maintain orbits for a reasonable time, without falling into the atmosphere. This is approximately 160 km (100 miles) above the surface. The two separate entities are considered as a single-domain for activities of launching, guidance and control of vehicles that travel in both entities. Astronomers may speak of interplanetary space (the space between planets in our solar system), interstellar space (the space between stars in our galaxy), or intergalactic space (the space between galaxies in the universe). Of immediate military interest is the region up to the moon and subsequently the solar system.

#### **EVOLUTION OF SPACE WEAPONS**

##### *Vimana: The Ancient Indian Aerospace Craft<sup>1</sup>*

India is known to have given to the world most major concepts of mathematics, some as far back as 1200 BC. Reportedly, the concept of zero, the decimal

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1. "Ancient Indian Aircraft (Vimana) Technology", <https://www.booksfact.com/technology/ancient-technology/ancient-indian-aircraft-vimana-technology.html>

system, negative numbers, arithmetic and algebra were Indian contributions. The Sanskrit word '*Vimana*' first appeared in the Vedas, with several meanings ranging from temple to mythological flying machine. There are documents even describing their use in warfare. The *vimana* were said to be able to travel into space and under water. The Sun and Indra and several other Vedic deities were transported by flying wheeled chariots pulled by animals, usually horses, but there were others, like the *agnihotra-vimana* (*agni* means fire), with two engines, and the *gaja-vimana* (elephant powered). The *Rig-Veda* also talks of "mechanical birds". Later texts around 500 BC talk of self-moving aerial cars without animals. As per the *Ramayana*, the *pushpaka* (the flowery chariot) was originally made by Vishwakarma for Brahma, the Hindu god of creation. There is mention of Lord Rama using it, and under the command of the *raghira* (captain), the chariot reportedly rose up into the higher atmosphere. The *Mahabharata* mentions the genius *Yavanas* as the creator (chief designer) of a finite dimensioned *vimana* with four solid wheels owned by the *asura maya*. Jain literature talks of the various *tirthamkaras* flying different types of flying machines. Manuscripts deal with aeronautics, construction of various types of aircraft for civil aviation, and for warfare. Also mentioned are how to make planes motionless (hovering), and invisible (stealth), retrieving photographs of the interior of enemy planes (intelligence), ascertaining the direction of an enemy plane's approach (radar), and means of destroying enemy planes. The propulsion of the *vimana* was by "mercury vortex engines", apparently a concept similar to electric propulsion. There is mention of power sources, pilots and their flying clothing, and the weapons that were kept on these airships. The flight

**The ultimate desire of a space power is to dominate the use of space and have space-based systems that allow destruction of enemy targets in space and on earth, and deny the enemy full access to space, including preventing the enemy from launching satellites, and destroying or degrading enemy satellites in space.**

manuals of the *vimana* are quite similar to the flight manuals of modern civil and military aircraft. These suggest that the *vimana* were powered by several gyroscopes placed inside a sealed liquid mercury vortex. The *vimana* were kept in a *vimana griha*, a kind of hangar, and were sometimes said to be propelled by combustion engines and even “pulse-jet” engines. Indra’s dart was operated using a circular reflector. When switched on, it produced a ‘shaft of light’ which, when focussed on any target, immediately consumed it with its power (laser weapons). There are references of highly manoeuvrable and powerful *vimana* launching single projectiles charged with ‘all the power of the universe’ against cities, resulting in huge columns of smoke and fire, equivalent to tens of thousands of suns, which reportedly reduced to ashes the entire race of the *Vrishnis* and *Andhakas*. Were these nuclear weapons? The *Samara Sutradhara* is a scientific treatise dealing with every possible angle of aviation.<sup>2</sup>

### *Space Developments During Cold War*

Designer Werner von Braun’s ethanol fuelled rocket, the A4, launched on October 3, 1942, became the first man-made object to enter space.<sup>3</sup> The 1960s saw humans leap beyond the earth’s atmosphere. By the late 1960s, the Soviet Union and USA both had deployed military satellites for communications, imaging, reconnaissance and monitoring ballistic weapons. Ballistic missile transit through space was tested and soon became a capability with many nations. The ultimate desire of a space power is to dominate the use of space and have space-based systems that allow destruction of enemy targets in space and on earth, and deny the enemy full access to space, including preventing the enemy from launching satellites, and destroying or degrading enemy satellites in space. The term ‘Space War’, however, is restricted to where the target is in space and whether it is attacked from space or from the ground. While

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2. “Ancient India: The Samara Sutradhara”, <http://ultadin.com/2016/01/10/ancient-india-the-samara-sutradhara-is-a-scientific-treatise-dealing-with-every-possible-angle-of-air-travel-in-a-vimana/>
  3. “German Rocket is 1st to Reach Space, October 3, 1942”, <https://www.edn.com/electronics-blogs/edn-moments/4397678/German-rocket-is-1st-to-reach-space--October-3--1942>.

weapons are still to be officially positioned in space, scientific research is at an advanced stage to act as an enabler. Space is, thus, going to be the force multiplier for military operations.

The United States and Soviet Union began developing Anti-Satellite (ASAT) weapons in the early 1960s. They were in the form of directed-energy lasers to decapitate; *kamikaze* satellites for hard-kill; and possible orbital nuclear weapons. The very long range Inter-Continental Ballistic Missiles (ICBM) spent significant time in sub-orbital flight and were best intercepted in space. The initial US 'Nike-Zeus'<sup>4</sup> programme envisaged firing Nike nuclear missiles against incoming ICBMs. Project 'Defender' was to destroy Soviet ICBMs at launch with satellite weapon platforms that were to orbit over Russia. Both programmes were abandoned later. The 'Sentinel' and 'Safeguard' programmes were to use Anti-Ballistic Missiles (ABMs) to shoot down incoming ICBMs. The initial plan was to use a nuclear-tipped interceptor missile but as accuracy improved, hit-to-kill ABMs evolved. In 1983, US President Reagan proposed a space-based Strategic Defence Initiative (SDI)<sup>5</sup> to protect the United States from attack by strategic nuclear missiles.

In the 1960s, the Soviets developed a "co-orbital" system that would approach the space target using radar guidance, and then explode the shrapnel warhead close enough to kill it. The Soviets evolved a Low-Earth Orbit (LEO) Fractional Orbital Bombardment System (FOBS)<sup>6</sup> for earth targets. It would de-orbit for the attack. The Strategic Arms Limitation Talks (SALT) II agreement of 1979 prohibited the deployment of FOBS systems. The polyus orbital weapon system was an anti-satellite weapon with nuclear space mines and a self-defence cannon. The Soviets also considered the Space Shuttle as a single-orbit weapon that could manoeuvre to avoid existing anti-ballistic missile sites, and then bomb the target, and land. The Soviets experimented with large, ground-based ASAT lasers with a number of US

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4. "Nike Zeus Program", <http://www.astronautix.com/n/nikezeus.html>

5. "Strategic Defense Initiative (SDI)", <http://www.coldwar.org/articles/80s/SDI-StarWars.asp>

6. "Fractional Orbital Bombardment System (FOBS)", <https://www.ausairpower.net/APA-Sov-FOBS-Program.html>

spy-satellites reportedly being temporarily 'blinded'. The Soviets also used a modified MiG-31 as an ASAT launch platform.<sup>7</sup> Space weapons can be categorised as those that attack targets in space (anti-satellite); or attack targets on the ground from space; or attack targets transiting through space (anti-ballistic missile). The Russian space station, Salyut-3, was fitted with the 23mm cannon, which was successfully test-fired at target satellites. In the 1960s, the US had envisaged a possible air base with 21 airmen on the moon as part of Project Lunex,<sup>8</sup> a project that was never executed. It is technically possible to position conventional or nuclear missiles in space which could reach targets on the ground, but the same could be expensive and difficult to maintain and service. Also, carrying heavy missiles would be a logistic nightmare and have only a small advantage of saving time vis-à-vis aircraft and submarine launched weapons. Even for the advantage of guaranteed second nuclear strike capability, it would not be worth the complications. The initial US plan was for a space-based constellation of about 40 platforms deploying up to 1,500 kinetic interceptors. The plan was later called off.

### **NON-WEAPON SPACE ENABLERS**

The end of the Cold War saw new players like China, Japan, the European Union and India create their own space systems. Spy satellites continue to perform Command, Control, Communication, Computer, Intelligence, Surveillance, Reconnaissance (C4ISR) missions. Satellites are also used to provide early warning of missile launches, locate nuclear detonations, and detect preparations for otherwise clandestine or surprise nuclear tests. The Global Positioning Systems (GPS) are an important military application in space. The USGPS, Russian GLONASS, European Galileo, Chinese Beidou and Indian Regional Navigational Satellite System (INRSS) named 'NAVIC' are some such examples. India's is a regional system with seven satellites already in position, and four more planned. The NAVIC will provide two levels of service: the "standard positioning service", which will be open for civilian

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7. "MiG-31 as an ASAT Launch Platform", <https://www.thedrive.com/the-war-zone/23936/exclusive-russian-mig-31-foxhound-carrying-huge-mystery-missile-emerges-near-moscow>

8. "Project Lunex", <https://www.revolvy.com/page/Lunex-Project>.

use, and a “restricted service” encrypted for authorised users (including by the military). All the others are global initiatives, with between 24 to 36 satellites. They allow precise own location and provide very highly accurate time reference. The GPS system has been in operation since February 1989. It also facilitates accurate targeting by smart bombs and cruise missiles. The military doctrine of network-centric warfare also relies heavily on the use of high speed satellite-enabled communications to improve real-time situational awareness. Satellite imagery of enemy positions with accurate coordinates of the targets can be transferred to bombers and cruise missiles through the military internet connected through satellite communications. Modern military forces, including India’s, have such secure information grids. The military requires to use space for C4ISR, for networked warfare.

#### **WEAPONISATION OF SPACE**

A 2006 draft of the US National Space Policy clearly formulated the opposition to arms control and the aspiration to dominate in space. “Space superiority is not our birthright, but it is our destiny. Space supremacy is our vision for the future,” Gen Lance Lord, then head of the US Air Force Space Command, had said in 2005.<sup>9</sup> Terrestrial geo-politics, with the end of the “unipolar moment” and the reemergence of several powers, including Russia, continues to complicate strategic postures. Russia’s “Gerasimov Doctrine”<sup>10</sup> envisions the use of all means available—conventional and social-media campaigns, and cyber and sub-conventional operations—to achieve geo-strategic objectives. The Russian ASAT research has reportedly been resumed under President Putin to counter the renewed US strategic defence efforts post the ABM Treaty. The US also continues working on a number of programmes which could be the basis for a space-based ASAT. International space treaties limit or regulate positioning of weapons or

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9. Weaponisation of space has long seemed inevitable and Trump’s announcement of the space force diverges from historical conventions that consider space as a global common for peaceful purposes, <https://www.downtoearth.org.in/news/science-technology/-the-talk-of-space-wars-colonisation-is-still-in-the-realm-of-fiction--61176>

10. “Russia’s Gerasimov Doctrine”, <https://jamestown.org/program/a-new-version-of-the-gerasimov-doctrine/>

**The USA currently has a space strategy to focus on prevention of nuclear blackmail by major players or rogue states. The US National Missile Defence (NMD) programme has no weapon station in space, but is designed to intercept incoming warheads at a very high altitude where the interceptor travels into space to achieve the intercept. These missiles are both land-based and sea-based.**

conflicts in space. To date, there have been no human casualties resulting from conflict in space, nor has any ground target been successfully neutralised from orbit. Control and denial of space-based assets is expected to play a key role in the strategy of the People's Liberation Army (PLA), derived from this doctrine.

#### **GROUND-BASED SPACE WEAPONS**

The use of high altitude nuclear explosions to destroy satellites through damage caused by Electro-Magnetic Pulse (EMP) on electronic equipment was considered. During tests in 1962, the EMP from a 1.4 Mt warhead detonated over the Pacific, damaged three satellites and also disrupted power transmission and communications across the Pacific. Another area of research was into directed energy weapons, including a nuclear-explosion powered X-ray laser. The AGM-69 SRAM carried on a modified F-15 Eagle was successfully tested in September 1985, targeting a satellite orbiting at 555 km. In February 2008, the US Navy fired a standard ABM to act as an ASAT weapon to destroy an ageing hydrazine-laden US satellite. Russia has reportedly restarted development of a prototype laser system, the 'Sokol Exhelon'.<sup>11</sup> Israel's Arrow 3 (Hetz 3) anti-ballistic missile, with exo-atmospheric interception capability, became operational in January 2017. It intercepts ballistic missiles during the space flight portion of their trajectory. In January 2007, China successfully destroyed a defunct Chinese weather satellite in polar orbit at an altitude of about 865 km, using a kinetic warhead of the SC-19 ASAT missile. The warhead destroyed the satellite in a

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11. "Sokol Exhelon", [https://www.defenseworld.net/news/25031/Russia\\_\\_\\_s\\_Almaz\\_Launches\\_Airborne\\_Anti\\_surveillance\\_Laser\\_Project#.XTHXCPIzbIU](https://www.defenseworld.net/news/25031/Russia___s_Almaz_Launches_Airborne_Anti_surveillance_Laser_Project#.XTHXCPIzbIU)

head-on collision at an extremely high relative velocity. In May 2013, the Chinese government announced the launch of a sub-orbital rocket carrying a scientific payload to study the upper ionosphere. The US government suspects it as the first test of a new ground-based ASAT system. The National Aeronautics Space Administration (NASA) space plane X-37,<sup>12</sup> now with the US Department of Defence, is akin to a space version of the Unmanned Aerial Vehicle (UAV) and its employability is evolving. The USA currently has a space strategy to focus on prevention of nuclear blackmail by major players or rogue states. The US National Missile Defence (NMD) programme has no weapon station in space, but is designed to intercept incoming warheads at a very high altitude where the interceptor travels into space to achieve the intercept. These missiles are both land-based and sea-based. In June 2019, China became the third country to launch a satellite, using the Long March 11 rocket that lifted off from a floating launch pad in the Yellow Sea.

**Military satellites orbit at about 800 km height, move at 7.5 km/s, and are difficult to intercept. Even if an ISR satellite is knocked out, all countries possess an extensive array of manned and unmanned ISR aircraft that could perform the mission.**

### INDIAN ASAT TEST

On March 27, 2019, India destroyed a “live satellite” in Low Earth Orbit (LEO). The interceptor struck a test satellite at a 283-km altitude, 168 seconds after launch. The system was developed by the Defence Research and Development Organisation (DRDO). With this test, India became the fourth nation with ASAT missile capabilities. As per DRDO, the missile was capable of shooting down enemy targets moving at a speed of 10 km per second at an altitude as high as 1,200 km. However, in order to minimise the threat of debris, the interception was performed against an object moving at 7.4 km per second at an altitude below 300 km. It gave India a great capability for a possible war in space.

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12. “NASA Spaceplane X-37”, <https://www.space.com/x-37b-military-space-plane-otv5-600-days.html>

### **COMPLEXITIES OF SATELLITE INTERCEPTS**

The ease of shooting down orbiting satellites and their effects on operations have been questioned by some. Tracking of military satellites with inbuilt defensive measures like inclination changes, among others, will not be so easy. The interceptor would have to pre-determine the point of impact while compensating for the satellite's lateral movement and the time taken for the interceptor to climb and move. Military satellites orbit at about 800 km height, move at 7.5 km/s, and are difficult to intercept. Even if an ISR satellite is knocked out, all countries possess an extensive array of manned and unmanned ISR aircraft that could perform the mission. GPS and communications satellites orbit at much higher altitudes of 20,000 to 36,000 km, putting them out of range of solid-fuelled ICBMs. The constellation of many GPS satellites provides redundancy where at least four satellites can be received in six orbital planes at any one time, so an attacker would need to disable at least six satellites to disrupt the network.

### **OFFENSIVE COUNTER SPACE CAPABILITIES**

Space security and the vulnerability of space capabilities is today an important policy issue. More nations are acquiring offensive counter-space capabilities that could disrupt, deny, degrade, or destroy space systems. Some countries feel the need to prepare for future conflicts on earth that could extend into space, and, thus, need to develop offensive counter-space capabilities and aggressive policy postures. Space is not the sole domain of militaries and intelligence services, and the global society and economy are becoming increasingly dependent on space capabilities: any conflict in space could have serious repercussions. But with the changing nature of geo-politics, competition in outer space is getting more aggressive. Counter-space capabilities are a critical element in the growing relevance of space to national security and conventional military operations. The adversary has to be denied the advantages of the use of space assets. The growth of counter-space capabilities includes the kinetic, non-kinetic, electronic, and cyber. From a purely civil-centric approach, the impetus is gradually

moving towards certain military characteristics. Greater use of space-based assets by militaries around the world, especially for C4ISR, and networked warfare requires counters. ASAT weapons comprise one such capability, but there are other means to disable or degrade satellite-based systems. The counter-space capabilities are of several categories such as direct ascent, co-orbital, directed energy, electronic warfare, and cyber. The Chinese and Americans are pushing ahead with research on directed energy weapons. Rendezvous and Proximity Operations (RPO) are being conducted in the Geosynchronous Earth Orbit (GEO) region by the United States, Russia, and China. The Russians are working on a co-orbital ASAT programme known as Burevestnik.<sup>13</sup> India has already demonstrated its ASAT capability.

#### **ANTI-SPACE WEAPONISATION TREATIES**

During the Cold War, to avoid extending the threat of nuclear weapons to space, the Partial Nuclear Test Ban Treaty of 1963 and Outer Space Treaty of 1967 prevented detonation of nuclear devices in space. The moon and other celestial bodies were to be used exclusively for peaceful purposes, and astronauts were to be treated as envoys of mankind. However, by then, both the United States and the Soviet Union had performed several high altitude nuclear explosions in space. The salient features of the treaties were that exploration and use of outer space was for the benefit of all mankind and that outer space was not subject to national appropriation. States were not to place weapons in orbit or on celestial bodies, and would be liable for damage caused by their space objects. India had signed and ratified the Outer Space Treaty of 1967. In 1981, the UN General Assembly proposed a Prevention of an Arms Race in Outer Space (PAROS) Treaty<sup>14</sup> to preserve space for peaceful uses by prohibiting the use of space weapons. The treaty would prevent any nation from gaining a military advantage in outer space, but China and the US prevented a consensus on it. The proposed Space

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13. "Russian Co-orbital ASAT Program known as Burevestnik", <https://breakingdefense.com/2019/04/russia-builds-new-co-orbital-satellite-swf-csis-say/>

14. "Prevention of an Arms Race in Outer Space (PAROS) Treaty", <http://www.unidir.org/files/publications/pdfs/prevention-of-an-arms-race-in-outer-space-a-guide-to-the-discussions-in-the-cd-en-451.pdf>

**The major mission of the PLA Strategic Support Force is to give support to the combat operations so that the PLA can gain regional advantages in astronautics, space, network and electromagnetic space wars and ensure smooth operations.**

Preservation Treaty of 2006 against all space weapons, and the 2008 Treaty on Prevention of the Placement of Weapons in Outer Space was vetoed by the USA despite the treaty explicitly affirming a state's inherent right of self-defence. In December 2014, the General Assembly of the UN passed two resolutions on preventing an arms race in outer space, both of which were opposed by the USA and a few other countries. The US, Russia and China are the frontrunners in the weaponisation of space, though no weapons have been formally deployed in space yet.

#### **SPACE COMMAND STRUCTURES**

The United States Space Command (USSPACECOM) was created as a Unified Combatant Command in 1985 to coordinate the use of outer space by the United States armed forces. After the reorganisation in 2002, it was placed under the US Strategic Command. In December 2011, the Russian Space Forces became the Aerospace Defence Forces, fusing all space and some air defence components into one joint Service. In August 2015, they were merged with the Russian Air Force to form the Russian Aerospace Forces. As part of the reforms in December 2015, the People's Liberation Army Strategic Support Force was created. It is understood that it includes high-tech operations forces such as space, cyber space and electronic warfare. The major mission of the PLA Strategic Support Force is to give support to the combat operations so that the PLA can gain regional advantages in astronautics, space, network and electromagnetic space wars and ensure smooth operations. In 2012, the Indian Armed Forces Chief of Staff Committee had recommended the formation of three Commands for cyber, space and special operations. In April 2019, India set up the Defence Space Agency (DSA) as a step forward to fight the contemporary and new threats. The

creation of India's new tri-Service DSA, based in Bangalore, will help combine key functions performed by the Defence Imagery Processing and Analysis Centre (DIPAC) in Delhi and the Defence Satellite Control Centre (DSCC) in Bhopal. It will also evolve space doctrines and support suitable military action in space. The DSA will have nearly 200 personnel who, in turn, will work closely with the Indian Space Research Organisation (ISRO) and DRDO. The aim is to ensure better utilisation and integration of space resources.

**India has launched 115 Indian satellites of various types as on April 2019. ISRO has launched 239 satellites, including for 28 foreign countries. Chandrayaan-2 was successfully launched on July 22, 2019.**

## INDIA'S SPACE PROGRAMME

### *Indian Launch and Satellite Capabilities*

ISRO has come a long way since its first satellite *Aryabhata* was launched by the Soviet Union in 1975. In 1980, the *Rohini* became the first satellite to be placed in orbit by an Indian-made launch vehicle, the Space Launch Vehicle-3 (SLV-3). ISRO subsequently developed the Polar Satellite Launch Vehicle (PSLV) and Geosynchronous Satellite Launch Vehicle (GSLV) for placing satellites into geostationary orbits. The satellite navigation systems GAGAN and IRNSS were deployed. In January 2014, ISRO successfully used an indigenous cryogenic engine in the GSLV-D5 launch of the GSAT-14. ISRO sent the lunar orbiter 'Chandrayaan-1' on October 22, 2008, and a Mars orbiter mission which successfully entered the Mars orbit on September 24, 2014, making India the first nation to succeed on its first attempt. ISRO, thus, became the fourth space agency in the world as well as the first in Asia to successfully reach the Mars orbit. India's space programme, though overtly for peaceful exploitation of space, has military offshoots. These include remote sensing satellites of the IRS series, with some having spatial resolution of one metre or below. There are others

with panchromatic cameras, synthetic aperture radars, satellites providing scene-specific spot imagery for cartographic/military applications. On February 15, 2017, ISRO launched 104 satellites in a single rocket, the PSLV C-37, and created a world record. ISRO launched its heaviest rocket, the Geosynchronous Satellite Launch Vehicle-Mark III (GSLV-Mk III), on June 5, 2017, and placed a communications satellite, the GSAT-19, in orbit. With this launch, ISRO became capable of launching 4-ton heavy satellites. India has launched 115 Indian satellites of various types as on April 2019. ISRO has launched 239 satellites, including for 28 foreign countries. Chandrayaan-2 was successfully launched on July 22, 2019. It is scheduled to land on the moon on September 7, 2019. India will send its first manned mission to space by December 2021, says ISRO Chief Kailasavadivoo Sivan.

#### *Indian Military Application Satellites*

India today has 15 operational Indian Remote Sensing (IRS) satellites. All these are placed in the polar sun-synchronous orbit and provide data in a variety of spatial, spectral and temporal resolutions. Though most are civil satellites, some have a spatial resolution of one metre or below which can also be used for military applications. India also commercially offers images with one metre resolution. The Radar Imaging Satellite 2 (RISAT-2) has the Synthetic Aperture Radar (SAR) from Israel Aerospace Industries (IAI). It has a day-night, all-weather monitoring capability, with one metre resolution. The Cartography Satellite, CARTOSAT-2, carries a state-of-the-art panchromatic (PAN) camera that takes black and white pictures of the earth in the visible region of the electromagnetic spectrum. The swath covered by these high resolution PAN cameras is 9.6 km and their spatial resolution is 80 centimetres. The satellite can be steered up to 45 degrees along, as well as across, the track. It is capable of providing scene-specific spot imagery. The data from the satellite is used for detailed mapping and the Geographical Information System (GIS). The CARTOSAT-2A is a dedicated satellite for the Indian armed forces. Due to its high agility, it can be steered to facilitate imaging of any area more frequently. The CARTOSAT-2B offers multiple

spot scene imagery. With the CARTOSAT-2E which was launched in June 2017, India now has 13 satellites with military applications. The GSAT-6 is the second strategic satellite, mainly for use by the armed forces for quality and secure communications. The Indian Navy uses the GSAT-7 for real-time communication among its warships, submarines, aircraft and land systems. The GSAT-7A 'angry bird', an advanced military communications satellite, exclusively for the Indian Air Force (IAF), was launched in December 2018.<sup>15</sup> It will enhance network-centric warfare capabilities by interlinking with the IAF ground radar network and Airborne Early Warning and Control (AEW&C) aircraft. The GSAT-7A will also be used by the Indian Army Aviation Corps.

### *Indian Space Industry*

The Indian space industry is already an acclaimed world player. It is internationally competitive and maintains international quality standards. ISRO was established in 1972 to promote development and application of space science and technology. In the initial years, the space applications were for communication, television broadcasting and remote sensing satellites and to perfect satellite launch vehicles. Today, India has an impressive array of satellites covering the entire spectrum. It has a world record of putting in orbit 104 satellites through a single launch. India has had a mission to Mars and an ongoing mission to the moon. India also has the largest constellation of earth observation satellites called Indian Remote Sensing (IRS) satellites, with better than one metre resolution. The larger INSAT series, besides TV broadcasting, telecommunications and meteorological applications, support societal applications such as tele-education, tele-medicine applications, have been operationalised. The largest Indian space launch vehicle, the GSLV, can launch 2,200 kg satellites into geostationary orbit. The GSLV III will launch up to 5,000 kg satellite payload. Hindustan Aeronautics Limited (HAL) which is a Defence

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15. The GSAT-7A 'angry bird' is an advanced military communications satellite exclusively for the Indian Air Force (IAF), <https://www.thehindu.com/sci-tech/science/isro-successfully-launches-gsat-7a/article25781226.ece>

Public Sector Undertaking (DPSU) manufacturing aircraft, is the premier manufacturing partner of ISRO. It has a dedicated Aerospace Division. The Defence Research Development Organisation (DRDO), with a network of 52 defence laboratories, supports developing critical defence technologies. Other organisations that are active participants in the space programme are Bharat Electronics Limited (BEL) for electronics; Bharat Dynamics Limited (BDL) with missile manufacturing technology; Mishra Dhatu Nigam Limited (MIDHANI) with metallurgical competence in super-alloys and special purpose steels; BrahMos Aerospace with technologies evolved for the supersonic cruise missile; and nearly 40 private sector companies, including Larsen and Toubro (L&T) and Bharat Forge are partners.

### **SOUTH ASIAN AEROSPACE REALITIES**

Elon Musk says he is a big fan of what China is doing in space. Musk is the Chief Executive Officer (CEO) of the space exploration company SpaceX, which faces growing competition from China which is pumping huge amounts of money into space. The first Chinese manned space flight was in 2003. In January 2007, China became the first Asian military-space power to send an anti-satellite missile into orbit, to destroy an aging Chinese weather satellite. Anti-satellite technologies to destroy or disable space-based assets are a critical part of the Chinese space programme. These include land-based missiles, experimental lasers, and signal jammers. China has successfully performed the soft landing of a rover on the moon, including the only one on the dark side. China has long-term ambitions to exploit the earth-moon space for industrial development. It plans to bring a habitable space station the Tiangong2, online by 2022 and put Chinese astronauts on the moon in the mid-2020s. It also has a Mars lander mission coming up. The Chinese space programme is linked to the nation's efforts to develop advanced military technology. China launched the 'DAMPE', the most capable dark matter explorer to date, in 2015, and the world's first quantum communication satellite 'QUESS' in 2016. China is averaging 20 space missions a year. As per estimates, China has over 500 ballistic missiles, including 100 ICBMs, 25 per

cent of which are submarine-based, and some with Multiple, Independent Reentry Vehicle (MIRV) warheads, with ranges beyond 13,000 km.

Pakistan's Karachi-based Space and Upper Atmosphere Research Commission (SUPARCO) is more of a bureaucratic agency, with little to show as end products. It is a part of the Strategic Plans Division (SPD) of the Pakistani armed forces under the control of the Pakistan Air Force (PAF). Pakistan's fledgling space programme has the Chinese support and stamp. Pakistan takes Chinese support for satellite launches. It has also joined the Chinese satellite navigation system, the Beidou. The main concentration has been to develop a series of nuclear capable ballistic missiles for the Pakistan Army, with payloads up to 1,200 kg and ranges of 2,500 km. In 2011, it developed the Hatf series of delivery systems for the small tactical nuclear weapon, the Nasr. In January 2017, it tested the Ababeel, a development of the Shaheen-II with MIRV. The intention of the system is to counteract the Indian Ballistic Missile Defence (BMD).

India became the fourth space agency in the world to send a spacecraft to Mars, behind the United States, Russia, and the European Union. India launched its first moon orbiter mission, Chandrayaan-1, and later, in November 2013, its maiden interplanetary mission, the Mars orbiter mission which, in September 2014, entered its intended orbit around Mars. Chandrayaan-2 has been launched for a soft landing on the moon. India plans an orbiter to Venus, the 'Shukrayaan-1 in 2023. The Indian ballistic missile defence programme is a multi-layered system consisting of two interceptor missiles, the Prithvi Air Defence (PAD) missile for the high altitude, and the Advanced Air Defence (AAD) missile for lower altitude interception. It would be able to intercept an incoming missile launched 5,000 km away. The PAD was tested in November 2006, and the AAD in December 2007. India, thus, became the fifth country to have an ABM system, after the United States, Russia, China and Israel. On March 6, 2009, India successfully tested its missile defence shield when an incoming missile was intercepted at an altitude of 75 km. The 'Swordfish' radar for the BMD system currently has an operational range 2,000 km. Two new anti-ballistic missiles to intercept

**China has been the single most important factor shaping India's approach to space. As China leaps vigorously forward in counter-space capabilities, India will have to war-game such scenarios. Similar simulations have been done in the past in various military colleges. India must also keep up its efforts to develop global rules and norms about such challenges and threats.**

Intermediate Range Ballistic Missiles (IRBMs) are being developed to cover a range of up to 5,000 km. India is also planning a laser-based weapon system to destroy a ballistic missile in its boost phase.

## THE FUTURE AND ITS CHALLENGES

### *ORF SIMEX*

The Delhi-based Observer Research Foundation (ORF) Simulation Exercise (SIMEX)<sup>16</sup> was conducted in February 2017 to play out a scenario in which, given the underlying geo-political conflicts, states had already attempted to interfere with outer space assets in an effort to deny certain military the destruction of functions. The exercise simulated that a military communications satellite gets destroyed, albeit accidentally, using an ASAT weapon. The exercise simulated the possibility of a kinetic conflict; the choice of a combination of a multilateralised dispute by approaching the Permanent Court of Arbitration and only modest military punitive steps; and how lack of military heft can be compensated for by using smart diplomatic tactics.

### *Wargame IndSpaceEx*

The "IndSpaceEx" table-top exercise was conducted by the Ministry of Defence on July 25-26, 2019. The exercise assessed threats in space from a military perspective and India's current capability. It took stock of the military space assets of the US, Russia and China. The country's armed

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16. Observer Research Foundation (ORF) Simulation Exercise (SIMEX), [https://www.orfonline.org/wp-content/uploads/2018/02/ORF\\_Special\\_Report\\_58\\_Simulation\\_Exercise.pdf](https://www.orfonline.org/wp-content/uploads/2018/02/ORF_Special_Report_58_Simulation_Exercise.pdf)

forces, along with DRDO, ISRO, academia from the Indian Institute of Technology, Mumbai, think-tanks like the Observer Research Foundation (ORF) and private industry were part of the table-top exercise. Within the community of strategic thinkers, Beijing poses a major threat to India's security interest – its satellites and other assets. This first of its kind exercise, at this level, was to help gain a better understanding of security issues related to the space domain. The limited agenda was to give an insight into the vulnerabilities and gaps in India's space security and identify areas for India to develop and strengthen in terms of technological capabilities in order to establish effective deterrence capabilities as the logical next step. Capabilities, capacities, complexity in organisation and the role of ambiguity and escalation risk in war and war deterrence strategies were the parameters along which the game was played out. China has been the single most important factor shaping India's approach to space. As China leaps vigorously forward in counter-space capabilities, India will have to war-game such scenarios. Similar simulations have been done in the past in various military colleges. India must also keep up its efforts to develop global rules and norms about such challenges and threats.

**The time has come for India to give due priority to its military needs. Integration of the hard operational aspects created by the SSA and C4ISR assets with the softer strategy and doctrine needs to be worked out. All this is possible and consistent with India's international posture of the "peaceful uses of outer space".**

### *Attention to Capability Building*

Dr S. Chandrashekar of the National Institute of Advanced Studies, Bengaluru, has looked into some of the security-related aspects of utilisation of space in his study "Space, War and Security: A Strategy for India".<sup>17</sup> The major space-based components of this new strategy architecture would be

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17. S. Chandrashekar, *Space, War and Security– A Strategy for India* (Bengaluru: National Institute of Advanced Studies, December 2015), [http://issp.in/wp-content/uploads/2016/03/Space-War-and-Security-\\_A-Strategy-for-India.pdf](http://issp.in/wp-content/uploads/2016/03/Space-War-and-Security-_A-Strategy-for-India.pdf)

a robust Space Situational Awareness (SSA) capability comprising radars, optical and laser tracking facilities complemented by an organisational and human resource base that is able to operationally monitor the space environment: a constellation of advanced communications satellites in Geo-Stationary Orbit (GSO) for carrying out vital Command, Control, Communications, Computers (C4) functions; a constellation of satellites in Low Earth Orbit (LEO) that provide Internet services for the military; clusters of satellites for the Electronic Intelligence (ELINT) function; a constellation of Electro-Optical (EO) and SAR satellites in appropriate Sun-Synchronous Orbits (SSO) for ISR; standby small satellites on hot-standby to be launched at short notice into LEO for ISR needs during crises; adequate Tracking Data Relay Satellite System (TDRSS) satellites in GSO for performing the tracking and data relay functions needed for the C4ISR capability; satellites for meeting operational weather requirements; satellites in geostationary and geosynchronous orbits or Medium Earth Orbit (MEO), for navigation functions. To meet these requirements, India would need 16 PSLV, 7 GSLV and 7 Agni 5-based launchers every year. This would mean creating significant indigenous capacity.

The future requires 'heavy' (4,200–5,400 kg) to very heavy satellites (>5,400 kg). The use of ion propulsion for moving the satellites from Geosynchronous Transfer Orbit (GTO) to GSO is an emerging trend. This approach will allow the GSLV Mark 2 launcher to launch the equivalent of an intermediate class GSO satellite and the GSLV Mark 3 launcher can launch the equivalent of a heavy class satellite. The creation of ELINT and TDRSS capability is an area that needs immediate attention. India's capabilities for performing the surveillance and reconnaissance parts of the ISR function are good and close to the global state-of art ones. Its capabilities for dealing with the infra-red (thermal) part of the spectrum are limited. These need to be strengthened significantly. Apart from ISR, they are used for performing many other military functions and could play an important part in any future BMD system. Antenna technology, used for meeting SSA, SAR and C4 needs is also an area that needs national attention. Reducing the mass of the SAR,

efforts to improve throughputs in data processing, especially for SAR data, are other areas that may require more support. Extending the IRNSS scheme for navigation via a Medium Earth Orbit (MEO) constellation to improve navigation accuracies and eventually providing for a completely indigenous solution to the navigation problem is required. The time has come for India to give due priority to its military needs. Integration of the hard operational aspects created by the SSA and C4ISR assets with the softer strategy and doctrine needs to be worked out. All this is possible and consistent with India's international posture of the "peaceful uses of outer space".

### *Space Strategy Ahead*

Noted strategist Giulio Douhet had said, "Victory smiles upon those who anticipate the changes in the character of war, not upon those who wait to adapt themselves after the changes occur". When Britain dominated the seas, it ruled the world. The Americans have been leaders of the free world ever since they gained superiority in the air. Now the dominating position will belong to those who gain supremacy in outer space. The Sino-US dynamic will drive the other major powers to act to preserve and enhance their security and national interests. Space assets will act as force multipliers and will play a vital role in the formulation and implementation of the strategies. The entire national security complex would have to be reorganised and restructured keeping in mind this reality. The role of space-based C4ISR assets, complemented by other ground-based SSA components will be critical for deciding the new national strategy for waging war and for preserving the peace through the deterrence of war. India is one among the top six space powers in the world: the USA, Russia, China, European Space Agency (ESA), and Japan. The satellites of many countries are used for a variety of military purposes.

With space having emerged as the fourth medium for military operations, the IAF had brought out its blueprint titled "Defence Space Vision 2020". The Integrated Space Cell under the Integrated Defence Staff (IDS) Headquarters in Delhi is working on furthering a joint space strategy. The Defence Space

Satellite Centre works closely with ISRO. Both will now be part of the DSA. India has developed all the building blocks necessary to integrate an anti-satellite weapon to neutralise hostile satellites in low earth and polar orbits. India needs early warning satellites to monitor ICBM launches and even the tactical air space as an important military asset. Ground/space-based lasers to disable enemy satellites or destroy/degrade attacking ICBMs as part of ASAT capability are needed. There is also a need to develop directed energy weapons. India needs a permanent space station. The space-based systems have enabled dramatic improvement in military and intelligence operations, thus, enhancing India's capability, accuracy and firepower. In the not so distant future, wars will again be fought, like we read in the Indian epics. Space is the future for all action and capabilities, the real force multiplier. India is doing well. The time to invest more and prepare for the future is now.

# PAKISTAN AIR FORCE: MODERNISATION TRENDS

SHALINI CHAWLA

*Air power remains the primary vehicle of deterrence by punishment. With weapons reaching ever higher levels of precision attack and enhanced lethality, the value of air power for conventional deterrence by denial and/or punishment has only been increasing.*

— Jasjit Singh, *Kargil 1999: Pakistan's Fourth War for Kashmir*

Air Cmde Jasjit Singh's conviction in the strategic potential of air power has proved increasingly true with time. His unrivalled passion for, and understanding of, the subject, and the increasing role of air power in crisis/war have comprised the strong motivation to bring out a volume of his writings on air power. I personally feel fortunate to have learnt immensely through his generous mentorship. Post Kargil War, he repeatedly talked/wrote about change in the Pakistani thinking which has been progressively inclined towards prioritising the build-up of the air force and the aerial maritime strike capabilities of the navy. It is interesting to see his views being reflected in Pakistan's military acquisitions. The paper aims to study the Pakistan Air Force (PAF) build-up for a better understanding of the modernisation trends in the PAF.

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**Pakistan has been on an arms acquisition spree focussed on a rapid modernisation of its air force since the Kargil War. Arms acquisitions since then have been exclusively centred on the modernisation and build-up of the air force and the aerial maritime strike capabilities of the navy.**

*It is my strong conviction that offensive application of air power is what can yield positive results in a war.*

— Air Chief Mshl Mushaf Ali Mir, Chief  
of the Air Staff (CAS),  
Pakistan Air Force, 2002<sup>1</sup>

Military modernisation has always been a priority for the policy-makers in Pakistan, and modernisation of both conventional and nuclear forces has been kept up with continued Chinese support (starting the mid-1960s) and the United States' (US) military assistance,

which Pakistan managed to receive during three prolonged phases of its alliance with the Americans. Pakistan has been on an arms acquisition spree focussed on a rapid modernisation of its air force since the Kargil War. Arms acquisitions since then have been exclusively centred on the modernisation and build-up of the air force and the aerial maritime strike capabilities of the navy. This has to be viewed in the context of the reality that in Pakistan, the army, which has ruled the country for most of its existence, and was in direct control between 1999 and 2008, calls the shots in military priorities and modernisation. Pakistan has acquired some land systems, but they have been restricted to heavy artillery. The United States stood as Pakistan's major arms supplier post 9/11 (for about 10 years) when Pakistan once again became its "frontline state". However, Pakistan has made aggressive efforts to diversify the sources of its weapons supply in the last decade. China and Pakistan have entered into joint defence projects, adding to the import and production of the PAF and Pakistan Navy. The main suppliers to Pakistan have been the US and China. France has been an important partner in supporting the PAF's existing fleet of Mirages, while Turkey exported 34 T-37 fighter trainer aircraft to Pakistan.

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1. Interview, *Asian Defence Journal*, September 2002, pp. 28-29.

To get an understanding of Pakistan's military capability, it is essential to look into the objectives behind its overall military build-up.

#### **BASIC OBJECTIVES SHAPING PAKISTAN'S MILITARY CAPABILITY**

Security concerns have always dominated the minds of Pakistan's leadership. Pervez Iqbal Cheema believes in "three possible roads to peace and security—disarmament, arms control and armament." According to him, "Most Third World countries view the first as idealistic, arms control as somewhat more pragmatic, and armament as necessary and realistic."<sup>2</sup> Pakistan has looked at arms procurement to satisfy its security concerns. The perceived threat perceptions from India, strategic developments on the border with Afghanistan, emerging technologies, alliance with the US and growing relationship with Beijing have been the dominant factors contributing to the sources and kind of arms procurement by the nation. Moreover, Pakistan's insecurities as a state emerging from its economic, social and political vulnerabilities also contribute towards its inclination to modernise its forces. The basic objectives shaping the arms acquisitions of Pakistan are as follows:

- Pakistan's adversarial relationship with India has played a major role in the formation of its threat perception. The dominant military lobby in Pakistan has aggressively propagated the Indian threat within Pakistan to legitimise Pakistan's high defence spending, and, on the international front, to support the acquisition of high technology weaponry. This also interacts with, and promotes, the military's special and dominant role in the country's power structure.

**The perceived threat perceptions from India, strategic developments on the border with Afghanistan, emerging technologies, alliance with the US and growing relationship with Beijing have been the dominant factors contributing to the sources and kind of arms procurement by the nation.**

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2. Pervez Iqbal Cheema, "Arms Procurement in Pakistan: Balancing the Needs for Quality, Self-Reliance and Diversity of Supply", in Eric Arnett, ed., *Military Capacity and the Risk of War: China, India, Pakistan and Iran* (SIPRI, Oxford University Press, 1997), p. 148.

- Pakistan's urge to match India's conventional military superiority has perpetually driven Pakistan into ways and means to acquire superior technology. In 2006, the then PAF Chief of the Air Staff (CAS), Air Chief Mshl Kaleem Saadat stated in an interview to *Jane's Defence Weekly*,  
When US sanctions were imposed in 1990, both the PAF and the Indian Air Force were second-generation air forces. No real-time surveillance capability, no air-to-air refuelling capability, no airborne early warning capability, no beyond-visual-range capability, no stand-off weapon capability. However, after 13 years of sanctions, India had all the above and Pakistan had none until about three or four years ago. This is the gap.... We have to bridge this gap in the manner that we can deny the advantage that our neighbour has....<sup>3</sup>

The strategic aims for Pakistan, as outlined by Ross Masood Husain are: "to strengthen national power; to prevent open aggression by India; to induce India to modify its goals, strategies, tactics and operations; to attain a position of security or, if possible, dominance, which would enhance the role of other (non-military) means of conflict; to promote and capitalize on advances in technology in order to reach parity or superiority in military power."<sup>4</sup>

- Pakistan relies on high technology weapons to seek competitive military advantage. The desire to acquire high technology weapons has been very strong in the Pakistan military and its long alliance (in three phases) with the US assisted Pakistan to procure high technology equipment. Pakistan believes that acquisition of high technology weapons would boost the morale and capability of the air force, hence, improvement of the technological base and acquisition of advanced weaponry are vital for victory in war.<sup>5</sup>
- Pakistan has followed offensive aggressive strategies and has had a deep-rooted belief that by going on the offensive, smaller size forces

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3. Robert Karniol, "Pakistan Plugging the Gaps," *Jane's Defence Weekly*, March 20, 2006.

4. Ross Masood Husain, "Threat Perception and Military Planning in Pakistan: The Impact of Technology, Doctrine and Arms Control", in Arnett, ed., n. 2, p. 130.

5. See Sobia Nisar, "The Pakistan Air Force", at <http://www.defencejournal.com/2001/august/airforce.htm>

in history have won wars against bigger enemies. All the four wars which Pakistan fought with India (in 1947-48, 1965, 1971 and 1999), were initiated by Pakistan. The war in 1971 was caused by Pakistan's internal instability. But the actual war was initiated by Pakistan with a preemptive air strike against Indian Air Force (IAF) bases on December 3. In addition, it adopted the offensive route for its covert war through terrorism in Jammu and Kashmir (J&K) since 1988 (besides that in Punjab in 1983-93).

Pakistan has relied heavily on the strategy of offensive action and, thus, the acquisitions of high technology weapons are sought to support this strategy. Compared to its unwillingness or inability to support its ground offensive during the Kargil War, the Pakistan Air Force chief clearly emphasised the offensive orientation of the air force three years later when he stated:

It is my strong conviction that offensive application of air power is what can yield positive results in a war. In a scenario where one is placed against an adversary not only larger in size but also enjoying a considerable technological edge, offensive and innovative application of air power can pay required dividends. To this end, we have trained accordingly. The PAF has always given top priority to bold offensive planning and our performance was, thus, clearly visible in the last two wars.

— Air Chief Mshl Mushaf Ali Mir, CAS, Pakistan Air Force<sup>6</sup>

External military support (with even short-term arms additions, as in the case of one squadron of F-104 Starfighter aircraft from Jordan in 1971 besides extensive support from Iran, Iraq, etc. in 1965) has been a major element in Pakistan's arms acquisitions.<sup>7</sup>

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6. n. 1, pp. 28-29.

7. Pervez Iqbal Cheema, *The Armed Forces of Pakistan* (Oxford: Oxford University Press, 2002), p. 164.

## MODERNISATION OF THE PAF: BACKGROUND

### *Modernisation of the PAF in the 1950s*

During the early decades, Pakistan acquired arms mainly from the US (for high-technology systems) and China (for low cost but efficient systems), with a small proportion contributed by France. In fact, the massive US arms aid to Pakistan in the late 1950s provided it with both the incentive to initiate the 1965 War as well as demonstrated the philosophy of high technology weapons providing a competitive advantage against India. India was, in any case, saddled at that time with obsolete systems being employed after the war in 1962. The classic case was the shooting down of four Vampire vintage aircraft by a combination of F-104 Starfighters and F-86 Sabres on the opening day of the war, forcing India to withdraw these older fighters from combat, thus, reducing the quantitative advantage that India was supposed to enjoy.

A mutual defence assistance agreement signed on May 19, 1954, between the US and Pakistan was the first formal bilateral security commitment between the two countries and also provided the legal basis to the US military assistance.<sup>8</sup> Following this, in the same year, US officials presented a secret *aide-memoire* boosting the military aid to \$50 million, with specific programme goals. The *aide-memoire* committed Washington to equip “4 army infantry and 1.5 armoured divisions, to provide modern aircraft for 6 air force squadrons, and to supply 12 vessels for the navy. The estimated cost of this programme was \$171 million.”<sup>9</sup>

Pakistan entered the Southeast Asia Treaty Organisation (SEATO) in 1955 and the Baghdad Pact, renamed the Central Treaty Organisation (CENTO), after Iraq left the pact in 1956, ostensibly joining the chain erected by the United States around the Soviet Union and its then military-ideological ally, China, to check the spread of Communism.<sup>10</sup> This resulted in a robust inflow of military and economic aid for Pakistan. Being a member of these two security alliances provided Pakistan a

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8. Dennis Kux, *The United States and Pakistan, 1947-2000* (Oxford: Oxford University Press, 2001), p. 67.

9. *Ibid.*, p. 69.

10. Shahid Javed Burki, *Historical Dictionary of Pakistan* (New Delhi: Vision Books, 2003), p. 337.

stronger claim on US resources and the US also benefited with the regular interaction between the Pakistani civilian and military officials and their counterparts from the other member countries. In this process, the US acquired a larger stake in its Pakistan relationship.<sup>11</sup>

By the year 1957, Pakistan was receiving a massive amount of sophisticated military equipment, training and economic aid. The inflow from Washington included sophisticated Patton main battle tanks, modern artillery, howitzers, F-86 jet fighter squadrons, F-104 Starfighter supersonic interceptors, air-to-air missiles, submarines (the first submarine to be introduced into the Indian Ocean by a developing country, as, indeed, was the F-104 supersonic interceptor) and state-of-the-art radar, communications and transportation equipment. Further, a qualitative boost came from the military training by the US military teams and also in the US military schools for the Pakistan Army.<sup>12</sup> The US military also provided assistance in setting up intelligence and special operations facilities creating the Special Services Group (SSG) which was used unsuccessfully to try and capture Indian airfields in the 1965 War. While Pakistan failed to win the war in 1965, its military nevertheless projected it as a victory, especially in the air, and the thirst for high-technology systems intensified.

### *Alliance with China*

But even as the 1965 War was getting underway, Pakistan sent its recently retired Air Chief, Air Chief Mshl Asghar Khan, to China to seek aircraft and weapon systems to meet Pakistan's "dire needs".<sup>13</sup> Pakistan's need for different sources was complemented by Zulfikar Ali Bhutto's approach which believed in maintaining relations with all the major powers whose interest lay in South and West Asia. Unlike Field Mshl Ayub Khan, Bhutto's diplomatic policy brought Pakistan closer to Beijing and Pakistan entered into several economic and military cooperation agreements with China. Pakistan received interest free economic aid and also a significant amount of free weapons from

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11. Kux, n. 8, p. 74.

12. Ibid., pp. 86-87.

13. Asghar Khan, *The First Round: Indo-Pakistan War 1965* (New Delhi: Vikas, 1979).

**In the 1970s, although US equipment was not available for Pakistan, modernisation of the PAF was kept up with the help of Chinese and French equipment. China supplied 115 F-6 fighters between 1971 and 1981. France supplied 72 Mirages between 1971-83.**

China and became the only non-Communist Third World country to receive generous assistance from it.<sup>14</sup> *The Chinese F-6 entered the PAFs inventory in 1966, followed by other systems. Chinese military assistance came in not only in the form of arms but also development of the indigenous facilities for defence production in Pakistan [the F-6 Rebuild Factory (F-6RF) at Kamra was set up with Chinese assistance].*

*1965 Arms Embargo and PAF Acquisitions in the late 1960s and 1970s*

The United States arms' embargo followed by the 1965 Indo-Pakistan War led to the withdrawal of US military assistance and also the suspension of US equipment to Pakistan. Pakistan was compelled to look at alternate options and, thus, it turned to China, North Korea, Germany, Italy and France for military aid. In the late 1960s, Pakistan received the MiG-19 (F-6) fighter aircraft from China, apart from the substantive infantry equipment. France supplied a few Mirage aircraft and even the Soviet Union provided Pakistan the Mi-8 helicopters.

In the 1970s, although US equipment was not available for Pakistan, modernisation of the PAF was kept up with the help of Chinese and French equipment. China supplied 115 F-6 fighters between 1971 and 1981. France supplied 72 Mirages between 1971-83. Some air defence equipment like the F-104A fighters and helicopters was bought from Jordan and the UK.

Indigenous defence production was focussed to progress towards self-reliance and, more importantly, to revitalise the PAF in the 1970s. Rebuilding factories for the Mirages and F-6 planes and the production facility for the MFI-17 Mushshak trainer aircraft were set up. Apart from this, "The Air Defence System was modernised by inducting the latest radars linked with computerised data processing and display equipment".<sup>15</sup>

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14. Ayesha Siddiqua Agha, *Pakistan's Arms Procurement and Military Buildup, 1979-99* (New York: Palgrave, 2001), p. 105..

15. Shafi, "50 Years of the Pakistan Air Force", September 7, 1997, as cited in Cheema, n. 7, p. 111.

*The US Arms Pipeline Reopens in the 1980s*

The Soviet invasion of Afghanistan in December 1979 led to the Americans' review of their South Asian policy and, consequently, Pakistan entered into a new engagement with the US. Pakistan was declared a "frontline state" and, in return, received massive military aid. Gen Zia-ul-Haq managed to negotiate an elaborate military and security-related aid package of \$3.2 billion. The US military assistance programme included the sale of 40 F-16 Falcon multi-role combat aircraft, one of the most advanced military aircraft in the world at that time. Pakistan also received attack helicopters and second-hand destroyers.<sup>16</sup>

The second US package, worth \$4.02 billion, commenced in 1987 but was suspended after the US arms embargo in 1990 due to Pakistan crossing the "red line" to acquire nuclear weapons capability.

Chinese weapons, being cheaper, continued to hold a significant share in the Pakistani inventory. Although arms from China were technologically not as superior as those from the West, they were capable systems, were affordable and provided quantity to boost Pakistan's military powers. In fact, by the early 1980s, China had provided Pakistan with roughly about 65 per cent of its aircraft.<sup>17</sup>

During the 1980s, the focus of arms procurement was on strengthening the PAF. Pakistan had lost the last two wars and believed that effective air defence would give it leverage in future offensive operations against India. One of the lessons learnt from the last two wars was that an efficient air force

**Chinese weapons, being cheaper, continued to hold a significant share in the Pakistani inventory. Although arms from China were technologically not as superior as those from the West, they were capable systems, were affordable and provided quantity to boost Pakistan's military powers.**

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16. Rodney W. Jones, "The Military and Security in Pakistan", in Craig Baxter, ed. *Zia's Pakistan, Politics and Stability in a Frontline State* (Lahore: Vanguard, 1985), p. 83.

17. Cheema, n. 7, p. 164.

would be important in providing close-battle support to the ground forces.<sup>18</sup> According to the strategic thinkers in Pakistan, the acquisition of the F-16s proved vital for the morale of not only the PAF but the nation as a whole. And the modern aircraft was viewed as a technological acquisition guarding the territorial integrity of Pakistan.<sup>19</sup> Thus, the Pakistan military leadership, in their second deal with Washington, sought 70 F-16s, aiming to raise the inventory to 110 high performance multi-role combat aircraft. During the 1980s, Pakistan also made an unsuccessful attempt to acquire the Airborne Early Warning (AEW) system from the US which, if successful, would have dramatically increased the air force's combat capability.

China (besides France) continued to be a major source of PAF weapons and this increased after the US' arms embargo in 1990. About 90 A-5s were obtained in 1983-84 for the price of \$1 million per aircraft. Its procurement of around 95 F-7 series aircraft added to the quantitative element in the PAF.<sup>20</sup>

## PAF MODERNISATION FROM 1990-2018

### *Escalation in China's Defence Exports to Pakistan*

American military and economic aid came to a halt following the sanctions in 1990. The sanctions were highly damaging in nature as they not only suspended the US military aid and assistance but the procurement of essential spares was also blocked. Intensive lobbying by Pakistan resulted in some relief under the Brown Amendment, passed in 1995. The amendment permitted taking possession of the military equipment frozen in the United States, with the exception of the nuclear capable F-16 combat aircraft.<sup>21</sup> Pakistan had paid for 28 F-16s, which were manufactured against the 1987 order of 110. But following the sanctions, the F-16s were not supplied.<sup>22</sup> These

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18. Siddiqua Agha, n. 14, p. 139. The largest share of the American military aid (the first package) was used for the air force. Out of the military component of \$1.6 billion, \$1.2 billion was spent on the acquisition of 40 F-16 aircraft.

19. *Ibid.*, p. 161.

20. *Ibid.*, p. 144.

21. For details, see Kux, n. 8.

22. The United States government tried to help dispose of these aircraft to Indonesia to help Pakistan recover the money. But owing to the economic crisis of 1997 in Southeast Asia, it was unsuccessful.

sanctions actually impacted the PAF's capability and created confusion in the PAF's planning and procurement regarding the replacement of these aircraft. The post-nuclear test sanctions further hampered Pakistan's weapons supply as the United States persuaded the other G-7 countries to impose similar sanctions.

The decade of the 1990s was a setback for PAF modernisation due to the American sanctions and also Pakistan's crippling economy. Economic growth recorded a steep decline and Pakistan was under severe pressure from the international financial institutions to cut down the spending on defence. Despite the US sanctions, a low Gross Domestic Product (GDP) and a collapsed democratic structure, Pakistan tried hard to acquire the air force equipment. In 1990, 50 Mirage 3 (as indicated in Table 1) were acquired from Australia for a paltry sum of \$28 million, along with the engines and spares.<sup>23</sup>

In the 1990s, Pakistan, with its nationalist ego boosted by the nuclear weapons tests (which, it also believed, would deter India from any robust response), launched the war in the Kargil sector of J&K in early 1999. This misadventure not only led to its defeat but triggered the return of the army in control of the country, displacing the elected government in the coup of October 12, 1999. With the emergence of the military regime, another set of democracy related sanctions was imposed on Pakistan, further restricting the acquisition of high technology weapons from the West. The result was China's pre-eminence in Pakistan's arms import.

Sino-Pakistan defence collaboration flourished under the umbrella of the US sanctions. The Aircraft Manufacturing Factory (AMF) under the Pakistan Aeronautical Complex (PAC) at Kamra, began the production of the Karakoram-8 jet trainer, in collaboration with the China National Aero-Technology Import and Export Corporation (CATIC). The jet trainer was initially launched as the NAMC L-8 in 1987 in the Paris Air Show and subsequently proposed to be co-developed in partnership with Pakistan (with a 25 per cent share).

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23. Siddiqua-Agha, n. 14, p. 145. These aircraft were retired from the Royal Australian Air Force (RAAF) and most of them had about a hundred flying hours remaining on their airframes.

China and Pakistan entered into deals for the co-development of a fourth generation fighter aircraft, the JF-17 (earlier called the FC-1). China delivered two Joint Fighter (JF-17) Thunder advanced jets to the Pakistan Air Force in March 2007 for flight tests and evaluation. The JF-17 is designated to be a low cost combat aircraft to meet the tactical and strategic requirements of the Pakistan Air Force and reduce the reliance on imports. The JF-17 is co-developed by Pakistan and China and is being built by China's Chengdu Aircraft Industry Corporation (CAC) and Pakistan Aeronautical Complex (PAC). There have been reports that the design was developed by the MiG complex in Russia and transferred to China after the Russian Air Force cancelled procurements. The JF-17 is fitted with the RD-93 engine and the initial batch of JF-17s delivered to Pakistan were fitted with the Chinese radar, KLJ-7 multi-mode pulse Doppler radar.

In 2007, the Pakistan Air Chief announced that Pakistan had increased its initial target of buying 150 JF-17s to acquiring up to 250 aircraft.<sup>24</sup> This represented Pakistan's confidence in the aircraft and also a quantum jump in the Pakistan aircraft industry. Pakistan has received the JF-17 Blocks I and II, and the Block III is awaited. China has reportedly overhauled the JF-17 Block I. It is interesting to note that Pakistan still lacks the capability to overhaul its growing fleet of JF-17 fighter jets.<sup>25</sup> The PAF fleet currently has 85 JF-17 Blocks I and II, operationally deployed.<sup>26</sup> Regarding the production of the aircraft, reports suggest that PAC has been producing 58 per cent of the JF-17s airframe, and CAC 42 per cent of it.<sup>27</sup> All three JF 17 variants (Blocks I, II and III) are powered by the Chinese licence-built Klimov RD-93 (an RD-33 derivative) turbofan engine.<sup>28</sup>

Pakistan has also entered into the procurement of the airborne early warning systems from Sweden and China. In 2006, Pakistan entered into a deal with Sweden for the purchase of 4 SAAB-2000 turboprop aircraft

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24. Interview, Air Chief Mshl Tanvir Mahmood Ahmed, Pakistan's CAS, *Jane's Defence Weekly*, April 4, 2007, p. 34.

25. Franz-Stefan Gady, "China Overhauls Pakistan Air Force JF-17 Fighter Jet", *The Diplomat*, May 22, 2019, <https://thediplomat.com/2019/05/china-overhauls-pakistan-air-force-jf-17-fighter-jet/>. Accessed on June 1, 2019.

26. *The Military Balance 2019*, IISS (London: Oxford University Press, 2019), p. 299.

27. Gady, n. 25.

28. *Ibid.*

equipped with the Erieye Airborne Early Warning and Control (AEW&C) systems.<sup>29</sup> Pakistan placed the order for four Chinese built airborne early warning aircraft, the ZDK-03 (KJ-200) Airborne Early Warning and Control System (AEW&C) aircraft, in 2008, and received the deliveries between 2011-14. Other sales from China include: WZ-10 combat helicopter, F-7 fighter aircraft and AS565S Panther Anti-Submarine Warfare (ASW) helicopter.<sup>30</sup>

With the uncertainty related to the inflow of US equipment, owing to the experience in the past, Pakistan has been aggressive in diversifying its sources of weapons supply. Pakistan acquired 34 T-37 B trainer aircraft in 2015 and ordered the A-129C Mangusta combat helicopters in 2018 from Turkey. The delivery for the A-129C is likely to take place in 2022-23. Other significant acquisitions have been from Russia and Ukraine.

In an interview with *Jane's Defence Weekly* in 2019, the Chief of the Air Staff, PAF, Air Chief Mshl Mujahid Anwar Khan talked about the PAF's upcoming procurement plans. Some of the important acquisitions which the PAF is planning include:<sup>31</sup>

- The production of the new Block III JF-17s is likely to start later this year (2019). The PAF "will make a decision on one of the two new Chinese AESA (Airborne Electronically Scanned-Array) radars" for these aircraft.
- The PAF plans to push for development of a Fifth Generation Fighter Aircraft (FGFA) capability.
- Before the FGFA capability comes online, the PAF is evaluating "a new trainer and the Leonardo M-346, Hongdu L-15 and KAIT-50".

### *PAF Acquisitions from the United States*

The US' weapons sales to Pakistan were restarted following Pakistan's role as the chief ally in the global war against terrorism, which led to the removal of US sanctions on Pakistan. Pakistan's alliance with the United States post 9/11

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29. For details, see Atul Kumar Singh, "AWACS: The Pivot of Aerospace Power", *Air Power Journal*, vol. 2, no. 1, Spring 2007(January-March), pp. 107-138.

30. Transfer of Major Weapons: Deals with Deliveries or Orders Made for 2008-2018, Supplier-China, Recipient-Pakistan, Trade-Register-2008-2018.rtf, SIPRI Arms Transfer Database Register. Accessed on June 1, 2019.

31. Chief of the Air Staff, Interview, Air Chief Mshl Mujahid Anwar Khan, Pakistan Air Force, *Jane's Defence Weekly*, May 22, 2019.

**Pakistan's non-NATO ally status allows the sale of used US weapons well below their depreciated value. For example, the F-16s supplied to Pakistan in 2005, with the original unit acquisition value of \$16.2 million, have been transferred at a current unit value of \$6.48 million. The eight P-3 aircraft were delivered free of cost to Pakistan in 2006.**

helped the recovery of Pakistan's economy and opened the long desired supplies of defence equipment from Washington. The Pentagon reports indicate that the Foreign Military Sales (FMS) agreements with Pakistan were estimated at \$344 million in Financial Year (FY) 2003-2004, growing to \$492 million in FY2005 alone.

The initial US supplies to Pakistan consisted of items like the UH-1 Huey-2 utility helicopters, Very High Frequency/ Ultra High Frequency (VHF/UHF) aircraft radios, air traffic control radars, night vision equipment and other equipment and support systems including intelligence gathering devices. High technology

weapons and equipment from the United States included two F-16s which Pakistan received in 2005 and (initially) 50 plus F-16s were 'scheduled' to be followed (36 F-16 A&B + 18 F-16 C&D).<sup>32</sup> The actual number of aircraft received by Pakistan was different. Pakistan has been extremely keen to acquire the F-16s, partly for political/psychological reasons and partly because it has been familiar with multi-role combat aircraft since the early 1980s. Pakistan was aiming to achieve its original plan of 110 F-16s in its inventory.

On the naval aviation front, Pakistan received the first P-3C Orion maritime patrol aircraft in 2007 and the deliveries were extended till 2010. Pakistan's *non-NATO ally* status allows the sale of used US weapons well below their depreciated value. For example, the F-16s supplied to Pakistan in 2005, with the original unit acquisition value of \$16.2 million, have been transferred at a current unit value of \$6.48 million. The eight P-3 aircraft were delivered free of cost to Pakistan in 2006.

In 2008, Pakistan received 4 Bell-205/UH-1 Huey2 helicopters from the US. Other US exports to Pakistan include: Scan Eagle Unmanned Aerial Vehicles

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32. *The Military Balance 2007*, IISS (London: Routledge, 2007), p. 330.

(UAVs) delivered in 2015, Cessna-U206 Light Utility aircraft delivered in 2017 and Bell-412 helicopters delivered in 2010 (see Table 1). Pakistan signed the deal for the acquisition of 12 AH-1Z Viper combat helicopters in 2015, but the delivery has been delayed after the US has suspended military aid to Pakistan in 2018.<sup>33</sup>

The US sales and military aid to Pakistan went up significantly during 2002-12 and contributed towards the accelerated modernisation of the PAF. It is interesting to note that the arms deliveries to Pakistan from the US alone in the period of 1999-2006 amounted to \$4,600 million (US\$)<sup>34</sup> at an average of \$575 million per annum. The total value of US arms transfer agreements with Pakistan in 1999-2002 was estimated at \$2,800 million (current US\$), with Pakistan ranking number ten among the list of recipients. In the succeeding years, 2003-06, the value of arms transfer agreements amounted to \$8,100 million (current US\$) shifting Pakistan to number three in the list of the recipients. And in 2006 alone, the value of the arms transfer agreements was calculated at \$5,100 million (current US\$) making Pakistan the number one recipient of the US arms transfer agreements.<sup>35</sup>

Islamabad has received lavish American financial and military assistance amounting to approximately \$33 billion during 2002-17. However, there has been a steady decline in US aid post Osama's killing in 2011, which convinced a majority of Americans that Islamabad was not sincere in its efforts to counter terrorism. Taking a hard stance,

**Islamabad has received lavish American financial and military assistance amounting to approximately \$33 billion during 2002-17. However, there has been a steady decline in US aid post Osama's killing in 2011, which convinced a majority of Americans that Islamabad was not sincere in its efforts to counter terrorism.**

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33. Transfer of Major Weapon: Deals with Deliveries or Orders made for 2010-2018, Supplier-United States, Recipient-Pakistan, Trade-Register-2010-2018.rtf, SIPRI Arms Transfer Database Register. Accessed on June 17, 2019.

34. Richard F. Grimmett, *CRS Report for Congress; Conventional Arms Transfers to Developing Nations, 1999-2006*, September 26, 2007, p. 71.

35. *Ibid.*, pp. 62-63.

Washington slashed its Foreign Military Financing (FMF) to Pakistan from US\$ 255 million to US\$ 100 million for the 2018 fiscal. Total security related aid [which includes FMF and International Military Education and Training (IMET)] stood at \$849 million in 2012 alone. The security related assistance was reduced to \$23 million in 2018.<sup>36</sup>

The new US policy under President Trump is likely to further impact US assistance. The likely US responses being discussed at present include expanding the US drone strikes and eventually revoking Pakistan’s status as a major *non-NATO ally*.

**Table 1 : Pakistan Air Force: Major Acquisitions during 1990-2018**

Supplier/ Licenser	No. ordered / Delivered	Weapon Designation	Weapon Description	Year(s) of Delivery
<b>Australia</b>	50	Mirage 3 aircraft	Fighter aircraft	1990-92
<b>Britain</b>	3	3 Lynx HAS- 3	ASW helicopters	1994-96
<b>China</b>	40	F-7P	Combat aircraft	1993
	6	K-8	Trainer aircraft	1994
	30+	K-8	Fighter/trainer aircraft	2003-10
	57	F-7 MG (F-7 PG version delivered)	Fighter aircraft	2001-03
	3	Type-347G	Fire control radar	1997-01
	6	A-5	Combat aircraft	2003
	400	FM-90	SAM	2014-16
	3	LY-80 SAMS	SAM System	2015-16
	4	F-7 A	Fighter aircraft	2010
	10	Skyguard	Fire control radar	2012
	600	PL-12/SD-10	BVRAAM	2010-18
	1000	PL-5E	SRAAM	2009-18

36. “Direct Overt U.S. Aid Appropriations for and Military Reimbursements to Pakistan FY 2002-FY2020”, <http://fas.org/sgp/crs/row/pakaid.pdf>. Accessed on June 1, 2019.

Supplier/ Licensor	No. ordered / Delivered	Weapon Designation	Weapon Description	Year(s) of Delivery
	6	A-5C/Fantan	FGA aircraft	2003
	50	JF-17 Thunder/ FC-1 Block 1	FGA aircraft	2007-13
	4	ZDK-03	AEW&C aircraft	2011-14
	3	WZ-10	Combat helicopter	2015
	50	JF-17 Thunder/ FC-1 Block II	FGA aircraft	2015-18
	50	JF-17 Thunder/ FC-1 Block III	FGA aircraft	Delivery planned from 2020
	13	JF-17 Thunder/ FC-1 Block II	FGA aircraft	2018 Produced in Pakistan
	5	Wing Loong-1	UAV/UCAV	2015
	20	CH-3	UAV/UCAV	2013-16
<b>France</b>	4	SA316 Alouette III	Helicopters	1994
	3	Breguet Atlantique-1	MPA and strike aircraft	1996
	8	Upgraded Mirage-IIID/V	Combat aircraft	1999
	48	Mirage IIID/5	Combat aircraft	1998-00
	11	Mirage V	Combat aircraft	2000-02
	96	F-17P	AS torpedo	1999-04
	8	SA-316B Alouette-3	Light helicopter	2008
	10	AS-350/AS-550 Fennec	Light helicopter	2013-14

PAKISTAN AIR FORCE: MODERNISATION TRENDS

Supplier/ Licenser	No. ordered / Delivered	Weapon Designation	Weapon Description	Year(s) of Delivery
<b>Italy</b>	192	Grifo radar	Combat aircraft fire control radar (for Mirage and F-17/7 combat aircraft)	2000-04
	4	Galileo Falco	UAV	2006
<b>Netherlands</b>	5	Fokker F27-200	Aircraft	1994-96
<b>Russia</b>	2	Mi-8MT/Mi-17	Transport Helicopter	2016
	4	Mi-35M	Combat helicopter	2018
<b>Sweden</b>	1	Saab-2000 Eriey	Transport aircraft	2008
	4	Saab-2000 AEW	AEW&C aircraft	2009-10
	4	Saab-2000	Transport aircraft	2016-18
<b>Turkey</b>	34	T-37B	Trainer aircraft	2015
	30	A-129C Mangusta	Combat helicopter	Year of order -2018, delivery planned by 2022-23
<b>USA</b>	3	P-3C (update 2.5)	Orion maritime reconnaissance and strike aircraft	1996-97
	28	Harpoon	Anti-ship missiles for the P-3C Orions	1996-97
	10	Bell-209/AH-IS	Helicopters	1997
	5	Bell-205/UH-1 Huey-2	Helicopter	2002
	26	Bell-412 EP	Helicopter	2004-05
	6	C-130E Hercules*	Transport aircraft	2005-07
	4	Bell-205/UH-1 Huey-2	Helicopter	2008

Supplier/ Licenser	No. ordered / Delivered	Weapon Designation	Weapon Description	Year(s) of Delivery
	12	AH-1F Cobra	Combat helicopter	2007
	40	T-37 B	Trainer aircraft	2009-12
	7	P-CUP Orion	ASW aircraft	2007-12
	14	F-16 A*	FGA aircraft	2005 -08
	6	C-130E Hercules	Transport aircraft Ex-RAAF	2005-06
	5	Bell-205/UH-1 Huey-2	Helicopter	2009
	18	F-16 C Block-50/52	FGA aircraft	2010
	6	AN/TPS-77	Air surveillance radar	2008-09
	2	Bell-412	Helicopter	2010
	500	AIM-120C AMRAAM	BVRAAM	2010-14
	15	ScanEagle	UAV	2015
	12	AH-1Z Viper	Combat helicopter	2015
	4	Cessna-U206	Light aircraft	2017
	2	King Air-350 ISR	AGS aircraft	2013-18
<b>Ukraine</b>	4	IL-78M	Tanker/transport aircraft	2009-11

\* US Excess Defence Articles, which are normally transferred at price of less than 10 per cent of the original. For example, the cost of each F-16 is a little over \$6 million.

Source: Table based on, Stockholm International Peace Research Institute, *Yearbook* (issues of various years) (New York: Oxford University Press) and Pakistan's major arms imports, as cited in Jasjit Singh, "Trends in Defence Expenditure," *Asian Strategic Review*, 1998-99 (New Delhi: Institute for Defence Studies and Analyses, 1999), SIPRI 2002, 2004, 2005, *United Nations Register of Conventional Arms* for various years and Defence Security Cooperation Agency at, <http://www.dsca.mil>; "Update on Pakistan C-130E Acquisitions," *Air Forces*, January 2006, p. 22, *The Military Balance 2007*, IISS (London: Routledge, 2007), SIPRI Arms Trade Register-Transfer of Major Weapons: Deals with Deliveries or Orders made for 2001-2018, Suppliers: United States, Turkey, Russia, Ukraine, China, Sweden and France; Recipient-Pakistan, Trade-Register-2001-2018.rtf. Generated on June 17, 2019.

Pakistan's growing defence cooperation with China and support from the United States have been major factors contributing to the modernisation of the PAF in the last two decades. The US sanctions in the 1960s and then in the 1990s not only gave space for Chinese (and French) defence equipment in the Pakistani market but also Pakistan made concerted efforts towards defence production which has provided an exposure to the Pakistan defence industry in the international market. The Chinese K-8 is under production at the Pakistan Aeronautical Complex. The assembly of the JF-17 is being done in Pakistan and the defence planners believe that Pakistan should be able to undertake the complete production soon. The JF-17 has displayed export potential and Nigeria, Myanmar and Malaysia have shown keen interest in procuring the aircraft. The Grifo-7 radar designed to improve air-to-air and air-to-ground performance is being produced with the objective of equipping 46 F-7 PG aircraft with the radar, together with approximately 45 Mirage IIIOs.<sup>37</sup>

### **PAF STRATEGY**

Given all the indications, it is obvious that Pakistan has been focussed on the modernisation of its air force. This has been the trend since 1999 after Pakistan's defeat in the Kargil War. What does this massive modernisation signify for the doctrine and strategy that the PAF can be expected to follow in the future?

If past experience is any indication, Pakistan's overall national and military philosophy and culture tilt heavily towards an offensive and aggressive strategy. Pakistan initiated the 1947 War but could not manage the aggressive use of the air force mainly due to two factors: one, unavailability of the appropriate equipment to counter India and, two, the whole operation in 1947 was carried out under the name of 'tribal revolt' which provided Pakistan little leverage to use offensive strike capabilities. These are also indications that the PAF (as also the IAF) was restrained by the British.<sup>38</sup>

The 1965 War was again a planned covert war, followed by overt offensive aggression by Pakistan. What is the factual record? The following facts stand out with respect to the 1965 War:

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37. See, Shalini Chawla, "Defence Production in Pakistan", in Air Cmde Jasjit Singh, ed., *Asian Defence Review 2007* (New Delhi: Knowledge World, 2007) pp. 33-64.

38. See, C Das Gupta, *War and Diplomacy in Kashmir* (New Delhi: Sage Publications, 2002).

- Joint plans: the PAF's plans for a "surprise attack" on IAF bases were made out more than two months earlier.<sup>39</sup>
- The PAF was fully activated, in full force, over the Chhamb sector to cover the armour offensive on September 1. The IAF lost four Vampires as a consequence.
- The PAF followed up with preemptive air strikes on IAF bases on September 6, as per the June 29, plan.
- The PAF claimed to have gained air superiority and dominated the war, shooting down many more IAF aircraft than it lost. The PAF also claimed to have destroyed a large number of IAF aircraft on the ground.

**Pakistan's overall national and military philosophy and culture tilt heavily towards an offensive and aggressive strategy.**

In 1971, Pakistan initiated the war on December 3, with preemptive strikes on IAF air bases, hoping to damage and destroy as many aircraft and as much infrastructure as possible through the air offensive. However, it appears to have held back from serious counter-air operations which remained targeted against Indian forward bases. This was part of the grand military strategy to execute what came to be called the great "Tikka Offensive" to launch two strike corps in a *blitzkrieg* into India covered by the Pakistan Air Force. Attacks on Indian forward airfields were aimed at reducing/neutralising IAF capabilities to interfere with the offensive.<sup>40</sup> In the event the great offensive never got off the ground.<sup>41</sup> The PAF also kept asking the army if a ground offensive further south in Rajasthan (Jaisalmer sector) was planned so that it could provide the necessary air effort by activating the Jacobabad airfields, but the Army Headquarters (HQ) kept denying any such plans. Thus, the Pakistani armour offensive came to be destroyed by the IAF at Longewala.

Pakistan, in the 1965 War, miscalculated the Indian response. The Indian retaliation came as a surprise to Pakistan in the 1965 War and also in the 1971 War. According to Air Cmde Jasjit Singh, "It was the impact of the

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39. B C Chakravorty, *History of the Indo-Pak War, 1965* (New Delhi: Ministry of Defence, Government of India, 1992), unpublished, p. 246.

40. *The Story of the Pakistan Air Force* (Islamabad: Shaheen Foundation, 1988).

41. Jasjit Singh, *Defence from the Skies* (New Delhi: Knowledge World, 2007), p. 145.

**Indian retaliation came as a surprise to Pakistan in the 1965 War and also in the 1971 War. According to Air Cmde Jasjit Singh, “It was the impact of the performance by the Indian Air Force which strongly discouraged the Pakistani offensive. Pakistan’s strategy has been sound but they have failed to take into account how the enemy would react”.**

performance by the Indian Air Force which strongly discouraged the Pakistani offensive. Pakistan’s strategy has been sound but they have failed to take into account how the enemy would react”.<sup>42</sup>

The second factor which can be traced for the PAF restricting itself, has been a lack of understanding of its role by the Pakistan Army. Air Mshl Asghar Khan had said in the 1960s:

It is true that the PAF’s primary role, in essence, is to assist the army in every possible way to achieve its objectives. But in order to do this, the PAF must first achieve a high degree of air superiority

over the land battle areas, and it must be equipped to do this effectively.

The army seldom understood or recognized this precondition.<sup>43</sup>

The Kargil War in 1999 was once again an attempt by the Pakistani military leaders to capture more Indian territory and Pakistan launched a military aggression across the well-established and mutually accepted Line of Control (LoC). The Pakistan Army lost over 1,200 fighting men in the 42-day war and suffered a humiliating defeat but did not use its air force to support its army that had been launched across the border. This aspect has never been adequately explained. Although the superiority of the Indian Air Force would have been a deterrent to the PAF, it is also possible that the Pakistan Army leadership wanted to keep pretending that the fighters across the LoC were “Mujahideen” freedom fighters.

On February 26, 2019, the IAF targeted a Jaish-e-Muhammed (JeM) camp at Balakot in Pakistan’s Khyber Pakhtunkhwa (KP) province, after over 40 Central Reserve Police Force (CRPF) *jawans* were killed in Pulwama, in J&K, India, in

42. Discussion at the Centre for Air Power Studies, New Delhi, November 2, 2007.

43. n. 40.

a gruesome terror attack claimed by the JeM. India's 'non-military preemptive action' against the JeM camp was aimed at countering future terror attacks for which the JeM was reportedly preparing. Pakistan's denial in the Pulwama attack was not surprising. The IAF strikes were conducted with Mirage-2000s equipped with the Israeli SPICE (Smart, Precise Impact, Cost-Effective) 2000 bombs, which function with deadly accuracy. The Mirages were accompanied by the Sukhoi-30s as Escorts, AWACS/AEW&C aircraft provided air cover, while IL-78s Flight Refuelling Aircraft supported the mission. This was the first time India had conducted air strikes in mainland Pakistan since 1971. On February 27, Pakistan conducted air strikes in the Poonch-Rajauri-Naushera sector in J&K where the PAF violated the Indian air space, although Pakistan continues to claim that its fighter jets did not intrude into the Indian air space. The PAF strikes aimed at the military targets were conducted with the JF-17s, F-16s, Mirage 5PA, SAAB Erieye AEW&C system aircraft and DA-20 Falcon. The strikes did not lead to any military or civilian loss and Pakistan claimed that it was a 'deliberate' attempt to avoid any casualties. The briefing by the ISPR chief brought out that the PAF air strikes were demonstrative of PAF capabilities and resolve, and, clearly, Pakistan didn't want escalation in any form. Islamabad, at this point of time, cannot afford escalation when it is undergoing a major economic crisis, feeling the hit of international isolation and facing major pressure from the International Monetary Fund (IMF) and Financial Action Task Force (FATF). The air battle between India and Pakistan resulted in the loss of a MiG-29 for India and an F-16 for Pakistan.

Certainly, India's actions in Balakot mark the beginning of a new approach from India. The message to Pakistan is clear: New Delhi is no longer ready to absorb Pak-sponsored acts of terror, and the cost of terrorism has been raised for Pakistan. Air Cmde Jasjit Singh, after the Kargil War, very aptly pointed out the role of air power in *punishment capabilities*:

India will have to increasingly rely on air power to deter war (limited, full-scale or even a nuclear exchange) both through its denial dimension as well as punishment capabilities.<sup>44</sup>

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44. Jasjit Singh, "Beyond Kargil", in Jasjit Singh, ed., *Kargil 1999: Pakistan's Fourth War for Kashmir* (New Delhi: Knowledge World, 1999), pp. 227-228.

Pakistan's purchases in the last 18 years reflect the military's realisation that strengthening the PAF's capabilities and the maritime aerial strike capabilities is critical.<sup>45</sup>

To sum up, the following conclusions can be drawn based on the publicly known information and analysis of trends in the current phase of modernisation of the Pakistan Air Force:

- The Pakistan Air Force has been engaged in a massive modernisation since 1990 (boosted after 9/11) both qualitatively and quantitatively. The thinking, writing and arms procurement in Pakistan indicates the historical consistency of approach to military capability—that is, the desire and efforts to acquire high technology arms to compensate for the asymmetry in numbers with respect to India and increase the options for an offensive strategy.
- The overall modernisation process indicates focus on the build-up of the air force and maritime strike capabilities of the navy.
- Pakistan is making significant efforts to add force multipliers in the PAF inventory.
- Chinese imports dominate the PAF acquisitions as Pakistan does not expect more equipment coming from the United States. Also, with China being the largest exporter of defence equipment for Pakistan, we need to understand that the economic crisis in Pakistan will not have a severe impact on the defence procurements. China has been offering leverages to Pakistan in terms of relaxed modes of payment, easy instalments and long duration of loans. This trend is likely to continue as the modernisation of the Pakistan military is in sync with Beijing's 'strategic interests'.
- Russian imports have started to find space in Pakistan's arms imports and this trend could potentially help Pakistan in accelerating the military build-up with high technology weapons.

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45. See, Jasjit Singh, "Kargil Echo in Pak Purchases", *The Indian Express*, November 28, 2004.

# SHIFTING TRENDS IN PAKISTAN'S MILITARY COOPERATION: FROM USA TO CHINA

GRANTH VANAİK

The Islamic Republic of Pakistan has, since 1947, expanded and diversified its military requirements to a very large extent. The defence expenditure in Pakistan, every year, holds a great share of the Gross Domestic Product (GDP) and has been constantly increasing. A very important reason for the surging defence expenditure to about \$11.4 billion<sup>1</sup> comprises the claims that Pakistan has repeatedly made of facing a threat to its survival from India. India rejected the "Two-Nation Theory" and, thus, Pakistan fears a military aggression from India. Pakistan, throughout its history, has been politically unstable and is still struggling to be a nation state, where there has not been a smooth run for democratic rule.<sup>2</sup> Pakistan Army has a very important role to play in the political scenario, making it one of the most influential organisations in the country. Hence, maintaining the belief that it faces a threat, Pakistan has been continuously depending upon its close allies for achieving the objective of being at par with its adversary in every field.

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1. Stockholm International Peace Research Institute (SIPRI), "World Military Expenditure Grows to \$1.8 Trillion in 2018," News release, April 29, 2019. <https://www.sipri.org/media/press-release/2019/world-military-expenditure-grows-18-trillion-2018>. Accessed on April 30, 2019.
2. Khaled Ahmed, "Pakistan and Nature of the State: Revisionism, Jihad and Governance," *Criterion Quarterly*, July 16, 2012, <http://www.criterion-quarterly.com/pakistan-and-nature-of-the-state-revisionism-jihad-and-governance/>. Accessed on April 29, 2019.

**With the global financial crisis in the year 2007-08, the US economy faced a recession and, hence, there was a drastic shift in the trend, whereby Pakistan started increasingly diversifying its imports of military equipment, to a large extent, from countries such as China, France, Italy, Russia, Switzerland, Ukraine, etc.**

from countries such as China, France, Italy, Russia, Switzerland, Ukraine, etc.<sup>3</sup> Also during this period, Pakistan strategically grew closer to China, which provided it financial and military aid in the form of weapons and technology transfers, including nuclear, thereby becoming the largest supplier of arms to Pakistan (a total value of about \$15.44 billion from 1964-2018). This has made China occupy the privileged position that the US had retained a few years ago in Pakistan.<sup>4</sup> This growing dependence has also been strengthened with China heavily investing in Pakistan with its China-Pakistan Economic Corridor (CPEC) project, bringing it into the ambit of China's grand strategy to revive the ancient Silk Route, under the Belt and Road Initiative (BRI).<sup>5</sup>

Since the beginning, Pakistan has depended heavily upon the United States of America, which provided it advanced military equipment, financial aid, military training and exercises, besides sharing of intelligence reports. However, the aid was related to the US' own interests in the region and did not satisfy the top elites in Pakistan. With the global financial crisis in the year 2007-08, the US economy faced a recession and, hence, there was a drastic shift in the trend, whereby Pakistan started increasingly diversifying its imports of military equipment, to a large extent,

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3. "Trend Indicator Values of Arms Exports to Pakistan, 1950-2018", SIPRI Database 2018. Accessed on April 24, 2019.
  4. Sushant Sareen, "China and Pakistan's 'Iron Brotherhood': The Economic Dimensions and Their Implications on US Hegemony," *ORF Occasional Paper, Eye on China*, no. 183, February 7, 2019, <https://www.orfonline.org/research/china-and-pakistan-iron-brotherhood-the-economic-dimensions-and-their-implications-on-us-hegemony/>. Accessed on April 30, 2019.
  5. P. K. Singh, "China-Pakistan Economic Corridor: Connecting the Dots," *Journal of the United Service Institution of India*, April-June 2017, CXLVII, no. 608, 2017, <https://usiofindia.org/publication/usi-journal/china-pakistan-economic-corridor-connecting-the-dots/>. Accessed on April 30, 2019.

This growing strategic nexus between China and Pakistan, much to the dismay of the USA, has deep repercussions not only for India's national security, but also for the whole world. Hence, this paper is an attempt to elucidate the growing military relations between Pakistan and China, in the contemporary times, and the reasons for the deliberate shift away from the US. It will also attempt to evaluate the implications for India.

#### **PAKISTAN'S MILITARY EXPENDITURE SINCE 2009**

Pakistan's military has been one of the most dominating forces in the dynamics of the country.<sup>6</sup> Among the three Services, it is the Pakistan Army that has a major role in the policy and budget formulation, and it consumes a major share of the budget. While the world military expenditure increased from \$1,531 billion in 2009 to \$1,822 billion in 2018, Pakistan's military spending, that ranked 20th in the world in 2018, saw a massive change of about 73 per cent, which is an increase of about \$6.13 billion from 2009.<sup>7</sup> It was \$5.27 billion in 2009 and increased to \$11.4 billion, growing by about 11 per cent (the same as in 2017). Also, it is a known phenomenon that Pakistan always spends more on its security forces than the official estimates project.<sup>8</sup> Such an elaborate expenditure is due to a number the factors, for instance, to counter the threat perceptions from India; for the global war on terror sponsored by

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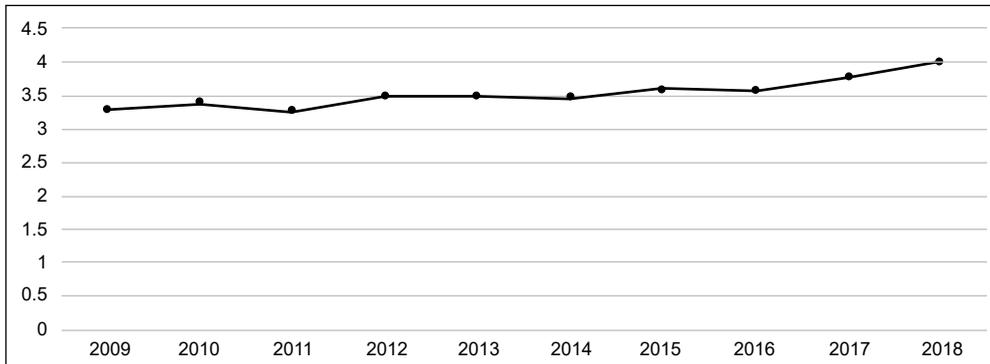
6. Shalini Chawla, "Pakistan Army: An Overview" in *Pakistan's Military and Its Strategy* (New Delhi: KW Publishers Pvt Ltd., 2009), p. 4.

7. Nan Tian, Aude Fleurant, Alexandra Kuimova, Pieter D. Wezeman, and Siemon T. Wezeman. "Trends in World Military Expenditure, 2018," SIPRI, April 2019, [https://sipri.org/sites/default/files/2019-04/fs\\_1904\\_milex\\_2018\\_0.pdf](https://sipri.org/sites/default/files/2019-04/fs_1904_milex_2018_0.pdf). Accessed on April 30, 2019.

8. Shane Mason, *Military Budgets in India and Pakistan: Trajectories, Priorities, and Risks*. (Report, Stimson Centre, 2016). [http://www.css.ethz.ch/content/dam/ethz/special-interest/gess/cis/center-for-securities-studies/resources/docs/Stimson\\_Military-Budgets-India-Pakistan-Trajectories-Priorities-Risks.pdf](http://www.css.ethz.ch/content/dam/ethz/special-interest/gess/cis/center-for-securities-studies/resources/docs/Stimson_Military-Budgets-India-Pakistan-Trajectories-Priorities-Risks.pdf). Accessed on May 5, 2019.

the USA, post 9/11 attacks; for the internal security of the country; and to counter militancy, and so on.

**Fig 1: Pakistan's Military Spending as share of GDP (%), 2009-18**



Source: SIPRI Military Expenditure Database, April 2019.

From 2007 onwards until 2009, there was internal turmoil between the judiciary and the government, the US had accused the country of playing a 'double game' in Afghanistan, and it was facing pressure from the international monetary organisations like the International Monetary Fund (IMF) and World Bank to decrease its defence budget in order to develop economically.<sup>9</sup> This drastically brought down the share of government spending, from what was 26.1 per cent in 2004, to about 16.9 per cent in 2009, owing to the economic situation and international pressure. It increased at a slow rate, only to reach 18.5 per cent in 2018, despite the diminishing US military and foreign assistance from 2011 onwards. The diminishing aid from the US forced it to diversify its procurement of equipment. This has led to the share of the GDP to be only 4 per cent in 2018, which reveals slow growth from 3.3 per cent in 2009 and a massive fall from 6.7 per cent in 1992, mainly due to diversification and Pakistan's vested interests in using non-

9. Muhammad Nadeem, Mirza, Zafar Jaspal, and Ahmed Ijaz Malik. "Military Spending and Economic Growth in Pakistan," *Research Gate*, January 2015, [https://www.researchgate.net/publication/292953327\\_Military\\_Spending\\_and\\_Economic\\_Growth\\_in\\_Pakistan](https://www.researchgate.net/publication/292953327_Military_Spending_and_Economic_Growth_in_Pakistan). Accessed on May 5, 2019.

state actors in the region, especially against India and Afghanistan. Post 1992, the share has been decreasing because of the various sanctions that were imposed on Pakistan, like the Pressler Amendment by the US.

Since democratic politics has not been a smooth affair for Pakistan, the military plays a very important role in the international and domestic policy affairs as well. Moreover, as Dr Shalini Chawla has pointed out, the military has the responsibility to not only protect Pakistan, but also to protect its Islamic identity.<sup>10</sup> The army has played a special role in emphasising its nationalism, which is to challenge a nation (India) which is many times bigger, and to somehow defeat it. The military takes over from the civilian leaders whenever it feels that this nationalism needs to be reiterated. Hence, the military's significant role justifies the budgetary amount it gets and is one of the prime reasons for the high military expenditure. The military significantly uses the budget to divert the national resources to fulfil its own interests of modernising the forces.

Another very important factor in Pakistan's increasing defence expenditure is the trend in the Indian military expenditure, which has increased approximately 29 per cent from \$38.72 billion in 2009 to \$66.6 billion in 2018. Nevertheless, the burden of India's military expenditure on the GDP is the lowest since the 1960s, that is, 2.4 per cent in 2018, yet it holds 3.7 per cent share of the total world expenditure<sup>11</sup>. This has also led Pakistan to increase its expenditure as well.

### **CHANGING TRENDS IN PAKISTAN'S DEPENDENCE ON THE UNITED STATES OF AMERICA**

Immediately after independence, Pakistan aligned itself with the US and became the first non-North Atlantic Treaty Organisation (NATO) nation to get technologically advanced military aid. The US aid enabled Pakistan to revamp and restructure its military that followed British conventions and traditions. In the time period from 1950 till 2018, Pakistan received

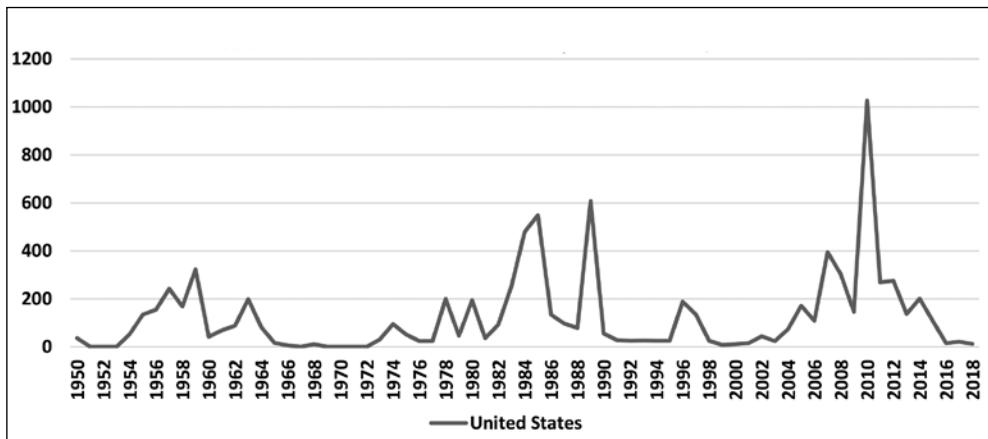
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10. Chawla, n. 6, p. 109.

11. Tian, et.al., n. 7, p. 2.

arms worth about \$8.51 billion (Fig 2) from the United States, though not without a break in between, as the US had not provided any foreign military funds to supply weapons to Pakistan for several years during this time period.

**Fig 2: United States Arms Export to Pakistan (in million \$), 1950-2018**



Source: "Trend Indicator Values of Arms Exports to Pakistan, 1950-2018", SIPRI Database 2018

Pakistan's strategic dependence has been more on military aid than economic aid from the US. The military support from the US (that was related to the US' geo-strategic interests) has helped the army in Pakistan to emerge as a premium fighting force.<sup>12</sup> As elaborated by Dr Shalini Chawla, Pakistan's alliance with the US can be briefly categorised into three phases or periods:<sup>13</sup>

- First, the period of the 1950s, when Pakistan joined the Southeast Asia Treaty Organisation (SEATO) and Central Treaty Organisation (CENTO). The alliance was drawn up by the US' commercial interests. Pakistan's adjoining the Persian Gulf and Strait of Hormuz, made it easy for the US to access energy resources and monitor the Soviets' and China's expansion.

12. Ahmed Waqas Waheed, "Pakistan's Dependence and US Patronage: The Politics of 'Limited Influence'," *Journal of Asian Security and International Affairs*, vol. 4, no. 1, April 1, 2017, pp.69-94. <https://journals.sagepub.com/doi/full/10.1177/2347797016689220>. Accessed on May 2, 2019.

13. Chawla, n. 6, pp. 35-36.

- Second, the period of alliance in the 1980s, due to the invasion of Afghanistan by the former Soviet Union, to support the Communist government, against the constant insurgency in the region. Hence, to counter this, the US led operations in Afghanistan that were coordinated and carried out from Pakistan, in return for the US ignoring the development of nuclear capability by Pakistan.
- Third, with the 9/11 attacks on the American soil in 2001, the US led an initiative of the Global War on Terror (GWOt) and made Pakistan the frontline state in tackling its raids in Afghanistan that were to decimate the Taliban.

During the alliance years, the US funded the Pakistanis heavily and, at the same time, the Pakistanis received mostly “second-hand”<sup>14</sup> equipment for strengthening their military (Refer Table 1).

**Table 1: Transfer of Major Arms to Pakistan From United States**

<b>During First Stage of Alliance (1950-early 1960s)</b>			
<b>Name Of Weapon</b>	<b>Weapon Description</b>	<b>No. Ordered</b>	<b>Year of Delivery</b>
M-36 Jackson	Tank	25	1958
M-4 Sherman	Tank	100	1950
F-86 F Sabre	Fighter Aircraft	80	1956-58
AIM-9B Sidewinder	SRAAM	500	1959-63
Canberra B-57 B	Bomber Aircraft	26	1959
F-104A Starfighter	Fighter Aircraft	12	1961-62
C-130B Hercules	Transport Aircraft	4	1963
Tench (Pakistani designation Ghazi)	Submarine	1	1964
<b>During Second Stage of Alliance (1980s)</b>			
Mk-46	ASW Torpedo	100	1978-80
Gearing FRAM-1 (Pakistani designation Tariq)	Destroyer	6	1978-83
F-16A	FGA Aircraft	40 & 14	1983-85 & 2005-08
AH-1S Cobra	Combat Helicopter	20	1984-86
RGM-84 Harpoon	Anti-Ship Missile	20	1987-88

14. “Transfers of Major Weapons: Deals with Deliveries or Orders Made for 1950 to 2018”, SIPRI Arms Transfer Database 2018. Accessed on April 30, 2019.

SHIFTING TRENDS IN PAKISTAN'S MILITARY COOPERATION

M-109A1 155 MM	Self-Propelled Gun	52	1988-89
Brooke (Pakistani designation Badr)	Frigate	4	1988-89
Garcia (Pakistani designation Saif)	Frigate	4	1988-89

<b>During Third Stage of Alliance (post 2001)</b>			
M-113/ M-113 A2/ M-113 A3	APC	1,050	2000-15
Paveway	Guided Bomb	100	2002
AH-1F Cobra	Combat Helicopter	12	2007
P-3 CUP Orion	Anti-Submarine Warfare Aircraft	7	2007-12
Mi-8 MT/ Mi-17	Transport	10 (6 on 5-year lease)	2009
F-16C Block-50/52	FGA Aircraft	18	2010
JDAM	Guided Bomb	500	2010-11
AIM-120 C AMRAAM	BVRAAM	500	2010-14
Perry	Frigate	1	2011
APG-68	Combat Aircraft Radar	35	2012-14
Scan Eagle	UAV	15	2015

*Source:* Author's compilation of data from SIPRI Arms Transfer Database 2018.

The US maintained relations with Pakistan for its own goals in South Asia such as curbing Soviet expansion and fighting terrorism. The Pakistanis maintained them for financial assistance and to have a powerful ally by their side in order to deter India. The largest arms export worth \$1.02 billion was given to Pakistan in 2010 to improve the counter-insurgency capabilities required to deal with the militants on the borders with Afghanistan<sup>15</sup>. However, the US had been wary about the potential nuclear capability of Pakistan and, hence, imposed sanctions on it in the 1990s. Before this, the US had restricted aid to Pakistan immediately after the end of the two wars in 1965 and 1971 with India. These sanctions forced Pakistan to constantly

15. Susan Cornwell, "Factbox: U.S. Has Allocated \$20 Billion for Pakistan," Reuters, April 21, 2011. <https://www.reuters.com/article/us-pakistan-usa-aid-factbox/factbox-u-s-has-allocated-20-billion-for-pakistan-idUSTRE73K7F420110421>. Accessed on April 30, 2019.

look towards other countries for modernisation and that was when China stepped in as a substitute. The US, in the 21st century, has never been able to (except in 2010) exceed the Chinese aid.

The US is concerned about the double game that Pakistan is playing in Afghanistan since it believes that it is quietly sponsoring the extremist groups from its territories to rebel against the US forces in Afghanistan, while it enjoys the lavish military aid given to it because of the war on terror.<sup>16</sup> The US, post 2010, has concerns about Pakistan's incapability in dealing with extremists groups like the Haqqani and Taliban, and providing safe havens to extremist leaders like Osama bin Laden, Masood Azhar, etc. in its territory. After the raids conducted by the US in Pakistan in May 2011 and the May 2016 drone strikes, it was proved necessary for the US to revisit the military aid in view of the constant encouragement by Pakistan to the extremists.<sup>17</sup> Significantly, in 2016, the relations deteriorated further when the US asked Pakistan to pay \$700 million for the F-16 Block-52 from its own national funds rather than the amount coming out of the Foreign Military Fund (FMF). This forced Pakistan to consider the offer made by Jordan to provide an older version of the aircraft<sup>18</sup>.

Since 2009, the US has reduced aid to Pakistan, from what was \$6.92 billion between Financial Year (FY) 2002-13, to only \$23 million in 2018.<sup>19</sup> With the new National Defence Authorisation Act for FY 2019, aid has been slashed down to \$150 million, a significant reduction from the \$700 million that the Pakistani government was authorised through the Coalition Support Fund

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16. Mirza, et al., n. 9.

17. Vanda Felbab Brown, "Why Pakistan Supports Terrorist Groups, and Why the US Finds It so Hard to Induce Change," Brookings, January 5, 2018, <https://www.brookings.edu/blog/order-from-chaos/2018/01/05/why-pakistan-supports-terrorist-groups-and-why-the-us-finds-it-so-hard-to-induce-change/>. Accessed on May 7, 2019.

18. Franz Stefan Gady, "US-Pakistan F-16 Deal Is Dead: Islamabad Mulling Jordan F-16 Fighter Jets Instead," *The Diplomat*, June 15, 2016, <https://thediplomat.com/2016/06/us-pakistan-f-16-deal-is-dead-islamabad-mulling-jordan-f-16-fighter-jets-instead/>. Accessed on May 7, 2019.

19. "U.S. Direct Overt U.S. Aid Appropriations for and Military Reimbursements to Pakistan", FY2002-FY2020, Federation of American Scientists Rept. March 12, 2019. <https://fas.org/sgp/crs/row/pakaid.pdf>. Accessed May 7, 2019.

**Most of the funds under FMF and CSF, meant for counter-insurgency activities and curbing drug trafficking, etc., were significantly diverted to procure combat weapons. Pakistan spent the money for other purposes, not aligned to the interests of the US, which forced the US to review its aid to Pakistan.**

(CSF), in 2018.<sup>20</sup> President Trump, in one of his first tweets of 2018, accused Pakistan of lies and deceit, and stated that the US had been foolish to have given Pakistan \$33 billion in the last 15 years, and also went ahead to suspend about \$255 million in military aid to Pakistan till it took action against the terrorist outfits operating in the country.<sup>21</sup> The two countries have, in the recent past, had fewer joint military drills and training, and only one ship took part in the Aman 2019 multinational naval exercise hosted in February 2019 by Pakistan.

Apart from this, the growing China-Pakistan nexus has also been a major factor. It had raised concerns over the nuclear capabilities that Pakistan was developing with Chinese assistance, especially at Chashma. The subsequent nuclear tests in 1998 created a rift in their relations and forced the US to impose sanctions on Pakistan. The US was apprehensive over the supply of the M-11 from China and sceptical about providing complex and technically advanced weaponry to Pakistan since it could give the Chinese access to it. For instance, in the crash of the Sikorsky UH-60 Black Hawk in 2011, it is believed that Pakistan allowed Chinese technicians access to the crash site.<sup>22</sup> Another case is that of the Tomahawk missiles that landed in 1998 and were reverse engineered by them to produce the Babur cruise missile. What is also necessary to question is: what exactly are the funds being used for by Pakistan? Most of the funds under FMF and

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20. "Congress Passes National Defence Authorisation Act 2019 Capping U.S. Aid to Pakistan to \$150 Million," *The Hindu*, August 2, 2018, <https://www.thehindu.com/news/international/congress-passes-national-defence-authorisation-act-2019-capping-us-aid-to-pakistan-to-150-million/article24578674.ece>. Accessed on May 7, 2019.

21. Sareen, n. 4, p. 2.

22. Mark Mazzetti, "U.S. Aides Believe China Examined Stealth Copter." *The New York Times*, August 15, 2011, <https://www.nytimes.com/2011/08/15/world/asia/15copter.html>. Accessed on May 8, 2019.

CSF, meant for counter-insurgency activities and curbing drug trafficking, etc., were significantly diverted to procure combat weapons.<sup>23</sup> Pakistan spent the money for other purposes, not aligned to the interests of the US, which forced the US to review its aid to Pakistan.

Perceptions about the aid have changed in Pakistan too. It accused the US of helping the country only when its own interests were at stake. Apart from this, it didn't care about the Pakistanis. According to Pakistan's own internal calculations, US aid has comprised less than one per cent of the country's budget and can be substituted from other sources.<sup>24</sup> Even after the remarks by President Trump, Pakistan appeared unconcerned since it had diversified, and could survive with aid from other sources. It claims that nations like China, Saudi Arabia, Iran and Russia have readily agreed to come to its assistance, whenever required<sup>25</sup>. Compared to the US, the Chinese are less interfering in internal matters, and despite Chinese weapons being of lower quality than US weapons, they are easily available, on relaxed repayment terms and at cheaper rates<sup>26</sup>. China has always come to the aid of the Pakistanis whenever the US has tightened the strings of its military aid.

The Pakistanis are also miffed with the United States because of the latter's growing strategic partnership with India. They feel it is difficult to trust a nation that allies with the enemy and, thus, look up to China for joint development of equipment and technology transfers. Pakistan has

**Due to the highly transactional relations between the US and Pakistan, it was necessary for Pakistan to have partnerships with other countries and, specifically, when it was facing sanctions from the West. Such sanctions proved that the US could not be a trusted ally and security guarantor.**

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23. Hussain Nadim, "Neither Friend nor Foe: Pakistan," Lowy Institute, September 28, 2017, [https://www.lowyinstitute.org/sites/default/files/documents/Nadim - Pakistan, the United States and the war in Afghanistan\\_WEB.pdf](https://www.lowyinstitute.org/sites/default/files/documents/Nadim - Pakistan, the United States and the war in Afghanistan_WEB.pdf). Accessed on April 24, 2019.

24. Sareen, n. 4, p. 2

25. Ibid., p. 2.

26. Chawla, n. 6.

grown closer to China post the Indo-US nuclear deal in 2008, COMCASA (Communications, Compatibility and Security Agreement) and is worried about the arms that the US is providing to India, such as the advanced AH-64E(I) Apache Guardian combat helicopters, the first of which was delivered on May 10, 2019; and the CBU-97 SFW guided bomb, RGM-84L Harpoon-2 anti-ship missile for its Jaguar fleet, etc.<sup>27</sup> This has led Pakistan to look for other options from where it can procure arms, and consider diversification plans.

### **DIVERSIFICATION OF ARMS IMPORTS FOR PAKISTAN**

Due to the highly transactional relations between the US and Pakistan, it was necessary for Pakistan to have partnerships with other countries and, specifically, when it was facing sanctions from the West. Such sanctions proved that the US could not be a trusted ally and security guarantor, primarily when it was also aiding India. Hence, one can note from the statistical trends that the US and UK were the only two prime exporters of arms to Pakistan, immediately after it gained independence, and in the 1950s. The 1960s saw China, Germany, France, Jordan and Indonesia coming in, and also the Soviet Union provided it arms at the end of the decade, but stopped its exports shortly after that. In the 1970s, after the war with India, the exports from the US and UK went down to zero, and China and France took the lead. The 1970s also brought exports from Sweden (1974) and Italy (1975), with US arms picking up slightly because of their growing interests. The 1980s were crucial as exports from Switzerland, the US, China and France were used to modernise, and to fight the Soviets in Afghanistan.

The 1990s saw sanctions from the US, and China significantly increasing its arms exports, with French exports, on the other hand, diminishing. This decade saw the Russians exporting arms, with Ukraine, North Korea and Netherlands supporting with their arms. The first decade of the 21st century, saw a significant amount of exports from China (which overtook

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27. n.14.

the US in arms exports), but also a significant rise in exports from the US, in the aftermath of the 9/11 attacks. Pakistan started importing from Italy, France (heavily), Ukraine, Sweden, Switzerland and found new partners in Libya and Turkey, which started to build strategic partnerships with Pakistan.

Post 2009, US arms exports reduced significantly, except in 2010. This decade saw Chinese exports reaching new heights, making it a security guarantor, with France reducing exports, in line with Switzerland and Sweden. In the same time period, the UAE and Turkey maintained some exports and Russia had also been significantly picking up with its exports, which had a strong implication for India. By analysing the statistical data, one can conclude that the following top eight countries in arms exports: China, with exports are worth \$15.44 billion; the US, with arms exports worth \$8.51 billion; France is third, with exports worth \$4.28 billion; fourth is the UK, whose exports are worth \$2.22 billion; Ukraine ranks fifth with exports valued at \$1.63 billion; Switzerland is sixth, with exports worth \$895 million; Italy, seventh, has arms exports valued at \$743 million; and, finally, Russia, with arms exports worth \$693 million.

It is evident that exports of arms from China have been increasing even as those from USA have been reducing. France, which is third, has significantly maintained the track record of high exports of arms in one year and, subsequently, reducing the exports in another year. What it reveals is that nations like Italy and Russia have picked up arms exports, which will, going by the trends, obviously see an increase in the future.

**Table 2: Pakistan's Diversified Military Cooperation with Major Countries  
(as of May 2019)**

Country	Total Military Aid (1950-2018)	Major Arms Exported (1950-2018)	Other Military Cooperation (deals/transfers/training/exercises/joint operations)
FRANCE	\$4.28 billion	3 Daphne Class submarines, E-14 550 mm torpedo, L 3 550 mm torpedo, Mirage-3E, Mirage-5, R-530 BVRAAM, R-550 Magic-1 SRAAM, 2 Agosta 90B and 1 Agosta-90B MEMSA submarines, SA-316B Alouette-3 helicopters (second-hand), AS-3350/AS-550 Fennec	<ul style="list-style-type: none"> <li>• \$200 million deal to modernise submarines at Pakistani Naval Dockyard.</li> <li>• Transfer of technology to develop Agosta submarines at KS&amp;EW.</li> <li>• Took part with Pakistan in joint air and naval exercise, Mission Agapanthe, in 2006 and in, AMAN 2019, in February.</li> <li>• Deal to supply 'civil nuclear technology' in 2009.</li> </ul>
UK	\$2.22 billion	O Class (second-hand), EWP, Battle and County destroyers, Leander and Amazon frigates, Sea Fury and Attacker fighter aircraft, Sea King HAS-1 ASW, SA-316B Alouette-3 and Sea King/Commando helicopters	<ul style="list-style-type: none"> <li>• Took part in AMAN 2019.</li> <li>• Pakistan took part in an international military drill in 2018 called Pace Sticking Competition, held in the UK.</li> </ul>

Country	Total Military Aid (1950-2018)	Major Arms Exported (1950-2018)	Other Military Cooperation (deals/transfers/training/exercises/joint operations)
ITALY	\$743 million	MG-110 Midget submarines, A244 324 mm ASW Torpedo, Grifo combat aircraft radars, Falco UAV, Aspide BVRAAM/SAM, M-109 A1 155 mm self-propelled guns (second-hand), AW 139 helicopters	<ul style="list-style-type: none"> <li>• In 2013, signed Strategic Engagement Plan.</li> <li>• Held meetings on side lines of Pakistan-Italy Joint Committee on Defence Systems</li> <li>• Many agreements between Pakistan Ordnance Factory and Italian defence companies.</li> <li>• Took part in AMAN 2019 and on the sidelines of Anadolu Ankasi air exercises respectively with Pakistan in 2019.</li> </ul>
RUSSIA	\$693 million	Mi-8/Mi-17 transport helicopters, RD-33 Turbofan for JF-17 Thunders, 2 AK-630 30mm naval guns, 4 Mi-35 'Hind E' combat helicopters (possibly second-hand)	<ul style="list-style-type: none"> <li>• Pakistan took part in Russian Army War Games in 2015 and in Master of Air Defence Battle in August 2015.</li> <li>• Held joint exercises called "Friendship" since 2016.</li> <li>• Russia took part in AMAN 2019 naval exercise.</li> </ul>

Country	Total Military Aid (1950-2018)	Major Arms Exported (1950-2018)	Other Military Cooperation (deals/transfers/training/exercises/joint operations)
TURKEY	\$259 million	Panther 155 mm towed gun, 4 MilGem frigates, T-37 B trainer aircraft, ASELPOD aircraft EO system, A-129C Mangusta combat helicopter	<ul style="list-style-type: none"> <li>• Both agreed to modernise the F-16s fleet of the PAF.</li> <li>• Technology transfer from Turkey to develop 2 MilGem frigates at KS&amp;EW</li> <li>• Deal to together develop UAVs for their forces and also assistance in mid-life upgradation of 1 Agosta-90B submarine</li> <li>• Took part in trilateral military drill, Partnership Shield 2019 with Pakistan and Uzbekistan</li> <li>• Took part with Pakistan Navy in Turgutreis-III in 2019, in AMAN 2019 naval exercise, and in May 2019 with Pakistan, Uzbekistan and Azerbaijan in Mustafa Kemal Ataturk exercise.</li> </ul>

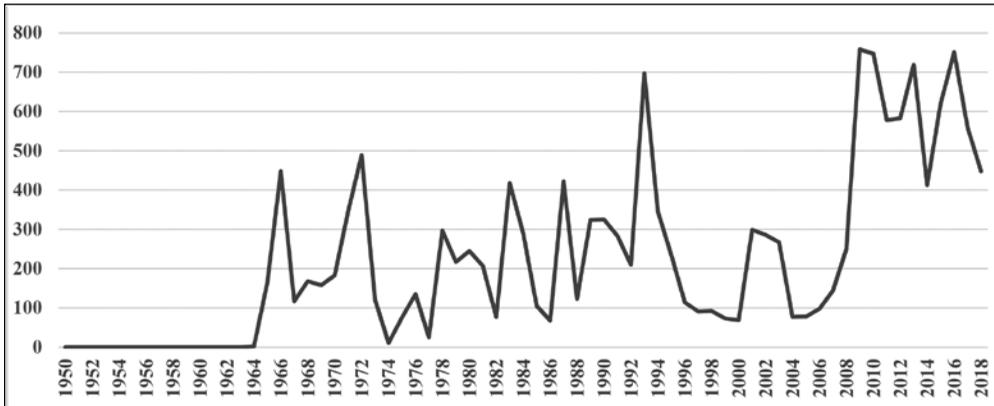
Source: Author's compilation of data from SIPRI Arms Database 2018 and news reports available from various sources.

### PAKISTAN'S MILITARY DEPENDENCE ON CHINA

China is one of the closest allies that Pakistan has currently and their relations have stood through thick and thin. Gen Xiong Guangkai rightly said that "Pakistan is China's Israel".<sup>28</sup> China is currently the largest exporter of arms to Pakistan, with arms worth \$15.44 billion. It has helped Pakistan to domestically produce weapons by transferring technology, and has invested heavily in Pakistan with the China-Pakistan Economic Corridor (CPEC) and major developmental projects that can be used by the militaries of both countries for their strategic interests.

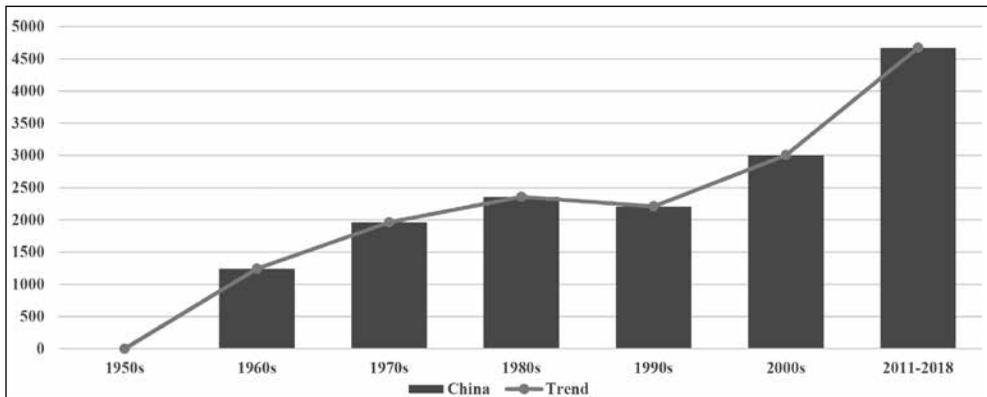
28. Andrew Small, *The China-Pakistan Axis: Asia's New Geopolitics* (London; United Kingdom: Hurst & Company, 2015).

**Fig 3: China's Arms Exports to Pakistan (in million \$), 1950-2018**



Source: "Trend Indicator Values of Arms Exports to Pakistan, 1950-2018", SIPRI Database 2018.

**Fig 4: China's Arms Export per Decade to Pakistan (in million \$), 1950-2018**



Source: "Trend Indicator Values of Arms Exports to Pakistan, 1950-2018", SIPRI Database 2018.

In 1950, the two countries formally began their relations that were born out of shared enmity with India: they resolved the boundary issues in 1963, and Pakistan ceded the Shaksgam Valley to China. The military relations were established in 1964 and Pakistan received the first set of arms exports worth \$2 million the same year. In 1965, immediately after the sanctions were imposed by the West, China stepped in to support Pakistan with its weapons in 1965 (worth \$168 million) and 1966 (worth \$448 million), indicating

**The 21st century saw China make significant strides in assistance that allowed it to overtake the US and made it Pakistan's most reliable ally. China exported a total of \$3.004 billion worth of weapons. Pakistan shifted completely to China after the global financial crisis in 2007-08 that took the US economy into a recession.**

military cooperation that would grow in the future. In the 1960s, Pakistan received arms worth \$1.2 billion and in the 1970s, it received arms worth \$1.96 billion. The 1980s saw a significant increase to \$2.35 billion primarily because of the invasion of Afghanistan, and the rapprochement of China with the USA that brought in aid and protection.<sup>29</sup>

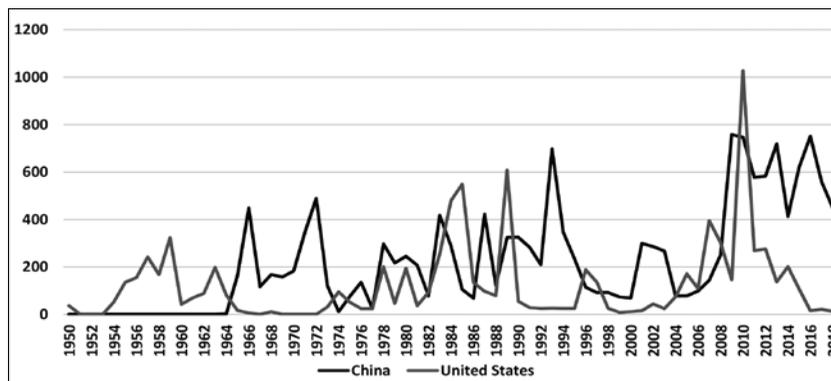
In the 1990s, Pakistan relied comparatively more on China than the US (Fig. 5), which, by then, had started losing its importance for the country. China in total provided arms

worth \$2.2 billion to satisfy Pakistan's requirements primarily because of two significant developments: (i) Pakistan started developing nuclear technology with Chinese assistance and conducted its first nuclear test in 1998; (ii) Pakistan had a limited war with India in 1999 in Kargil. Pakistan also signed agreements with China to jointly produce some military equipment (Table 4). The 21st century saw China make significant strides in assistance that allowed it to overtake the US and made it Pakistan's most reliable ally. China exported a total of \$3.004 billion worth of weapons. Pakistan shifted completely to China after the global financial crisis in 2007-08 that took the US economy into a recession. Post 2010, China has provided arms worth \$4.6 billion, which is an all-time high. The China-Pakistan alliance broadened and went beyond a military and strategic partnership with the implementation of the CPEC, which is worth \$62 billion.<sup>30</sup>

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29. Ibid.

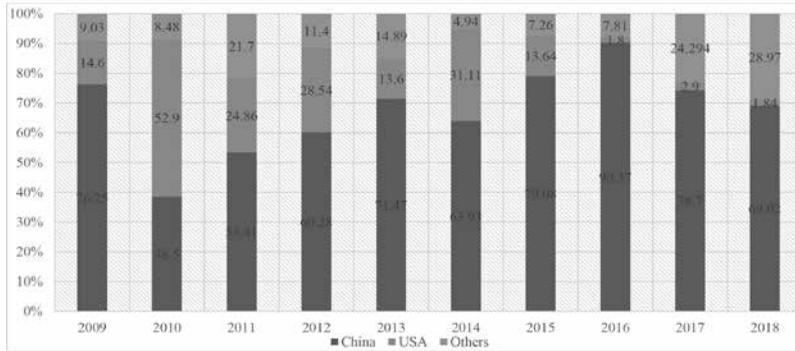
30. Shalini Chawla, "Has The Chinese Assistance Made Pakistan Secure?" *Defence and Diplomacy In Pursuit of National Security*, vol. 7, no. 4, July-September 2018, p. 19.

**Fig 5: US and China's Arm's Exports to Pakistan (in million \$), 1950-2018**

Source: "Trend Indicator Values of Arms Exports to Pakistan, 1950-2018", SIPRI Database 2018.

Pakistan's percentage share of exports in arms post 2009, clearly indicates that China has the highest percentage share with 69.02 per cent (Fig. 6). The share of the US has fallen consistently from 14.6 per cent in 2009 to only 1.84 per cent in 2018, showing the distrust that the Americans have about Pakistan. Pakistan, itself has lowered its procurement of weapons from the US since they are expensive and the repair work on the equipment, especially the F-16s, has to be done outside the country. The US has not transferred technology to Pakistan to enable it to undertake repairs on its own. Hence, the Pakistanis have shifted to China. Moreover, Pakistan had found in China an alliance that was not transactional, unlike with the US. The Chinese military aid subsequently rose and fulfilled Pakistan's dreams of modernisation and power against India.

**Fig 6: Per centage Share of Export of Arms to Pakistan (2009-18)**



Source: “Trend Indicator Values of Arms Exports to Pakistan, 1950-2018”, SIPRI Database 2018.

Chinese exports rose because of the technology transfers and licences they provided to Pakistan to domestically produce arms, ammunition and major conventional weapons like the JF-17 Thunder, Al-Khalid tank, etc. This made Pakistan rely more on China. However, the shift from the US towards China has not been very beneficial, as now, with minimal social connections between the Chinese and Pakistani societies, the population in Pakistan knows little about the Chinese and their intentions, and in such a scenario, the cooperation between the two nations has almost made Pakistan into, what experts term, a ‘vassal state’ of China, with the latter having a great amount of influence in the security matters, foreign and domestic politics as well as economic matters of Pakistan. Pakistan’s growing debt burden towards China has forced it to revisit some of its available options and compelled it to reduce the loans that it was granted, in view of its repayment capacity.

**Table 3: Transfer of Major Arms to Pakistan from China (2000-18)**

Name of Weapon	Weapon Category	Quantity Ordered	Year of Delivery
Red Arrow-8 (Baktar Shikan)	Anti-tank missile	Not specified (24350 delivered)	1990-2018
F-7 MG	Fighter aircraft	57	2001-2003
K-8 Karakorum-8	Trainer/Combat aircraft	33	2001-2010

Name of Weapon	Weapon Category	Quantity Ordered	Year of Delivery
Type-90-2M/MBT-2000 (Al-Khalid versions)	Tank	530 (340 delivered)	2001-2018
C-802/CSS-N-8	Anti-ship missile	250 (+80 for 6 Type-041 submarines)	2006-2017 (more in future)
JF-17 Thunder/FC-1 (Block-1,2,3 versions)	FGA aircraft	150	2007-2020
AS 565S Panther ( Z-9EC Version)	ASW helicopter	6	2009-2010
F-22 (Zulfiqar class)	Frigate	4	2009-2013
PL-12/SD-10	BVRAAM	600 (425 delivered)	2010-2018
LS-3	Guided bomb	750 (650 delivered)	2010-2018
ZDK-03 (designated KE-03)	AEW&C aircraft	4	2011-2014
CM-400AKG	Anti-ship missile	50	2012-2016
Azmat	Corvette	4	2012-2017
CH-3	UAV/UCAV	20	2013-2016
WZ-10	Combat helicopter	3	2015
Wing Loong-1	UAV/UCAV	5	2015
Type-041/Yuan (S-20 version)	Submarine	8	2022-2028 (Planned)
Yu-4 533 mm	AS Torpedo	100 (for 6 Type-041 submarines)	Not Specified
Type-054A/Jiangkai-2	Frigate	4 (option on 2 more)	Not Specified (work on 1 out of 4 started in Jan 2019)

Source: "Transfers of Major Weapons: Deals with Deliveries or Orders Made for 2000 to 2018", SIPRI Arms Transfer Database 2018.

### ANALYSING MILITARY COOPERATION BETWEEN CHINA-PAKISTAN

Table 3 shows the advanced weaponry systems that Pakistan has received from China. These weapons are enhancing the capability of Pakistan by equipping it with technology that is not openly exported among countries. Keeping in mind the escalation of tensions from time to time between India and Pakistan, such weapons are upgrading the strike capability of Pakistan, for instance, the JF-17 Thunders that Pakistan deployed in the aerial dogfight

**The induction of 8 Yuan class submarines (a few to be built in Pakistan) and 4 Type-054AP frigates (one of which is already under construction), is believed to strengthen the Pakistan Navy to carry out its surveillance activities in the Arabian Sea and Indian Ocean Region (IOR).**

with India on February 27, 2019, a day after India had conducted the Balakot air strikes on the Jaish-e-Mohammed (JeM) camps in Pakistan. It is also importing the Wing Loong 1 armed drones for improving its aerial strike capability. Such equipment will enable it to execute a full-scale conventional war and try to outsmart the Indian forces by achieving superiority. Advanced systems like the Al-Khalid II tanks (production started in November 2017), LY-80 (acquisition reported in August 2017) and Babur III sub-sonic cruise missiles would enable its forces to undertake defensive and counter-offensive

operations. Tensions with India have made it necessary for Pakistan to be ever ready and well-equipped. Incidentally, the induction of 8 Yuan class submarines (a few to be built in Pakistan) and 4 Type-054AP frigates (one of which is already under construction), is believed to strengthen the Pakistan Navy to carry out its surveillance activities in the Arabian Sea and Indian Ocean Region (IOR).

Also, it is the Chinese interests in Gwadar and Jiwani ports, and developing them for commercial use, that are important to note. The strategic positions of these ports point to their possibility that they will be turned into naval bases for China, given the amount of money it has been pouring in for investments.<sup>31</sup> Development of these ports and transfer of technology will enhance Pakistan's capability for surveillance, and also help China overcome its Malacca dilemma. These ports will also help Pakistan decongest its bases at Karachi and Ormara and relocate these away from the Indian territory from where they can carry out secret operations, with the Chinese assistance. In 2017, China handed over two maritime patrol vessels to Pakistan for

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31. Maj Gen RPS Bhadauria, VSM (Retd.) (Distinguished Fellow, United Services Institution of India, New Delhi), in discussion with the author, May 16, 2019.

joint patrolling rounds along the sea route of the CPEC.<sup>32</sup> Hence, the inflow of weapons has been to secure Chinese interests in the region that are aligned with those of Pakistan. Pakistan has not only got the maximum types of arms that are produced in China, but has also developed its own domestic defence industries to produce weapons with Chinese assistance. The Pakistani forces today have a greater number of 'purely Chinese manufactured' or 'manufactured with assistance' equipment forming the backbone of their military arsenal.

In its desire for surplus equipment, Pakistan has repeatedly emphasised the need to boost its domestic manufacturing capability (as mentioned earlier). China has helped Pakistan with almost all its big and small needs (Table 4), despite facing sanctions from the US. China helped Pakistan to develop major production units domestically to facilitate growth in arms, like the Aircraft Manufacturing Factory that manufactured the Karakorum-8 jet trainer; and National Aero-Technology Import and Export Corporation, etc. China has transferred technology for the Karachi Shipyard and Engineering Works (KS&EW) to build naval ships, especially frigates, destroyers and submarines, has assisted in establishing defence production units, often free of cost, for example, Heavy Industries Taxila, which manufactures the Al-Khalid and Al-Zarrar tanks, etc., and has also assisted in developing the Heavy Mechanical Complex Limited. Pakistan has shown considerable interest in procuring the J-31, the fifth generation stealth aircraft from China.

**A very important part of the project is the existing Karakorum Highway (KKH). This highway has been advantageous to both countries and they have used it for transshipment of arms. China has exported arms via this region, enhancing its own capabilities to be able to station its forces along the Indian border. Pakistan has also used the same corridor to smuggle some of the unexploded American missiles for reverse engineering.**

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32. Shalini Chawla, "China-Pakistan Relations: Understanding The Strategic Alliance," in *Asian Defence Review 2017* (New Delhi: KW Publishers Pvt Ltd, 2017), pp. 1-25.

**Pakistan has for a very long time been the hub for nuclear proliferation in the region and has also proliferated the technology to Iran, Libya and North Korea through the illicit network of AQ Khan.**

The CPEC will enhance the infrastructure and economic capabilities for Pakistan. Other positive outcomes such as generation of job opportunities and business prospects are hoped for. A very important part of the project is the existing Karakorum Highway (KKH). This highway has been advantageous to both countries and they have used it for transshipment of arms. China has exported arms via this region, enhancing its own capabilities to be able to station its forces along the Indian border. Pakistan has also used the same corridor to smuggle some of the unexploded American missiles for reverse engineering through this highway. The KKH facilitates movement of military supplies for immediate use and can see heavy deployment of troops and armaments in case a war occurs, involving both countries with India.<sup>33</sup>

**Table 4: Pakistan’s Major Domestically Manufactured Defence Products as of May 2019 (with Chinese assistance)**

<b>Pakistan Ordnance Factory</b>		
Name of Weapon	Weapon Category	Exporting Regions or Nations
Machine Gun MG 3 (MG1A3)	Infantry Weapon	Exports to countries in Asia, Far East, Africa, Middle East, North America, the Central Asian States and Europe.
Anti-Aircraft Machine Gun 12.7MM Type 54	Infantry Weapon	
Bomb HE AC 500 Lbs	Aircraft and anti-aircraft ammunition	
<b>Pakistan Aeronautical Complex, Kamra</b>		
JF-17 Thunders (Block 1,2,3)	Fighter Aircraft	JF-17s exported to Nigeria and Myanmar; K-8 exported to Angola, Bangladesh, Bolivia, Egypt, Ghana, Myanmar, etc. Mushaks exported to Nigeria, Turkey, Iraq, Saudi Arabia, Azerbaijan, etc.
Karakorum-8 (K-8)	Basic-cum-Advance Jet Trainer	
MFI-17 Mushak	Basic Trainer Aircraft	

33. Bhadauria, n. 31

<b>Heavy Industries Taxila</b>		
Al-Khalid	Tank	Al-Khalid exported to Morocco, Bangladesh, Myanmar, Sri Lanka; Talha and its variants (including Saad) exported to Iraq
Al-Zarrar	Tank	
Saad and Talha	APC	
<b>Global Industrial &amp; Defence Solutions, Rawalpindi</b>		
Shahpar, UQAB, Huma, Scout Mini	UAV/ Tactical UAV System	Anza missiles exported to Malaysia. Shahpar exported to Saudi Arabia; UAE, Indonesia, Egypt, etc. have shown interest in UQAB; Bakhtar Shikan exported to Bangladesh and Malaysia
Anza Mk-II	Surface-to-Air Guided Missile	
Bakhtar Shikan (HJ-8 :- Chinese variant)	Anti-Tank guided Missile System	
<b>Karachi Shipyard and Engineering Works</b>		
F-22 P (PNS Aslat)	Frigate (Zulfiqar class)	Karachi shipyard has not exported any major naval weaponry as of now to other nations and is manufacturing ships, primarily operated by the Pakistan Navy.
Agosta 90B (PNS <i>Hamza &amp; Saad</i> )	Submarine (developed with France)	
Jalalat II Class (PNS <i>Jalalat &amp; Shujaat</i> )	Missile Boat	

Source: Author's compilation of data from the Ministry of Defence Production, Government of Pakistan.

### ***China's Assistance to Nuclear and Missile Sector of Pakistan***

Pakistan, led by Dr. AQ Khan, has taken great Chinese help to develop the nuclear competence to secure its territories. It was rightly opined by nuclear proliferation analyst Gary Milhollin, that if one removes the Chinese assistance from Pakistan's nuclear programme, there would not be one at all.<sup>34</sup> After the defeat in the 1971 War, it became essential for Pakistan to attain nuclear ability, especially when India first conducted its nuclear test in 1974 and later in 1998. The US was never in favour of Pakistan's nuclear pursuits, yet during their partnership years, it ignored this aspect because of its own national interests.

Pakistani scientists visited China a number of times to understand the technology and China did not hesitate in assisting and transferring technology. Pakistan's main objectives were to outsmart the Indian superiority, to deter

34. Ibid.

**Most of these joint exercises with China are primarily under the Western Theatre Command of the People's Liberation Army (PLA). Exercises in Chengdu are focussed on high altitude operations, with special emphasis on the use of space-based reconnaissance. With these exercises, both militaries have achieved a high degree of interoperability, joint planning and intelligence sharing.**

a war, and secure its territory. China was instrumental in providing Pakistan with the know-how of the ways in which it could develop, the bombs including allowing Pakistani scientists in a nuclear test in Lop Nur in 1983. Second, it assisted them in developing their nuclear plants, especially at Chashma, Kahuta, Khushab, and now at Karachi (scheduled to be completed in 2021), and many more being developed under Chinese guidance<sup>35</sup>. Despite being a signatory to the nuclear Non-Proliferation Treaty (NPT), Nuclear Suppliers' Group (NSG) and Comprehensive Test Ban Treaty (CTBT), China continued to provide

Pakistan with warhead designs, highly enriched uranium, heavy water, ring magnets, assistance in developing a plutonium production reactor, etc.<sup>36</sup>

China also assisted in manufacturing a number of systems, especially missiles, aircraft, ships and submarines that are capable of delivering nuclear warheads on the enemy. Most famously, China assisted in the ballistic missile category with the M-9, M-11 missiles, Hatf series (Abdali, Shaheen, Ghauri, Nasr, etc.) and in the cruise missile category with the Hatf-8 (Ra'ad) and the reverse engineered Tomahawk missile,<sup>37</sup> the Babur, that can be fired from all facilities. Pakistan recently tested the Babur-III in 2017 at an undisclosed location in the Indian Ocean. China has also supplied Pakistan with the Surface-to-Air Missile (SAM), and also agreed to supply the CM-302 anti-ship missile that can be delivered from the Type-054 A, equipped with modern weapons capable

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35. V. N. Veda, "Evolution of Pakistan's Nuclear Programme," in *Pakistan's Nuclear Weapons*, New Delhi Papers: 3 (New Delhi: KW Publishers Pvt Ltd, 2012), pp. 1-15.

36. Ibid.

37. Shalini Chawla, "Nuclear Delivery Systems." in *Nuclear Pakistan* (New Delhi: KW Publishers Pvt. Ltd, 2012), pp. 100-110.

of countering India.<sup>38</sup> Quite obviously, with such technology, China will try to keep India entangled in the South Asian region. On the other hand, Pakistan is elated and feeling secure despite the economic and social problems faced by it. Pakistan has for a very long time been the hub for nuclear proliferation in the region and has also proliferated the technology to Iran, Libya and North Korea through the illicit network of AQ Khan.

### *Military Training and Exercises*

Apart from weapons trade and technology transfers, both nations' militaries have also engaged each other in various drills and military exercises to improve joint operational capability, and have had delegations of officers visiting other's country for training. For instance, both countries were involved in a joint air exercise in December 2018 called the Shaheen-VII, and in the Warrior VI special forces exercise from December 2018 to January 2019. Both took part in the Aman 2019 exercise in January-February, for which China sent two of its warships.<sup>39</sup> These exercises tremendously increased the cooperation between the two and their ability to carry out combat operations in case their assets are threatened in either's territory. Most of these joint exercises with China are primarily under the Western Theatre Command of the People's Liberation Army (PLA). Exercises in Chengdu are focussed on high altitude operations, with special emphasis on the use of space-based reconnaissance. With these exercises, both militaries have achieved a high degree of inter-operability, joint planning and intelligence sharing.

Both countries have also been making joint efforts to manage militancy and terrorist activities. Chinese workers have been repeatedly targeted in Pakistan and are most vulnerable there. The Chinese are extremely concerned about the growing militancy in the region that can spill over to the volatile Xinjiang

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38. "Game-changing Chinese Missile to Pakistan a 'Deterrent'," Anadolu Agency, January 12, 2019. <https://www.aa.com.tr/en/asia-pacific/game-changing-chinese-missile-to-pakistan-a-deterrent-/1362546>. Accessed on May 19, 2019.

39. Manu Pubby, "China Backs 'Iron Brother' Pakistan with Primary Weapons and Complex Exercises," *The Economic Times*, March 15, 2019, <https://economictimes.indiatimes.com/news/defence/china-backs-iron-brother-pakistan-with-primary-weapons-and-complex-exercises/articleshow/68418192.cms>. Accessed on May 19, 2019.

province. Hence, to secure their assets, especially the CPEC, from any threat, both have together deployed armed forces, paramilitary forces and private security companies. Chinese private security companies have initiated a joint venture with Pakistan's domestic companies that are directly linked with the armed forces to protect their interests: the Chinese Overseas Security Group has a joint venture with a Pakistani private security company which has links with the Pakistan Navy.<sup>40</sup> In a first, the PLA and Pakistan's border police force have carried out a joint patrol along their shared border. While China has been patrolling its border since 2014, this is the first time that Pakistan joined such patrolling that has been taking place in Pakistan Occupied Kashmir (PoK).<sup>41</sup> The Pakistani armed forces have raised a Special Security Division for the CPEC consisting of 15,000 dedicated soldiers, including 9 army battalions and 6 wings of civilian armed forces, commanded by a major general. China, as per reports in 2018, may also deploy its marine corps, which shall act as the principal force for protecting assets in the region.<sup>42</sup>

Deploying such a force was necessary to protect China's geo-strategic interest which was entry into the warm waters of the Arabian Sea via Pakistan, as an alternative to the Malacca dilemma. China also perceives the alliance as an entry into the Muslim world, with development programmes and assistance. In view of the strategic interests of China, its dream to attain the status of a superpower in the region and be able to counter an emerging India and the existing superpower (the US), it will maintain a strategic partnership with Pakistan and try to entangle India in South Asia, while ringing alarm bells in Washington about their growing nexus.

## IMPLICATIONS FOR INDIA

On the security front, the growing nexus creates the much debated, two-front

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40. Saira H Basit, "CPEC Emboldens China and Pakistan's Joint Effort to Manage Militancy," *The Diplomat*, April 6, 2019, <https://thediplomat.com/2019/04/cpec-emboldens-china-and-pakistans-joint-effort-to-manage-militancy/>. Accessed on May 19, 2019.

41. Bhadauria, n. 31.

42. David Brewster, "Security Forces May Accompany China's Belt and Road Abroad," *The Maritime Executive*, November 30, 2018, <https://www.maritime-executive.com/editorials/security-forces-may-accompany-china-s-belt-and-road-abroad>. Accessed on May 19, 2019.

war dilemma, as both countries have strategic interests to overpower India and simultaneously command the nuclear capability to target any strategically important location in India. This becomes a security threat, making it necessary for India to modernise its armed forces rapidly in case of an emergency. This nexus has led to an increase in the arms race, with all three countries trying to modernise and be at par with each other. Pakistan's possession of the JF-17 Thunders and F-16s, its procurement of the Yuan (S-20 version) submarines and Type-054A frigates is building its ability for a second strike. This has led India to boost its production of the Light Combat Aircraft (LCA) Tejas, capable of carrying the BrahMos missile, increase the process of procuring the medium multi-role combat aircraft and also develop its own fifth generation stealth aircraft, the Advanced Medium Combat Aircraft (AMCA).

With the CPEC, Chinese troops have a presence in POK, making it another concern, since it adds another issue to the Kashmir conundrum between India-Pakistan. Although China has claimed that Kashmir is a bilateral issue, its presence to safeguard its assets increases the threat of a military confrontation even more as, in the event of a war between India and Pakistan, if the Chinese assets are harmed, China could use its armed forces to protect its interests. Similarly Gwadar and Jiwani ports will be used for conducting surveillance activities and gathering intelligence on the Indian Navy and to counter Indian dominance in the Arabian Sea and IOR.

On the economic front, China is infrastructurally developing POK and entering Afghanistan with its development projects, specifically to exploit the resources, and outmanoeuvre India's efforts and block its entry into the Central Asian Republics for economic and strategic purposes, by developing roads and highways across the Shaksgam Valley and Gilgit-Baltistan, and also signing trade agreements suiting its own interests. India has to consider explore possible measures, apart from the strategic partnership with Iran, to counter this growing concern.

On the diplomatic front, the nexus has halted India's efforts to emerge as a regional power. China supports Pakistan's stance on Kashmir and shall continue to do so despite the irritants in the relationship. China has also

shielded Pakistan-based terrorist Hafeez Saeed and the 26/11 mastermind, Zaki-ur Rehman Lakhvi against the UN sanctions, despite removing its veto after a long time, which it had used against the banning of Masood Azhar as a global terrorist. China had been also holding up the demand made by India to join the NSG. It went ahead to sign a defence agreement with Pakistan as soon as India sealed a deal on logistics exchange with the United States in 2016. India has to look into possible ways to counter such influence.

### CONCLUSION

Therefore, the shift in the relations and trust of Pakistan from the United States to China, which has benefitted Pakistan extensively, despite being supplied with cheap weapons in comparison to the quality arms from the US, has led to China's growing influence and leverage. This has made Pakistan almost a vassal state of China, influencing its politics and aiding it immensely to keep its interests at par with India. This, in turn, benefits China with the geo-strategic location that Pakistan is giving it access to. Keeping all of this in mind, it is necessary to note that arms trade and military cooperation between the two will be on a surge and the alliance will only grow stronger, much to the dismay of others, especially India and the US. Hence, it is necessary for India to strategically build up its options to overcome this nexus, and modernise and equip its armed forces with the latest technologies to counter the two-front war dilemma. It is also necessary for India to take up a greater economic role by offering economic assistance to other developing countries so as to grow as a credible partner in geo-politics. It is foreseeable that in the future, the arms trade and military expenditures are very likely to grow at a rapid scale in the South Asian region, yet it is important to note that a full-scale nuclear war is not an option for any nation and is unlikely, considering the destruction that would be caused and the economic backlash that the aftermath of a war would entail.

# BANGLADESH LIBERATION WAR: SPECIAL HELIBORNE OPERATIONS (SHBO)<sup>1</sup> IN THE EASTERN SECTOR

**BS NIJJAR**

## **OPERATION "JACKPOT"<sup>2</sup>**

The day was December 16, 1971, and a nation was on the verge of being liberated from the clutches of an oppressive regime; a regime which had scant regard for the rule of law and the dignity of a human being. The commander of the Pakistani troops in East Pakistan, Gen AK Niazi of the Pakistan Army had been forced to agree to the draft of the surrender document put forth by Gen Jagjit Singh Aurora, General-Officer-Commanding-in-Chief (GOC-in-C) Eastern Command of the Indian Army. With a formal surrender ceremony planned at Dacca (now known as Dhaka), the "fourteen-day" war was, thus, expected to end, resulting in the birth of Bangladesh. The news of the surrender was received with much jubilation by the battle-weary personnel.

With fighting continuing in some pockets and the airfield at Dacca rendered unusable for fixed wing operations, helicopters were the only option available for the Indian top brass to reach Dacca. The necessary helicopter air effort was readily available at the Agartala airfield where Mi-4 and Alouette

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1. SHBO: A Special Heliborne Operation provides the necessary momentum to surprise the enemy and multiply the chances of success of the overall plan at the higher level.
2. From Log Book Entry of Air Cmde (then Flt Lt) MM Ali of December 16, 1971.

**The helicopter aircrew had been operating alongside the army and had been in the thick of the battle since the beginning of the hostilities. The then Indian Air Force (IAF) Chief, Air Chief Mshl PC Lal subsequently admitted that during the planning phase, they did not envisage “taking Dhaka” and the result was actually an “unforeseen success”.**

(Chetak) helicopters were based.

The task of carrying the army and air force top brass to Dacca was code-named “Operation Jackpot” by the enthusiastic helicopter aircrew. The “two-star” and “three-star” (army, navy and air force) generals were to be flown in the Alouettes and the rest in the accompanying Mi-4s.<sup>3</sup>

The excitement was understandable. The helicopter aircrew had been operating alongside the army and had been in the thick of the battle since the beginning of the hostilities. The then

Indian Air Force (IAF) Chief, Air Chief Mshl PC Lal subsequently admitted that during the planning phase, they did not envisage “taking Dhaka” and the result was actually an “unforeseen success”.<sup>4</sup>

This fact has been corroborated by, the Chief of Staff of the Eastern Command Lt. Gen. JFR Jacob who was privy to the fact that in August 1971, the objectives given to Eastern Command were Khulna and Chittagong, bypassing the fortified areas and towns.<sup>5</sup>

The air chief further observes:<sup>6</sup>

In the East, the Army’s IV Corps, led by Lt Gen Sagat Singh, became a highly mobile strike force, the activities of which spread from Sylhet down to Feni and beyond.... The mobility of IV Corps was due very largely to its intelligent and bold use of helicopters.

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3. Air Cmde MM Ali, telephonic conversation, October 2019.

4. Air Chief Mshl PC Lal, *My Years with the IAF* (New Delhi: Lancer International, 1986), p. 177.

5. Lt Gen J F R Jacob, “Niazi Bested”, in Maj Gen Dhruv C Katoch and Lt Col Quazi Sajjad Ali Zahir, eds, *Liberation Bangladesh, 1971: First-Hand Untold Action Stories from the War Zone* (New Delhi: Bloomsbury, 2015), p. 232.

6. Lal, n. 4, p. 178.

Therefore, helicopters have been acknowledged for their significant contribution to the overall outcome of the war. Lt. Gen. Sagat Singh, commanding IV Corps, had been tasked to engage the enemy east of the Meghna river, on a north-south axis. But, as the balloon went up, he recognised the opportunity and exploited the helicopter as a part of his overall strategy to go for the big prize—Dacca. This audacious plan in which IAF helicopters played a crucial role could be executed largely aided by the total air superiority exercised by the IAF over East Pakistan since December 6, 1971. However, the direct involvement of the Indian armed forces and a declaration of war by Pakistan on December 3, 1971, was preceded by a desperate attempt by West Pakistan to subjugate dissent in its Bengali-speaking populace as a part an operation codenamed “Searchlight”.

**This audacious plan in which IAF helicopters played a crucial role could be executed largely aided by the total air superiority exercised by the IAF over East Pakistan since December 6, 1971.**

#### **OPERATION SEARCHLIGHT AND THE PROPHECY**

This seminal moment in a series of events that eventually culminated in the birth of Bangladesh as a nation on December 16, 1971, was the unleashing of unbridled violence by those in power in what was known at then as East Pakistan, against their own Bangla-speaking populace. On the intervening night of March 25 and 26, 1971, Pakistan’s military dictator Gen Agha Muhammad Yahya Khan ordered its military to launch an operation codenamed “Searchlight”.<sup>7</sup> The primary aim of the operation was to subjugate the dissenting Bengali-speaking population which was protesting against the government’s refusal to accept the election results, which indicated a clear victory for the Awami League led by Sheikh Mujib-ur Rehman. The result was an unparalleled crackdown on the civil populace, best described as a “*selective genocide*” by Archer Blood, the United States’ consul general in Dacca.<sup>8</sup> The term genocide was used as, besides the dissenters, all

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7. Lt. Col. Quazi Sajjad Ali Zahir, “This is the Way my Boy”, in Katoch and Zahir, n. 5, p. 7.

8. Gary J Bass, *The Blood Telegram: India’s Secret War in East Pakistan* (Gurgaon: Random House India, 2013) p. xiii.

the Bengali Hindus were ordered to be killed, without exception. This is indicated by the fact that over 90 per cent of the refugees into India were Hindus, constituting 16 or 17 per cent of East Pakistan's population.<sup>9</sup> US President Nixon and his National Security Adviser, Henry Kissinger stood by their Pakistani ally. This made the US a direct accomplice in the crime.<sup>10</sup> Henry Kissinger even flew to Beijing directly from Pakistan in June 1971.<sup>11</sup> This backing of the US made the dictator Yahya Khan supremely confident in stamping his authority through a ruthless crackdown. As a part of this crackdown, the Pakistani military had quarantined its own Bengali personnel and also grounded all its "Bengali" pilots.<sup>12</sup>

The resultant humanitarian disaster led to millions of refugees pouring into India. The prophesy of Maulana Abul Kalam Azad made before partition was proving right. In April 1946, Maulana Abul Kalam Azad, the then Congress president, in an interview to journalist Shorish Kashmiri for a Lahore-based Urdu magazine, *Chattan*, had predicted that a religious conflict in Pakistan would result in the eastern half carving out a future for itself. At that time, the Maulana had also predicted:<sup>13</sup>

West Pakistan will become the battleground of regional contradictions and disputes. The assertion of sub-national identities of Punjab, Sind, Frontier and Balochistan will open the doors for outside interference.

At the same time, India was grappling with the insurgency problem which was raising its head in both Nagaland and Mizoram. The insurgents were suspected to have been receiving substantial aid from East Pakistan.

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9. Ibid., p. 121.

10. Ibid.

11. Ibid., pp. 171-175.

12. S Sajjad Haider, *Flight of the Falcon* (Lahore: Vanguard Books Pvt. Ltd., 2009), p. 220.

13. Newage Islam.com, "Maulana Abul Kalam Azad: The Man Who Knew the Future of Pakistan Before its Creation", <http://www.newageislam.com/books-and-documents/maulana-abul-kalam-azad--the-man-who-knew-the-future-of-pakistan-before-its-creation/d/2139>. Accessed on October 24, 2018.

Internationally, India's pleas for help in tackling the refugee crisis that was a result of the genocide, did not receive much traction. The impending humanitarian crisis was conveniently ignored by the US, as it focussed on using Pakistan to open talks with the Chinese. Thus, India seemed to be running out of options.

### INDIA'S OPTIONS

India's repeated pleading at various fora around the world elicited very little or no response. In fact, as a key ally of Pakistan, the US was well aware that the weapons supplied by it—specifically the F-86 Sabre jets, M-24 Chaffee tanks, jeeps equipped with machine guns—were being used to target largely the innocent civil populace in East Pakistan, but found it expedient and even convenient to ignore the fact.

US President Richard Nixon and his Chief of Staff Henry Kissinger also shared an extremely warm and cordial relationship with the Pakistani dictator Gen Yahya Khan. The Indian leadership, Prime Minister (PM) Mrs Indira Gandhi, on the other hand, shared a diametrically opposite relationship with the Republican President Nixon as well as Kissinger.

Despite knowing that the US and China were tacitly backing Pakistan, India continued its diplomatic efforts. It was confronted with the grim reality of being isolated on the global stage wherein most countries toed the US line. Even the Non-Aligned Movement (NAM) countries continued to advise India not to escalate the crisis and desist from interfering in the "internal" issue of Pakistan. The only token success achieved was the grant of some \$17.5 million aid from the US and four US Air Force C-130s for carrying supplies and ferrying approximately 23,000 refugees from Tripura to Assam for a month and not much else.<sup>14</sup>

Thus, emboldened, Pakistan continued to brutally oppress its own people. As per the then Chief of the Army Staff (COAS) Gen SHFJ Manekshaw, during a Cabinet meeting held on April 28, 1971, he was directed by the Indian PM to "*go in (east Pakistan) and take action*", even if it meant war. The

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14. Bass., n. 8, p. 143.

general, however, insisted that he be given adequate time for preparation and to choose the correct time in order to avoid a 1962 type fiasco and achieve guaranteed success.<sup>15</sup>

However, this meeting did set in to motion a set of calibrated and well thought out steps which could not conceal the distinct preparations being made for war.

The Indian PM was extremely confident of the preparations as she had overseen them throughout the summer months, from April to October. The armed forces had endured the summer months expecting, and preparing for, an attack on three fronts viz. west, north (China) and east. Armed confrontation was unavoidable—the only question was of the date of its declaration. The onset of winter in November had already been preceded by an “explosive summer” which was gradually turning the tide in India’s favour.

### THE EXPLOSIVE SUMMER

The anger of the Bengali refugees was channelised by creating the “Mukti Bahini”. Mr K F Rustamji who was leading the Border Security Force (BSF) was authorised as early as March 29, 1971, to extend help to the Bengali refugees willing to fight back.<sup>16</sup>

On April 17, the Bangladesh government-in-exile, led by its Prime Minister Tajuddin Ahmad, proclaimed independence for a “sovereign democratic republic of Bangladesh” from a place inside East Pakistan.<sup>17</sup> Earlier, as the Pakistan Army crackdown started, 4 East Bengal (4EB) Battalion under Maj Khaled Mosharraf (Comilla and Brahmanbaria area) crossed over into south Tripura. Similarly, 2EB Battalion under Maj KM Shafiullah managed to extricate itself and established itself at “Telipara” in Sylhet district near north Tripura.<sup>18</sup> By April “Teliapara” had become a hub of the resistance movement. On April 4, 1971, it was also the place where the command of

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15. Youtube.com, “Field Marshal Sam Manekshaw, Leadership Lecture: Moral and Physical Courage”, <https://www.youtube.com/watch?v=eSvLFPFXjc8>. Accessed on October 6, 2018.

16. Bass, n. 8, p. 95.

17. Ibid., p. 96

18. Maj Gen Ashok Kalyan Verma, *Bridge on River Meghna: The Dash to Dhaka* (New Delhi: KW Publishers, 2009), p. 5.

the “Liberation War” was handed over to Col MAG Osmany, who was the seniormost Bengali infantry officer. He was nominated as the Mukti Bahini’s commander-in-chief. Simultaneously, the resistance decided to set up a government-in-exile, resulting in the April 17 proclamation.

By May 1971, the Indian Army had taken charge of training the “Mukti Fauj” and utilised the trained personnel who had defected from the East Bengal Regiment and East Pakistan Rifles. The problems for Pakistan had been compounded by India having blocked civil/military aircraft overflights over India after the hijack of the Indian Airlines flight from Srinagar to Jammu on January 30, 1970.<sup>19</sup> The Pakistani build-up, thus, took time and had to be routed via Sri Lanka. Heavy equipment took even longer and had to be transported by ship. The Pakistani build-up continued even onboard the aircraft which were supposed to evacuate foreigners from Dhaka.

The skirmishes between the opposing army formations began to increase and the Pakistan Air Force (PAF) was using the F-86E, armed with the GAR-8 missiles, in support of its army, launching close to 100 missions by November 19, 1971. The Indian involvement continued to increase, especially in the poorly demarcated border areas and two F-86E Sabre jets were also shot down by the IAF Gnats on November 22, 2018.<sup>20</sup> The undeclared war for the liberation of Bangladesh was, however, already unofficially underway, led by the Bengalis themselves. But the Indian military was well aware of the magnitude of the task and the risks involved.

### **THE INDIAN MILITARY AIM**

After the April 28, 1971, Cabinet meeting, the COAS Gen SHFJ Manekshaw specified the war aims for formulating the respective campaign plans by the three arms of the defence forces. As per the then IAF Chief, Air Chief Mshl PC Lal, these were:<sup>21</sup>

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19. Dawn.com, February 3, 2012, “‘Ganga’ Hijacker Passes Away”, <https://www.dawn.com/news/692800>. Accessed October 24, 2018. The aircraft was subsequently set on fire and destroyed. Till the Indian action of stopping the overflights, no action was initiated against the hijackers.

20. Haider, n. 12 p. 235.

21. Lal, n. 4 p. 171.

**The growing Indian involvement was well recognised by Pakistan as a precursor to war. The PAF had requisitioned the aircraft of Pakistan International Airlines (PIA) and airlifted at least two additional infantry divisions (9 and 16) to East Pakistan via Sri Lanka to bolster the military presence almost six months before the formal declaration of war on December 3, 1971. During this strategic airlift, the C-130Bs of Iran and Turkey were also requisitioned.**

... to gain as much ground as possible in the east, to neutralise the Pakistani forces there to the extent we could, and to establish a base as if it were for a possible state of Bangladesh. In the West, the objective was to hold the Pakistani forces.

This may well have been the case initially, however, as the activities of the Mukti Bahini as well as the aspirations of the Bengali populace evolved, it was clear that nothing short of complete independence would suffice.

#### **THE PAK GAME PLAN**

The growing Indian involvement was well recognised by Pakistan as a precursor to war. The PAF had requisitioned the aircraft of Pakistan International Airlines (PIA) and airlifted at least two<sup>22</sup> additional infantry divisions (9 and 16) to East Pakistan via Sri Lanka to bolster the military presence almost six months before the formal declaration of war on December 3, 1971. During this strategic airlift, the C-130Bs of Iran and Turkey were also requisitioned.

Lt. Gen. Niazi was in charge of the Eastern Command of the Pakistan Army as well as the martial law administrator and was responsible for law and order. Maj Gen Rao Farman Ali was the military adviser on civil-political affairs to the Governor of East Pakistan Dr. AM Malik, and was looking after the civil secretariat.

The aim of Gen Niazi was to defend the entire territory of East Pakistan—he was aware of the intentions of the Bengalis to create an independent nation.

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22. Haider, n. 12 p. 234.

His force deployment reflected this strategy and he continued to follow and execute the policy commenced on the fateful night of March 25/26 i.e. of putting down the rebellion forcefully. Simultaneously, achieving a sort of ethnic cleansing in the process. The guerrilla tactics of the Mukti Bahini continued to invite a strong response in which the PAF also took an active part.

Thus, Gen Niazi spelt out the task to be: Troops on the border would fight on, until ordered to withdraw; while withdrawing to the fortresses, they would fight delaying actions in an attempt to exchange space for time. Finally, they would occupy and defend the fortresses till the end.

The fortresses referred to the strong defensive positions<sup>23</sup> constructed as a part of “*forward defensive posture*” at major towns. Strong defensive positions were constructed at Bogra, Rangpur, Mymensingh, Jessore, Jhenid, Sylhet, Kamalpur, Bhairab Bazaar, Comilla, Chittagong and Dacca. Due to the peculiarity of the terrain, these could not be mutually supportive and there were no reserves retained other than some at Dacca. The instructions for the formation on the front were clear and specified that withdrawal would not take place to the fortresses till such time the concerned unit had suffered 75 per cent casualties.<sup>24</sup>

The plan was conventional in nature and was based on prolonging the war till such time either a ceasefire was brought about due to international pressure, or decisive success was achieved in the western sector.

The air cover was also woefully inadequate and consisted of a mix of fighters, transporter and helicopters. No 14 Squadron, operating from Tejgaon,

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23. Col Khalid M. Zaki, *Through The Lens Of Operational Art: 1971 Bangladesh Campaign*, A Monograph, <https://pdfs.semanticscholar.org/bf46/cb947f0794639243c1e1dfe2e3d13ab18594.pdf>. Accessed on August 10, 2019.

24. Ibid.

was equipped with Canadair F-86 Sabre fighters which were estimated to be totalling 16 in number, along with two Lockheed T-33 “shooting star” jet trainers. Two Alouette IIIs were also stationed, along with No 14 Squadron, in a rescue role. At the commencement of hostilities, a couple of DHC-4 Twin Otters (PAF) and four DHC-2 Beavers [Pakistan Army Aviation (PAA)] comprised the available PAF transport air element.

In addition, the PAA also operated five of the latest Russian MI-8 twin engine (turbine) helicopters and four Alouette IIIs for communication and logistic support duties. The army even tried to construct an airport at Syedpur in preference to Lalmonirhat and Thakurgaon, using the Bengalis as “forced labour” working without wages.<sup>25</sup>

The lack of available air effort was sought to be made up with an effective Air Defence (AD) plan consisting of a well camouflaged radar (AR-1) and Anti-Aircraft Artillery (AAA). Once the hostilities began, it was known that the sole runway was likely to be disabled within 48 hours and, thus, during this period, the plan was to use the Sabres as a bait to entrap and lure Indian aircraft into the designated AAA kill zones. This was supplemented by aircraft dispersal plans, along with Camouflage, Concealment and Deception (CCD) measures. These included the use of mock-ups also.<sup>26</sup>

## THE INDIAN PLAN

On August 16, 1971, Army Headquarters (HQ) issued Operational Instruction No 53 which specified the tasks of the Indian Army as:<sup>27</sup>

- Defend Sikkim and NEFA against possible Chinese aggression.
- Contain insurgency in Nagaland, Manipur, and Mizo Hills.
- Destroy the bulk of the Pak forces in the Eastern Theatre and occupy the major portion of Est Bengal including the entry ports of Chittagong and Khulna.

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25. Lt. Col. Quazi Sajjad Ali Zahir, “Forced Labour and Syedpur Airport Construction”, in Katoch and Zahir, eds, n. 5, p. 54.

26. PVS Jagan Mohan and Samir Chopra, *The Indian Air Force in the 1971 Liberation War: Eagles Over Bangladesh* (New Delhi: Harper Collins Publishers, 2013), p. 368.

27. SN Prasad and UP Thapliyal, *The India -Pakistan War of 1971-A History* (Dehradun: Natraj Publishers for Ministry of Defence, Government. of India, 2014), pp. 274-275.

As the situation evolved, so did the Indian military response to the events led by Eastern Command. With the winter setting in and the monsoons threat receding, the threat in the North-East Frontier Agency (NEFA) and Sikkim of Chinese aggression kept reducing. The IAF had set up an Advance HQ alongside the Army Eastern Command and was responsible for close air support to the army.

The air support available with the army comprised of 659 Air Observation Post (AOP) Squadron and consisted of five flights (Nos. 4, 6, 10 11 and 16 AOP Flight), each operating three aircraft. Of these 4 and 6 AOP operated the Krishaks and 10, 11 and 16 operated the Alouettes.<sup>28</sup> Therefore, a total of 9 Chetak Army Aviation helicopters (max) was available.

The Mukti Bahini fighters were also embedded into the operational plan and were used to gather crucial intelligence, besides undertaking guerrilla operations against the Pakistan Army, adversely affecting its morale.

The Indian Air Force, on its part, had the following tasks entrusted to it<sup>29</sup>:

- Eliminate the PAF at the earliest.
- Render maximum assistance to the army in the form of offensive support, transport and helicopter support and airborne operations.
- Assist the navy to isolate East Pakistan and also ensure that the PAF did not interfere with the operations of Indian naval ships and aircraft.
- Ensure air defence of the area of responsibility.

The committed air effort consisted of a mix of Hunter F56 and T66, Gnat, SU-7, and MiG-21. Totalling over 160, these were to operate from Kalaikunda, Dum Dum, Panagarh, Bagdogra, Hashimara, Gauhati, Tezpur and Kumbhirgram airfields. The Canberra aircraft of No 16 Squadron, based at Gorakhpur, were operating from Gorakhpur itself. The transport aircraft support was provided by the C-47 Dakotas, DHC-3 Otters, DHC-4 Caribous, Antonov-12s, and C-119 "Packets" operating from Barrackpore, Jorhat, Chabua, Gauhati, Bareilly and Allahabad.

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28. Jagan and Chopra, n. 26.

29. Ibid., p. 353.

Five Helicopter Units (HUs) were stationed in the eastern sector. These were 105 HU (MI-4), 110 HU (MI-4), 111 HU (MI-4), 112 HU (Alouette III) and 115 HU (Alouette III). Amidst this detailed planning that was being carried out, the nucleus of the Bangladesh Air Force was also in the process of being established in the form of the “Kilo Force” at Dimapur.

### **THE KILO FORCE<sup>30</sup>**

On September 26, 1971, Flt Lt (later Air Cmde) Chandra Mohan M Singla was summoned by his Commanding Officer (CO) Sqn Ldr Naresh Kumar of 112 HU (flying the Alouettes) located at Bagdogra. A Qualified Flying Instructor (QFI) on this type of aircraft, he was told by his CO to pack his bags for “*four or five weeks*”. Specific instructions included the necessity for him to carry his own bedding. Earlier, Gp Capt (later Air Mshl) Chandan Singh, the station commander, Jorhat, had been called by the Air Officer Commanding-in-Chief (AOC-in-C) Eastern Air Command Air Mshl Dewan and given the task of resurrecting the Bangladesh Air Force and taking charge of 100 Bangladeshi airmen and 12 officers, mostly pilots.

Flt Lt Singla reached Dimapur, flying a Chetak solo from Tezpur. Later, Gp Capt Chandan Singh landed in a Dakota with a hand-picked maintenance team. The task was then spelt out by Gp Capt Chandan Singh, which was to train three “Pakistani” pilots who had defected to fly the Chetak. While Sqn Ldr Sultan Ahmed and Flt Lt Badrul Alam had defected from the PAF, Capt Shahabuddin Ahmed was a civilian pilot. Much later, this date i.e. September 28, 1971, was also recognised as the Raising Day of the Bangladesh Air Force (BAF).

Devising own syllabus and without any break, Flt Lt Singla taught them flying till the three were comfortable in handling the helicopter, by both day and night.

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30. Interview of Air Cmde Singla and documents made available by him and the transcript of AVM Chandan Singh’s interview to Col Pyare Lal of USI. Made available to the author by Maj Chandrakant Singh of No. 4 Para who actually took part in the operations with IV Corps.

**Fig 1: Kilo Flight Modified Chetak**

Source and permission: PVS Jagan and Air Cmde Singla.

Thereafter, on October 8, 1971, a Chetak (serial No 364) was flown to Jorhat in a transport aircraft. It was fitted on either side with rocket pods which carried seven rockets each. These were sourced from the Mystere IV aircraft, which were in the process of being phased out. They were capable of firing rockets in pairs or in salvo mode and the switches for selection and firing were mounted on the “cyclic” stick (control column) of the captain. A firing sight was also fitted. In addition, a side-firing twin-barrel machine gun was also mounted on the floor behind the seats. This was flown to Jorhat by both Flt Lt Singla and Gp Capt Chandan Singh. The “Kilo Flight” operation was a top-secret one, the details of which could not be leaked out.

Preparations were also underway at the rest of the helicopter units under the Eastern Air Command (EAC). Negotiations were underway with the Soviet Union to source the Mi-8 helicopters. The delivery of the Mi-8s was tried to be hastened up but they were actually inducted only after the war. The experienced crew drawn from various units had undergone conversion in Russia on the Mi-8s and had returned to their respective units. These were experienced pilots who had a fair bit of experience on the Mi-4s that

**The rivers in the region have their origin in the hills of Nagaland, Mizoram and Meghalaya. All the major and minor rivers finally join the biggest river of the present-day Bangladesh, the Meghna, which, along most of its course, is 4,000 yards wide and provided one of the best natural defences for Dacca.**

the General Officer Commanding (GOC) of the Mizo hills for over two and a half years. He had been in charge of the counter-insurgency operations in the Mizo hills. The operations against the insurgents or “hostiles”—as he termed them—had resulted in their shifting base from the Chittagong Hill Tracts (CHT) in the then East Pakistan. As the month of October set in, the threat from China continued to recede and he redeployed the troops and chalked out his campaign strategy.

The air support was inadequate as the IAF fighters operating from Kumbhirgram and Guwahati could not cover areas south of the Comilla-Dacca line. Also, at its extreme ranges, the MiG-21 could use only its front guns. Aircraft could not operate from Agartala airfield as it was within artillery and mortar range of the enemy which was well entrenched at Akhaura, besides the runway length was inadequate for most aircraft. The information available about the enemy fortifications was extremely limited, as was the information about the lay of land.

The rivers in the region have their origin in the hills of Nagaland, Mizoram and Meghalaya. All the major and minor rivers finally join the

were available in both 105 and 110 HU. However, it was decided that these pilots would not be flying the Mi-4s which were to take part in expected war-time operations. The helicopters were planned to be deployed to support of IV Corps which was commanded by than Maj Gen (later Lt Gen) Sagat Singh.

#### **GEN SAGAT SINGH’S IV CORPS AND THE HELICOPTER REQUIREMENT<sup>31</sup>**

At the commencement of the war, Maj Gen. (later Lt. Gen.) Sagat Singh had been

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31. Randhir Singh, *A Talent for War: The Military Biography of Lt Gen Sagat Singh* (New Delhi: Vij Books India Pvt. Limited, 2013) and transcript of Lt Gen Sagat’s interview to Col Pyare Lal of USI. Source: Maj Chandrakant Singh.

biggest river of the present-day Bangladesh, the Meghna, which, along most of its course, is 4,000 yards wide and provided one of the best natural defences for Dacca.

Gen Sagat Singh was also aware that in his area boats comprised the main mode of communication: the L-60 anti-aircraft guns had been mounted on these boats by the Pakistani forces for use in a dual role against both ground and aerial targets.

Gen Sagat was also well aware of the capabilities of the helicopter as a platform to be used in an offensive role. He had commanded the 50 Para Brigade in Agra and subsequently had used helicopters extensively while tackling the “hostiles” in the Mizo hills.

During the build-up, he was aware of the use of Mi-8 helicopters by the Pakistan Army against the rebellious unit of 4 East Pakistan Rifles (EPR) which had occupied the Belonia Bulge for three to four weeks. A company of the elite Special Services Group (SSG) was dropped behind the 4 EPR battalion, effectively blocking its retreat. A similar *modus operandi* was also used between April 10-14, 1971, to effectively rout the elements of 2 and 4 EBR which had captured the Meghna bridge at Ashganj.<sup>32</sup>

Accordingly, he requested that a helicopter “squadron” be made available to him; the reason, he states, was: ... for normal casualty evacuation and to have the capability to switch troops from one location to another should a threat develop.... I also had in mind that I could possibly use helicopters in the offensive task....

According to Gen Sagat, his proposal for using the helicopters in an offensive role was discussed between the Army and IAF HQ. Eventually, a directive was received by him which stated:

**It is obvious that during the planning process, the helicopters were planned for a very limited role, similar to the nature of tasks which were already being undertaken for combating the insurgents. Therefore, helicopters to support IV Corps operations involved plans for providing company level airlift only.**

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32. Verma, n. 18, p. 26.

Air Force only had the capability of lifting one company and that I should submit plans for the helicopters to lift one company only and they asked my firm plans for the company that was to use the helicopter transport. I replied to say mobility and flexibility of the helicopter was a matter of opportunity and that I could not possibly give any firm plans in advance. In fact, it would be wrong to make firm plans and thereby not take full advantage of the characteristics of the heliborne operations.

Therefore, it is obvious that during the planning process, the helicopters were planned for a very limited role, similar to the nature of tasks which were already being undertaken for combating the insurgents. Therefore, helicopters to support IV Corps operations involved plans for providing company level airlift only.

However, a fateful and timely directive received by Gp Capt Chandan Singh to liaise with Gen Sagat Singh for tasking of the helicopter of the "Kilo Flight" had a profound effect on the future course of the IV Corps' operations.

### **THE FATEFUL MEETING<sup>33</sup>**

On December 1, 1971, Gp Capt Chandan Singh had received a task from the AOC-in-C EAC, for which the "Kilo Flight" Chetaks and Otters were to be used. Since the war had not been officially declared, these were to be flown by Bangladeshi pilots. The fuel dumps at Chittagong and Narayanganj were to be attacked on the intervening night of December 2 and 3 itself. The operation was postponed by one night and the plan was for launch at 0100 hrs on the intervening night of December 3 and 4, 1971, under a "brilliant moon," as described by Gp Capt Chandan Singh.

One of the reasons for the inability to launch on December 2/3 was the fact that Gp Capt Chandan Singh was asked to meet Gen Sagat Singh at Teliamura in the afternoon and discuss further tasking of the Kilo Flight. However, he could meet him only late in the night as Gen Sagat was out meeting his troops. Later, Gen Sagat had a heart-to-heart talk with Gp Capt

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33. n. 30.

Chandan Singh, and the bonding between the two was instantaneous. Gp Capt Chandan Singh describes the meeting as: ... it was quite an experience..He was full of energy, dynamism and go; he asked me as to what our little Bangladesh Air Force could do ... he asked me to target transport movement, lines of communication, machine gun concentrations, troops ... he wanted regular feedback on our doings...

Post the tete-a-tete, the Narayanganj and Chittagong night strike was mounted on December 4, 1971, at 0100 hours. The target was the fuel storage tanks at Narayanganj and the strike was successful in setting them ablaze. At that time, it was not known that Pakistan had already initiated the war on India by carrying out preemptive strikes against 11 airfields in the western theatre on December 3, 1971. Once this become known later that day, Flt Lt Singla was directed to be on board every mission.

Having moved back to Dimapur, they once again moved back to Kailashaher on December 6, 1971, and on the night of December 6, 1971, undertook three missions and engaged targets of opportunity in Kalaura, Maulvi Bazaar and Shamsher Nagar. By this time, the Mi-4s had already been operating since the declaration of war at Teliamura.

#### **THE BATTLE OF AKHAURA AND USE OF MI-4S<sup>34</sup>**

The vital battle for wresting control of the Akhaura town commenced at 1800 hrs on December 1,1971. There was intense fighting over a period of five days i.e. between December 1-5,1971. Three Mi-4s of 110 HU had arrived at Teliamura (IV Corps HQ) once the war had been officially declared on December 3,1971. One of these was utilised by Gen Sagat to undertake extensive aerial reconnaissance of the battlefield. The other two Mi-4s were used in a Casualty Evacuation (CASEVAC) role.

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34. Singh, n. 31 and Ministry of Defence F-1500 Records.

**Fig 2: Battle of Akhaura**



Source: Map has been adapted by the author, with permission, from the one that he received from Air Cmde RM Shridharan (Retd) as a part of his memoirs on October 23, 2018.

On December 4, 1971, two more Mi-4 helicopters were sent to Teliamura, thus, a total of five Mi-4s was available thereafter. On December 5, 1971, they airlifted 42 casualties from the battlefield.

A costly battle had been fought at Akahura between December 1 and 5, 1971, which resulted in the capture of the bridge over the Titus river, and opened the approach to Brahmanbaria town.

## **HELICOPTERS FOR SITUATIONAL AWARENESS AND BATTLE DAMAGE ASSESSMENT**

The corps commander had been using an AOP Chetak flown by Maj Sihota. On December 5, 1971, he made Maj Sihota fly over the scene of the battle at Akhaura and noticed the enemy withdrawing. Without wasting any time,

he made contact with the nearest grouping of Indian troops and directed them to press on, giving them the enemy dispositions.

Subsequently, this was the norm followed by the corps commander, whether he was flying in a Mi-4 or a Chetak. Three of the Chetaks from No. 115 HU had been inducted on December 7, 1971.<sup>35</sup> This helped him to maintain an extraordinary level of situational awareness.

The Chetak had become the platform of choice as it afforded a better degree of visibility compared to the Mi-4, in which one had to stand behind the pilot on a ladder in place of the flight engineer.

**The Pakistanis, on the other hand, probably miscalculated the numbers of the force which had been inducted into Sylhet. It is possible that their calculations were based upon the carrying capacity of the Mi-8s, as the Pakistan Army had only operated the Mi-4. The Mi-8s could carry more than twice the load of the Mi-4.**

#### **THE FIRST SPECIAL HELIBORNE OPERATION (SHBO): SYLHET<sup>36</sup>**

The battles fought till December 6, 1971, had been hard fought and had come at a great human cost. Gen Sagat at that time made sure his troops treated these casualty figures as a battlefield inoculation exercise and exhorted the men, officers and troops alike, to exploit the historic opportunity to avenge their dead and wounded.

By this time, the PAF had been completely neutralised by the IAF, and the corps commander had plans for the IAF helicopter element to get involved and also get battle inoculated.

On the morning of December 6, Maj Gen Sagat telephoned Gp Capt Chandan Singh—who had, by now, reached Kailashaher with the Kilo Force contingent—and told him that the enemy at Sylhet wanted to surrender and he should fly to Sylhet town and accept the “instrument” of surrender and bring it to him. He had also told Gp Capt Chandan Singh on December 5, in the presence of Maj

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35. GoI, MoD, History Division F-1500 Records 115 HU.

36. Singh, n. 31 pp. 191-202 and F-1500 Records of 110 HU.

Gen Krishna Rao, that more helicopters were in the process of being inducted and he wanted Gp Capt Chandan Singh to take charge of them as well.

He wanted Gp Capt Chandan Singh to now take charge of the operation to induct a battalion into Sylhet using the helicopters. The reconnaissance for the selection of the site was to be undertaken by him along with Brig CA Quinn "Bunty" from Kalaura. On reaching Kalaura, he found the battalion selected was 4/5 GR which had been severely mauled in the battle of Gazipur where all its officers were casualties. The planned operation was to commence at 1200 hrs and be complete by sunset. More importantly, the troops had never seen a helicopter. As recalled by Gp Capt Chandan Singh, the helicopter crew and the helicopters led by Sqn Ldr Sandhu, were, however, raring to go.

**Fig 3: December 7-8, Sylhet**



Source: Map has been adapted by the author, with permission, from the one that he received from Air Cmde RM Shridharan (Retd) as a part of his memoirs on October 23, 2018.

The landing site was selected between the Surma river and Sylhet town, around half a kilometre from an important rail and road bridge. From 1130 hrs on December 7 onwards, five helicopters were ready at Kalaura. However, by 1500 hrs, there was no sign of the troops. The troops were ready only by 1600 hrs and the first wave was launched soon thereafter.

The five Mi-4s, with the now task force commander Gp Capt Chandan Singh, faced no opposition as they dropped the first set of troops. During the second wave, they encountered machine gun fire, with one aircraft becoming unserviceable on the Drop Zone (DZ), as it had been hit. Its leaking fuel tank was patch repaired and it was recovered. By the time the aircraft returned after the third wave, it was dark.

The last wave was provided with an air cover by the Kilo Force helicopter. According to Air Cmde Singla, they had fired a number of rockets and possibly this was the reason why there was no enemy opposition or fire faced by the helicopters during the third wave. But on returning to Kailashaher, Air Cmde Singla did express his apprehension that fratricide was a real possibility, because it was virtually impossible to distinguish friend from foe during day-time, let alone at night.

Subsequently, the helicopters, having returned to Kailashaher, were thoroughly checked for damage, and field repairs were carried out. At 2000 hrs on December 7, it was discovered that only three pilots were night qualified. Immediately, the three night qualified pilots trained four other pilots in night flying. By 2300 hrs, they had seven pilots trained. But helipad lighting at both Kalaura and at the Sylhet Drop Zone (DZ) was still an issue that required to be addressed.

It was decided that lighting up the hay in the paddy fields at Kalaura would not be difficult. However, a unidirectional glim lamp would be required at the Sylhet DZ. In order to manage the DZ requirements, the services of Sqn Ldr Chaudhary, a navigator from the Dakota element stationed at Kailashaher were requisitioned. Fg Offr SC Sharma was inducted by the first of the six aircraft. During the course of the night (December 7/8), the Special Helicopterborne Operation (SHBO) continued. At 0300 hrs, one

helicopter was hit on the DZ and was grounded, while another had to force land en route during the night.

The operational record book of 110 HU states that on December 7, its aircraft carried out 22 sorties of 3 shuttles, inducting 254 troops and 400 kg of ammunition, and two helicopters were damaged by ground fire. The helicopters from 105 HU had carried 75 troops and 800 kg of load.

The damaged helicopters were recovered in the daylight hours on December 8. However, the SHBO continued during the day (December 8) and two battalions were flown in, and the bridge over the Surma river was secured. The strength of the helicopters had also built up to 10.

Gp Capt Chandan Singh describes the impact of this operation:<sup>37</sup> ... it opened up the eyes of the army and air (force) commanders that here was the answer to their problems in Bangladesh. The countryside of Bangladesh was full of natural obstacles ... these could only be crossed by heli assault/bridge.

The Pakistanis, on the other hand, probably miscalculated the numbers of the force which had been inducted into Sylhet. It is possible that their calculations were based upon the carrying capacity of the Mi-8s, as the Pakistan Army had only operated the Mi-4. The Mi-8s could carry more than twice the load of the Mi-4. This was the reason why at Sylhet, 109 Officers/109 Junior Commissioned Officers (JCOs) and 6124 Other Ranks (ORs), including three brigadiers, had surrendered to a force a fraction of the size of their own.

The stand-in Forward Air Controller (FAC) Fg Offr SC Sharma had performed extremely well and besides calling in the air strikes, he also coordinated supply drops by the fixed wing aircraft. This helilift also stumped the enemy as the "obstacle course" constructed by him for the defence of Sylhet was overcome but, more importantly, it forced the enemy to take certain key decisions which proved to be its undoing. It vacated its fortifications at Maulvi Bazaar and moved north to relieve Sylhet and in the bargain left the way to Dacca open.

Gen Sagat was not about to let go of this opportunity. On December 9, he ordered the helicopters to relocate to Agartala and be ready.

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37. n.30.

**SHBO: BRAHMANBARIA TO RAIPURA<sup>38</sup>**

Gen Sagat describes December 9, 1971, as the most exciting day of his life.<sup>39</sup> Gp Capt Chandan Singh was briefed on the night of December 8 that the army had advanced over a broad front to the river Meghna, and helicopters were to be made ready to undertake operations across the mighty river as the bridge on the Meghna at Ashuganj -Behrabazaar had been demolished by the enemy.

**Fig 4: December 9-10, Brahmanbaria to Raipura**



Source: Map has been adapted by the author, with permission, from the one that he received from Air Cmde RM Shridharan (Retd) as a part of his memoirs on October 23, 2018.

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38. n. 30 and GoI MoD History Division F-1500 Records.

39. Singh, n. 31, p. 204.

**It is also significant that the Gnats had become operational from Agartala on December 8, 1971, onwards even though the runway was still being extended using PSP sheets. They provided the necessary close air support to the rapidly advancing Indian troops.**

On the morning of December 9, 1971, Gp Capt Chandan Singh and Gen Sagat undertook what Gp Capt Chandan calls an "armed recon" in a helicopter across the Meghna and selected a site near Raipura. Gp Capt Chandan Singh was now keen that since the site was close to enemy positions at Behrabazaar, they should start late in the day and continue throughout the night.

On December 9, Gen Sagat flew over Narsingdi town and saw Bangla flags being waved from the houses. After Narsingdi, as he was flying to Brahmanbaria and he thought there were no Pakistanis left on the eastern side of the river, he asked the captain to fly at around 1,500 ft. The Chetak was fired upon by a machine gun post and received 38 bullet hits. The co-pilot was hit three times and three bullets passed within 1.5 to 3 inches from Gen Sagat and one grazed his forehead. But the aircraft remained airworthy and the captain managed a landing at Agartala. But the general reached Brahmanbaria in another helicopter and showed Gen Gonzalves, Brig Mishra and Lt. Col Himmeth Singh where he wanted the SHBO to take place.

Short of Ashuganj, 18 Rajput and 10 Bihar had been pinned down by Pakistani troops led by Brig Sadaullah Khan and thereafter the retreating troops of the Pakistan Army had blown up the bridge at 1105 hrs on December 9, 1971. However, the Pakistan Army got involved in defending a damaged bridge at Ashuganj which made absolutely no tactical sense and, thus, the importance and criticality of the SHBO.

The plan of Gp Capt Chandan Singh to commence operations on the afternoon of December 9, 1971, also ensured that the faults and damages to the Mi-4s were rectified, and the necessary servicing was carried out. Having realised the importance of the operation, more helicopters had been requested for, and two helicopters from 111 HU had arrived to be a part of the helicopter task force.

It is also significant that the Gnats had become operational from Agartala on December 8, 1971, onwards even though the runway was still being extended using PSP sheets. They provided the necessary close air support to the rapidly advancing Indian troops.

The airlift commenced from Brahmanbaria to Raipura at 1400 hrs and by December 10, 1971, Chandpur had been occupied, cutting off all possibility of help reaching Dacca from Chittagong. A significant number of troops had been isolated at Sylhet. Most importantly, for the first time, the mighty Meghna was not looking all that mighty as an obstacle to the military advance.

By this time, the night operations had become a well-oiled exercise. The helipads were marked with *atta* (wheat flour—both wet and dry). The helipad edges were marked with dough and “H” marked with dry *atta*. Innovative solutions such as using suitably shielded torches to provide guidance to the approaching helicopters were thought of and implemented. Most importantly, with increased awareness levels, the site selection for the helicopters to land was meticulously carried out.

The local population was elated at the feeling of freedom and willingly helped the movement of the Indian Army, with the Mukti Bahini cadres now actively guiding the Indian troops. Gen Niazi’s plan had been effectively checkmated. But, more importantly, the tasking for the helicopters was about to become even more daunting.

#### **SHBO: BRAHMANBARIA TO NARSINGDI<sup>40</sup>**

Early on December 11, 1971, Gp Capt Chandan Singh was contacted by Gen Sagat. After congratulating him on the successful SHBO at Raipura, Gp

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40. n. 30 and GoI MoD History Division F-1500 Records.

Capt Chandan Singh recollects that the general, before specifying the task, told him: ... there was no time for rest and it was time to cross the mighty Meghna in a big way and get as close to Dacca as we could....

The task was to lift an entire brigade and an artillery regiment which entailed a flying effort of more than 150 sorties. Gp Capt Chandan Singh knew that each helicopter would have to undertake 14-15 sorties. The load configurations this time would also involve airlift of artillery guns. The serviceability of the helicopters was under strain. It is possible that it was at this time that he used all his influence with the EAC to allot additional aircraft and spares as, invariably, some of the ageing Mi-4s would have to be made flyworthy.

**Fig 5: December 11-13, Brahmanbaria to Narsingdi**



Source: Map has been adapted by the author, with permission, from the one that he received from Air Cmde RM Shridharan (Retd) as a part of his memoirs on October 23, 2018.

The assumption was simple: war was on and risks had to be taken , even if it meant violation of the Standard Operating Procedures (SOPs). The crew were accordingly briefed.

The selected DZ was a large flat ground three miles due southwest of Narsingdi, next to a road running to Dacca.

The task commenced on December 11, 1971, at around 1200 hrs and continued throughout the night. The Mi-4s were beginning to show signs of fatigue in striking contrast to the aircrew who had got infected with the general enthusiasm. There were three engine failures, resulting in forced landings. Fortunately, there was no ditching in the mighty Meghna. All the three aircraft were recovered within four hours. Had the troops been forced to travel overland, they would have had to traverse six water obstacles.

Interestingly, the operation halted when the army could not provide more troops or load. But it was also true that the helicopters themselves were begging for some respite. The Mi-4 with tail number Z-613 had a fire emergency on board and having had to force land, it was completely burnt. As Gp Capt Chandan Singh told Gen Sagat on December 12: "... machines were at the end of their tether...."

But by now, even Gp Capt Chandan Singh could've guessed the general's response : "... Chandan Singh, the war is on and let's get on with it ..."

A possible reason for the urgency shown by the IV Corps GOC was his knowledge that the Tangail drop had taken place as also the rumours about the likely intervention by the American 7th Fleet. But, in either case—whether the race was against another corps or against the Americans—there was no option but to press on with another SHBO by mustering all available aircraft.

#### **SHBO: DODHKANDI TO BAIDYBAZAR (NARAYANGANJ)<sup>41</sup>**

The helicopter maintenance crew deserved a lot of credit for having kept the machines flyworthy. By 0730 hrs on December 14, 1971, 12 helicopters were now positioned at Daudkandi. Due to non-availability of troops, the SHBO could commence only at 1030 hrs. By evening, 810 troops had been airlifted to the DZ Baidyabazaar, northeast of Narayanganj. With Indian Army troops having reached the doorstep of Dacca, the Pakistani

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41. Ibid.

forces were forced to capitulate. A major contribution to the victory comprised the “Vertical Envelopment” operations undertaken by the helicopters. The oppressors had been vanquished and were now themselves seeking protection from the Mukti Bahini cadres, under the Geneva Convention.

Fig 6: December 14-16, Daudkandi to Baidyabazaar



Source: Map has been adopted from [https://en.wikipedia.org/w/index.php?title=Military\\_plans\\_of\\_the\\_Bangladesh\\_Liberation\\_War&oldid=916486435](https://en.wikipedia.org/w/index.php?title=Military_plans_of_the_Bangladesh_Liberation_War&oldid=916486435)

On December 16, most of the helicopters had been taken up for maintenance during the morning hours and in the evening, 5 Mi-4s took part in the Dacca surrender ceremony.

### WORTH THEIR WEIGHT IN GOLD

The diminutive Mi-4s had added another dimension to the conventional battlefield. By introducing the elements of surprise, force concentration and flexibility in the planning process, they made sure that they will not be left out of the planning consideration for future conflicts.

Gp Capt Chandan Singh recalls the words spoken by Gen Sagat Singh, "... these little helicopters, the Mi-4s had become worth their weight in gold."

He again heard these words being uttered at the surrender ceremony, this time repeated by Gen Aurora, the army commander under whom the war was fought in the eastern theatre.

## CONCLUSION

During the SHBO task undertaken by the MI-4s in the eastern sector, the final troop and load details can be tabulated as follows (these have been sourced/compiled from post war reports filed by individual units as a part of the Operational Record Book available in Ministry of Defence, History Division, Government of India Archives):

<b>December 7-15, 1971</b>		
<b>Sector</b>	<b>Troops</b>	<b>Load</b>
Kalaura to Sylhet	747	16,400
Brahmanbari to Raipura	1,286	12,530
Brahmanbari to Narsingdi	1,570	100,650
Daudkandi to Baidyabazaar	2,408	73,230
Total	6,011	202,810

There may be some errors in the figures, as the aircraft were being flown as a part of a composite task force and the load figures corroborated from the Operational Record Book may have some amount of duplication/error.

These figures seem to be unbelievable, but what is even more incredible is that the entire effort was undertaken with a maximum availability of 11 Mi-4 helicopters.

On December 7, 1971, at the commencement of the task at Sylhet, only five helicopters were deployed. The available strength increased to eight by December 8 and further to 10 by December 9. Thereafter, due to unserviceabilities and battle damages sustained, the availability remained in the range of 10-11 Mi-4 helicopters. The credit for this must go to the exemplary work carried out by the maintenance crew.

The experienced aircrew that had undergone conversion onto Mi-8s, did not take part. Of the rest, some like Fg Offr (later Air Cmde) RM Sridharan “Doc” did their first ever night SHBO sortie straight into the battle. Many contingencies had to be dealt with, which included converting pilots for night operations. Many of them (who were to be used as captains) were not night qualified. Many of them had never landed on unprepared surfaces. Various innovations such as use of *atta* (both wet and dry) to mark the helipads and the modification of torches to give unidirectional light were tried out. In addition, the “Kilo Force” helicopter was also available to provide air cover for the induction of the troops into Sylhet.

The figures of the numbers of troops carried and the load lifted over a period of eight days, when contrasted with those of the Tangail drop on December 11—which involved close to 50 aircraft, in which approximately 1,000 troops and 103 tons of ammunition were dropped—further highlights the role of SHBO operations by the Mi-4s.

The magnificent Mi-4s have not been accorded a formal send-off by the IAF and were simply replaced by the Mi-8s. May be they were deemed to be a part of the IAF fleet forever after having prove their worth as having been equal to “... *their weight in gold* ...”. The Mi-4, an example of which is parked at the Air Force Museum, certainly deserves much more respect, having played a stellar role in the war with Pakistan for the liberation of Bangladesh.

# CHINA-CENTRAL ASIA TIES UNDER XI JINPING

SANA HASHMI

## BACKGROUND

China characterises its relations with Central Asia as being ‘based on win-win cooperation’, an often-repeated statement, which was reiterated in the speech of the Chinese President, Xi Jinping, at the nineteenth National Congress of the Chinese Communist Party (CCP) in 2017. He stated, “China remains firm in its commitment on strengthening friendship and cooperation with other countries based on the Five Principles of Peaceful Coexistence, and to forging a new form of international relations featuring mutual respect, fairness, justice, and win-win cooperation.”<sup>1</sup> Since the collapse of the Union of Soviet Socialist Republics (USSR), ties between China and the Central Asian Republics (CARs) have been beneficial to both sides in varying degrees. While China has been able to settle its border disputes with the post-Soviet states and, subsequently, secure its border on the western side in the 1990s, the Central Asian Republics have also

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1. “Secure a Decisive Victory in Building a Moderately Prosperous Society in All Respects and Strive for the Great Success of Socialism with Chinese Characteristics for a New Era”, speech delivered by Xi Jinping at the 19th National Congress of the Communist Party of China, *Xinhua*, October 18, 2017, [http://www.xinhuanet.com/english/download/Xi\\_Jinping's\\_report\\_at\\_19th\\_CPC\\_National\\_Congress.pdf](http://www.xinhuanet.com/english/download/Xi_Jinping's_report_at_19th_CPC_National_Congress.pdf). Accessed on November 1, 2017.

**Under the Xi administration, China has become more upbeat as well as confident while dealing with countries in its neighbourhood and beyond. The country that was once insecure with respect to its borders with Central Asia, has come to shape the dynamics of the region.**

been accruing economic benefits out of their partnership with China.

Central Asia has occupied a significant place in China's regional policy in general and the Chinese peripheral policy in particular. It will not be an overstatement to say that President Xi Jinping has been more proactive in engaging the Central Asian Republics than his predecessors. While his predecessors mostly focussed on border security, energy cooperation, limiting the United States' influence, and strengthening economic ties, Xi has gone a step further by

making Central Asia the focal points of the Silk Road Economic Belt (SREB), the land component of the ambitious and much-talked-about One Belt, One Road (OBOR), which is officially known as the Belt and Road Initiative (BRI). Xi Jinping visited Central Asia in 2013, and announced that the revival of the ancient Silk Road would begin from the region. During his visit, he emphasised the importance of cordial relations with Central Asia:

Over the 20-plus years, the ancient Silk Road is becoming full of new vitality with the rapid development of China's relations with the Asian and European countries. It is a foreign-policy priority for China to develop friendly cooperative relations with the Central Asian countries. We hope to work with the Central Asian countries to unceasingly enhance mutual trust, to consolidate friendship, to strengthen cooperation, to push forward common development and prosperity, and work for the happiness and well-being of the people in the regional countries.<sup>2</sup>

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2. "President Xi Jinping Delivers Important Speech and Proposes to Build a Silk Road Economic Belt with Central Asian Countries", Ministry of Foreign Affairs of the People's Republic of China, September 7, 2017, [http://www.fmprc.gov.cn/mfa\\_eng/topics\\_665678/xjpfwzysiesjgtfhshzzfh\\_665686/t1076334.shtml](http://www.fmprc.gov.cn/mfa_eng/topics_665678/xjpfwzysiesjgtfhshzzfh_665686/t1076334.shtml). Accessed on September 7, 2018.

Under the Xi administration, China has become more upbeat as well as confident while dealing with countries in its neighbourhood and beyond. The country that was once insecure with respect to its borders with Central Asia, has come to shape the dynamics of the region. China's efforts to establish unhindered relations with Central Asia have been underway since the 1990s. In the aftermath of the Tiananmen Square incident, China began to focus on improving as well as strengthening its relations with its neighbouring countries and Central Asia was at the centre of its policy.

**In the aftermath of the Tiananmen Square incident, China began to focus on improving as well as strengthening its relations with its neighbouring countries and Central Asia was at the centre of its policy. Chinese leaders have made deliberate efforts to formulate an *Integrated Peripheral Policy*.**

Chinese leaders have made deliberate efforts to formulate an *Integrated Peripheral Policy*, sometimes interchangeably known as *Good Neighbourly Policy* aimed at "exploring common grounds with neighbouring countries in the economic and security domains, thereby conveying the image of China as a responsible international actor willing to contribute towards greater stability and cooperation in its neighbourhood".<sup>3</sup> The Central Asian region has been an important component of China's peripheral policy. Although China has extended its outreach to countries across the world, a prominent Chinese scholar, Wu Xinbo has opined, "China is still a country whose real interests lie mainly within its boundaries, and to a lesser extent, the Asia-Pacific region, where developments may have a direct impact on the country's national interests."<sup>4</sup> Therefore, since the 1990s, Beijing's strategy towards the Central Asian Republics has been to "develop normal and friend-neighbourly relationships; negotiate and resolve boundary disputes with three of them;

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3. Zhiqun Zhu, *China's New Diplomacy: Rationale, Strategies and Significance* (England: Ashgate, 2010), p. 111.

4. Wu Xinbo, "Four Contradictions Constraining China's Foreign Policy Behavior", in Suisheng Zhao, ed., *Chinese Foreign Policy: Pragmatism and Strategic Behavior* (Armonk, NY: M.E. Sharpe & Co. Inc., 2004), p. 58.

expand economic ties with these countries and seek their cooperation in preventing the rise of fundamentalism and ethnic separatist elements from spreading into the Xinjiang Uyghur Autonomous Region (XUAR).<sup>5</sup> Though China has been expanding its influence to all its neighbouring countries, its influence (at least economic in terms of aid and loans) in Central Asia has remained unmatched. Moreover, China's image in Central Asia has improved significantly, at least among the leadership of the region; whereas it is still viewed with caution in the South and Southeast Asian regions. China enjoys cordial relations with all the five Central Asian countries, which, in a way, has contributed to its regional and global image.

#### **CHINA'S EVOLVING CENTRAL ASIA POLICY**

Soon after the USSR disintegrated, China preferred to resolve the outstanding issues with the post-Soviet states. After resolving the border disputes, when China began to inch closer to the Central Asian Republics, the common perception was that it was mainly due to the United States' growing presence in China's neighbourhood and Russia also being uncomfortable with the United States' presence. However, it is important to note that China's interest in the region was not just limited to balancing Russia or checking the United States' power in Central Asia.<sup>6</sup> China's engagement with the countries of the region was particularly important because China was confronted with prolonged boundary disputes with the weaker and vulnerable countries towards its western side. Major objectives behind this engagement were to project its benign image as also shift its focus on the domestic issues. It was easier for China to negotiate with the weaker Central Asian countries than the united USSR. Therefore, it took no time in resolving the boundary disputes with Kazakhstan, Kyrgyzstan and Tajikistan, and, of course, Russia through the Shanghai Five mechanism. A careful analysis of the events that unfolded between China and the Central Asian Republics

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5. Jing-Dong Yuan, "China's Role in Establishing and Building the Shanghai Cooperation Organization (SCO)", *Journal of Contemporary China*, vol. 19, no. 67, 2010, p. 857.

6. Stephen Blank, "Dragon Rising: Chinese Policy in Central Asia", *American Foreign Policy Interests*, vol. 33, 2011, p. 261.

reveals that the boundary negotiations and eventual settlement of the same was in the interest of both China and the Central Asian Republics. What is more, it led to the realisation of overall peace and stability along China's borders with the Central Asian Republics, in turn, ensuring security at its volatile border and inside Xinjiang. During the initial years, Central Asia was undergoing volatile changes (the Andijan massacre in Uzbekistan and colour revolution in Kyrgyzstan), increasing military presence of the United States, economic turmoil, increasing interventions from the major powers, and competition for resource extraction in the region. Under such circumstances, China's initiative to work with the countries of the region for mutual benefit, without any attempt to impose political ideologies, turned out to be a charm offensive. It became a 'win-win situation' for both China and its Central Asian neighbours.

In the aftermath of the Cold War, neighbours of the erstwhile USSR, looked at the newly independent countries with scepticism as to whether the newly independent countries would be able to survive the pressures coming in from all sides, viz. economic, political, institutional, societal, and at all levels—national, regional, and international. Under such circumstances, it was obvious for China and the countries of the Central Asian region to focus more on security and stability than any other issue. China, which was almost ostracised by the major countries of the West on the grounds of brutal oppression of its own people fighting for democracy at the Tiananmen Square, was also looking for opportunities to project itself as a civilised country, with credentials to live peacefully with other countries in the neighbourhood. It may be noted that during the Cold War years, China was feared for its attempts to engineer political coups in countries in the neighbourhood. This was particularly true of the Southeast Asian region, where countries of the region had come together to form the Association of Southeast Asian Nations (ASEAN), and the Southeast Asian Treaty Organisation (SEATO) under the security leadership of the United States. In 1992, China initiated negotiations with the Central Asian countries, which was followed by a series of meetings. The big break in terms of realising the regional security

**Throughout the 1990s, the major focus of China was on resolving the protracted boundary disputes with Central Asia and Russia and ensuring that the vulnerability in the newly-independent Central Asia did not affect the already volatile Xinjiang. It wanted to gain the support of the Central Asian governments in keeping a check on the Uyghur diaspora's support to extremists in Xinjiang.**

architecture happened on April 26, 1996. On that landmark day, China got into a partnership with Russia, Kazakhstan, Kyrgyzstan and Tajikistan to sign the "Treaty on Deepening Military Trust in Border Regions" in Shanghai, China. It was also decided that the signatory countries would meet annually. This annual feature later came to be known as the "Shanghai Five". The framework of the Shanghai Five obligated all the member countries to ensure that the disputes regarding the western section of the former China-Soviet border, "a region that bred instability and conflict for centuries", were completely resolved

within just six years.<sup>7</sup> Chinese diplomacy regarding the Central Asian Republics was influenced by its growing ties with Russia through the 1990s. For China, one of the driving motivational forces was that the Central Asian region could function as a place where China, Russia, and the independent republics could work together to jointly address issues of mutual interest<sup>8</sup> and shared concerns.

That Central Asia occupied an important place in the regional policy of all the Chinese leaders is not an overstatement. In fact, as soon the USSR disintegrated, China began to seriously devise its Central Asia policy. In this context, China's Central Asia policy may be divided into three phases. The first wave of the policy began as soon as the USSR disintegrated in 1991. Throughout the 1990s, the major focus of China was

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7. Niu Riju, "Good Good Neighbourhood and Cross-Border Cooperation between China and Central Asian States", Northwest Ethnic Minorities Research Centre, Xinjiang University, Urumqi, 2010, p. 2.

8. Hassan H. Karrar, *The New Silk Road Diplomacy: China's Central Asian Foreign Policy Since the Cold War* (Vancouver: UBC Press, 2009), p. 1.

on resolving the protracted boundary disputes with Central Asia and Russia and ensuring that the vulnerability in the newly-independent Central Asia did not affect the already volatile Xinjiang. It wanted to gain the support of the Central Asian governments in keeping a check on the Uyghur diaspora's support to extremists in Xinjiang. The formation of the Shanghai Five was an important feature of the first phase of China's Central Asia policy. Now that there was no threat from the USSR, the second objective was to focus its attention and resources on Taiwan. The first phase lasted till 2000. The second wave of China's Central Asia policy began in 2001 when the Shanghai Five expanded to become the Shanghai Cooperation Organisation (SCO). The induction of Uzbekistan, which does not have a common border with China, into the grouping was an important development. This was indicative of the fact that China was moving beyond border security. Diversification of its energy sources and preventing the countries of the region coming under the influence of the United States were major objectives for China in the second phase. The China-Russia partnership in Central Asia also bloomed during the second phase. It is noteworthy that China, till now, has not attempted to displace Russia from its position of the major power in the region; it is not in China's best interests. On the contrary, it suits China to work with Russia in the region. The third wave of China's Central Asia policy began in 2013 when Xi came to the region on his maiden visit, and announced the initiation of the Silk Road Economic Belt (SREB) in Kazakhstan. His announcement implied that Central Asia was indeed, at the core of the land component of the BRI. Xi visited four out of five Central Asian Republics in September 2013: Kazakhstan, Kyrgyzstan, Turkmenistan, and Uzbekistan. This phase also witnessed the consolidation of China's multilateral efforts in

**It is noteworthy that China, till now, has not attempted to displace Russia from its position of the major power in the region; it is not in China's best interests. On the contrary, it suits China to work with Russia in the region.**

the region. Membership of the SCO was also expanded with the induction of two South Asian countries: India and Pakistan.<sup>9</sup>

China's relations with Central Asia have come a long way and it has become an important partner of the Central Asian Republics. However, when the USSR collapsed, Central Asia still viewed China through the Soviet lens and considered it a threat. Establishing direct bilateral relations with Beijing has required overcoming several extremely negative clichés about China put up by Soviet propaganda, clichés that reinforced the Central Asian societies' already long-standing apprehensions about their large neighbour.<sup>10</sup> China-Central Asia bonhomie would not have been possible without China-Russia rapprochement. Central Asia has been prominently known as Russia's backyard and comes under the Russian sphere of influence. China's entry into Central Asia was made possible because of Russia's willingness to partner with it in the region. Despite their enmity throughout the Cold War period, China and Russia attempted to improve relations in the aftermath of the USSR's break-up. In the 1990s, China resolved the boundary dispute with Russia, and in 1996, both countries signed the Strategic Cooperation Agreement. Subsequently, in 1997, China and Russia adopted the "Joint Declaration on a Multipolar World and the Establishment of a New International Order". This was followed by the Treaty of Good Neighbourliness, Friendship and Cooperation in 2001. In 2012, the relations evolved into "Comprehensive Strategic Partners of Coordination"; and, later, in June 2019, both sides further expanded their relations to "Comprehensive Strategic Partnership of Coordination for a New Era".

China had several reasons to improve relations with Russia in the context of Central Asia. The first was not to divert its attention from Taiwan. For this, China had to resolve its differences with the other countries. It became important for China to demilitarise its border with Russia and Central Asia.

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9. The author has written about the three phases of China's Central Asia policy in Sana Hashmi, "China-Central Asia Relations: Centrality of the Shanghai Cooperation Organisation", in M. S. Pratibha, ed., *East Asia Strategic Review: China's Rising Strategic Ambitions In Asia* (New Delhi: Pentagon Press, 2018), pp. 191-206.

10. Sébastien Peyrouse, "Discussing China: Sinophilia and Sinophobia in Central Asia", *Journal of Eurasian Studies*, vol. 7, 2016, p. 14.

Additionally, to limit the United States' influence, it preferred to engage with Russia. The second, engagement with Russia was vital in terms of alleviating the scepticism of the Central Asian countries. This promoted a benign image of China in the region as by cooperating with the erstwhile adversary, China was actually accommodating the interests of the other parties and, thereby, refuting the 'China threat theory'. The third, while Russia was politically and militarily more influential in Central Asia than China, the latter had the economic wherewithal to improve the internal situation in Central Asia and keep instability at bay. Russia also had more reasons to cooperate with China than countering it in the region. Due to its interests in Central Asia, China has been able to position itself as the second most influential external actor in the region, surpassing Russia in economic terms, but not in strategic or cultural ones.<sup>11</sup> Nonetheless, the growing perception is that China's influence is likely to grow in the coming years, perhaps even to a point where Beijing will dominate the area.<sup>12</sup> However, in the current scenario, it is not in China's interest to provoke Russia in Central Asia as its objective is not to dominate the region but to achieve its domestic as well as regional goals, mostly with Russia's cooperation.

### **ECONOMIC TIES**

China-Central Asia relations are multifaceted and priority has been given to areas such as counter-terrorism and energy trade. Their commercial ties have been low-key. This is also because of lack of information in the public domain, as is always the case with obtaining statistics from China. The Central Asian countries are also not very transparent when it comes to providing statistics. There are several reasons for the lack of information:

First, the Central Asian states do not publish information on cross-country trade. On this issue, they follow the Soviet tradition and prefer not to strengthen the role of China to a public opinion which could be adverse.

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11. Ibid., p. 15.

12. Andrew Scobell, Ely Ratner, Michael Beckley, *China's Strategy Toward South and Central Asia: An Empty Fortress* (Santa Monica: RAND, 2014), p. xi.

Second, the Chinese authorities, for their part, do not try to heavily advertise their activities in the region and are quite comfortable with a lack of transparency in economic relations. Third, nearly the entire trading system of China with the Central Asian republics is based on corruption and criminal schemes involving high ranking political and economic elites. Objective publicity on this issue could openly reveal the flaws in cross-trading mechanisms and paint a real picture of the existing political order in Central Asia.<sup>13</sup>

From the establishment of the Central Asian Republics till 1998, trade turnover between Central Asia and China was quite limited, around US\$ 350 to 700 million each year, but the volume started growing after the 1998 financial and economic crisis, and during the period 2000-03, trade between China and Central Asia more than tripled, increasing from US\$ 1 billion to US\$ 3.3 billion.<sup>14</sup> The starting point for intensification of trade relations was the economic crisis in Russia, as in the period 2004-06, there was steady growth in trade turnover, with an overall increase of 150 per cent, from US\$ 4.3 billion to US\$ 10.8 billion.<sup>15</sup> In comparison to Russia, the trade between China and Central Asia grew more dynamically, and from 1992 to 2006, the trade turnover between Russia and Central Asia grew by a factor of 2.3 while that between China and Central Asia grew by a factor of 25.6.<sup>16</sup> In 2010, China surpassed Russia to become the largest trading partner of the region.

China and the countries of Central Asia have complementary advantages that offer the possibility of extensive cooperation; for China, the energy resources, metals, leather goods and other commodities, as well as the raw materials and markets of Central Asia, are very important, whereas China's industrial, consumer and agricultural products and markets hold a strong

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13. Sadykzhan Ibrahimov, "China-Central Asia Trade Relations: Economic and Social Patterns", *China and Eurasia Forum Quarterly*, vol. 7, no. 1, 2009, p. 47.

14. *Ibid.*, p. 48.

15. Vladimir Paramonov and Aleksei Stokov, "Economic Involvement of Russia and China in Central Asia", Conflict Studies Research Centre, Defence Academy of the United Kingdom, p. 2.

16. *Ibid.*

attraction for the countries of Central Asia.<sup>17</sup> As far as investments are concerned, according to the International Monetary Fund (IMF), starting with US\$ 1 billion investment in the region in 2000, it has spent up to US\$ 50 billion in trade and investments in the region.<sup>18</sup> From developing its western border regions, so as to ensure its capabilities for trade, to building infrastructure like highways, pipelines, and railways throughout the region via the SREB initiative, China is determined to secure the region as its own zone of economic interest and appears to be achieving this goal.<sup>19</sup>

## XINJIANG

Xi's idea of connectivity is about connecting Asia with Europe, with China at the core. However, increased connectivity also facilitates factors of instability: guns and drugs are smuggled into China through the burgeoning trade routes. Beijing has also for long been wary of engagement between its Muslim-dominated provinces—Xinjiang and Ningxia—and the Muslim world in Central Asia and West Asia due to fears of importing instability.<sup>20</sup> These potential challenges, coupled with the existing ones, are making the Chinese Communist Party (CCP) more insecure about its domestic problems in the western provinces. Xinjiang is one of the most restive regions in China, and Xi, like previous leaders of China, considers separatism by Xinjiang one of the most pressing challenges the CCP has to deal with. He has called for a “great wall of iron” to safeguard the restive western region of Xinjiang.<sup>21</sup> The State Commissioner for Counter-Terrorism

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17. Sun Zhuangzhi, “The Relationship between China and Central Asia”, January 2007, p. 41.

18. Victoria Kelly-Clar, “Why is Central Asia Dumping Russia for China”, *Global Risk Insights*, May 23, 2016 <http://globalriskinsights.com/2016/05/why-central-asia-is-dumping-russia-for-china/>. Accessed on December 2, 2017.

19. *Ibid.*

20. Evelyn Goh, “How China’s Belt and Road Build Connections?”, *East Asia Forum*, January 4, 2018, <http://www.eastasiaforum.org/2018/01/04/how-chinas-belt-and-road-builds-connections/>. Accessed on January 5, 2018.

21. Quoted in “China’s Xi Calls for Great Wall of Iron to Safeguard Restive Xinjiang”, *Reuters*, March 10, 2017, <https://www.reuters.com/article/us-china-security-xinjiang/chinas-xi-calls-for-great-wall-of-iron-to-safeguard-restive-xinjiang-idUSKBN16H04J>. Accessed on December 6, 2017.

**Economic cooperation and trade exchanges have been important for China-Central Asia ties. The relationship has been one of mutual complementarity and gains. Yet, from the Chinese perspective, one may argue that the relationship has been shaped more by security considerations than economic benefits.**

and Security, Cheng Guoping stated, “East Turkestan Independence Movement (ETIM) is the most prominent challenge to China’s social stability, economic development and national security”.<sup>22</sup>

While the disintegration of the USSR provided China with several opportunities, it presented China with new security challenges too. China was not confronted with the USSR any more—rather it left China with three newly independent and vulnerable Central Asian Republics which were economically as well as militarily weak and had no capability to deal with extremist forces. Despite its growing military and economic power, and the most stable and peaceful security environment in centuries, Beijing has been beset by insecurity and the goals of ensuring domestic stability and protecting national unity.<sup>23</sup> Unrest in Xinjiang is still one of the persistent challenges to China’s utmost goal of keeping the country unified. China has been worried that the Uyghur diaspora in Central Asia<sup>24</sup> has been aiding the Uyghurs in Xinjiang, thereby, fuelling instability in its western region. Therefore, China prefers stable governments in Central Asia. Central Asia’s stability is closely linked to internal security in western China.<sup>25</sup>

Interestingly, Xi is well aware that the road to Central Asia goes through Xinjiang. A retired General of the Chinese People’s Liberation Army Air Force, Liu Yazhou stressed on the importance of Xinjiang in the context of Central Asia, “Western China is a vast empty expanse. Moreover, our strategic direction should be westward... With an excellent geographic location (close

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22. Ibid.

23. Scobell et al., n. 12.

24. There are approximately 300,00 Uyghurs living in different parts of Central Asia.

25. Kevin Sheives, “China Turns West: Beijing’s Contemporary Strategy Towards Central Asia,” *Pacific Affairs*, vol. 79, no. 2, 2006, pp. 207–214.

to the centre of the world), the western region can provide us with the driving force to build our strength. We should regard western China as our hinterland rather than as our frontier."<sup>26</sup> Economic cooperation and trade exchanges have been important for China-Central Asia ties. The relationship has been one of mutual complementarity and gains. Yet, from the Chinese perspective, one may argue that the relationship has been shaped more by security considerations than economic benefits.

#### **BELT AND ROAD INITIATIVE**

Reference has already been made to Central Asia being at the centre of the SREB. As was mentioned in the foregoing paragraphs, Xi chose Kazakhstan to announce the revival of the Silk Road. During his visit to Kazakhstan in September 2013, he made a speech titled "Promote People-to-People Friendship and Create a Better Future" at Kazakhstan's Nazarbayev University and emphasised on the importance of reviving the Silk Road:

Xi Jinping proposed that in order to make the economic ties closer, mutual cooperation deeper, and space of development broader between the Eurasian countries, we can innovate the mode of cooperation and jointly build the Silk Road Economic Belt step by step, to gradually form overall regional cooperation. First, to strengthen policy communication... Second, to improve road connectivity. To open up the transportation channel from the Pacific to the Baltic Sea and to gradually

**China has been trying its best to propagate the BRI as a win-win project to the countries of the world. For this to be achieved, China needs friendly countries to endorse the BRI. The Central Asian countries are the safest bet in this endeavour. It was also trying to win over the trust and loyalty of the countries of the region.**

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26. Liu Yazhou, "Xibu lun [Theory on the Western Region]," *Fenghuang Zhoukan* [Phoenix Weekly], Hong Kong, August 5, 2010, quoted in Andrew Scobell, "Why the Middle East Matters to China", in Anoushiravan Ehteshami and Niv Horesh, eds, *China's Presence in the Middle East: The Implications of the One Belt, One Road* (Oxon and New York: Routledge, 2018)..

form a transportation network that connects East Asia, West Asia, and South Asia. Third, to promote trade facilitation... All the parties should promote the realization of exchange and settlement of local currency, increase the ability to fend off financial risks and make the region more economically competitive in the world. Fifth, to strengthen people-to-people exchanges.<sup>27</sup>

Xi Jinping chose Kazakhstan to announce the revival of the ancient Silk Road for two key reasons: first, Central Asia was the focal point of the ancient Silk Road. Therefore, it made sense for China to announce the revival from the region which had played a key role in Silk Road trade. Second, the Central Asian countries have displayed a positive approach towards China since the collapse of the USSR. China has been trying its best to propagate the BRI as a win-win project to the countries of the world. For this to be achieved, China needs friendly countries to endorse the BRI. The Central Asian countries are the safest bet in this endeavour. It was also trying to win over the trust and loyalty of the countries of the region.

Central Asia remains a key to the success of Xi's BRI for four reasons. First, the BRI will help in giving an impetus to the Western Development Programme and is a means to develop Xinjiang, which is still underdeveloped and highly volatile. Much of China's trade with Central Asia is through Xinjiang and this will allow better integration between Xinjiang and Central Asia. Second, given its strategic location, Central Asia is one of the most important regions for the BRI. Third, the Central Asian Republics come under the category of countries that are friendly towards China, thereby providing credibility to the BRI. Fourth, the BRI will allow China to increase its presence in the Eurasian region and integrate the Chinese economy with the wider Eurasian region.<sup>28</sup>

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27. n. 2.

28. The author has listed these reasons in her previous publication. For more details, see Sana Hashmi, "The China-Eurasian Connect", in Srikanth Kondapalli and Hu Xiaowen eds, *One Belt, One Road: China's Global Outreach* (New Delhi: Pentagon press, 2016).

The China–Central Asia–West Asia Economic Corridor (CCWAEC) is one of the main corridors of the SREB. While China’s Xinjiang province is the starting point of the CCWAEC, the corridor passes through all the five Central Asian countries (Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan and Turkmenistan) and 17 other countries in West Asia as also the Persian Gulf, Mediterranean Sea and Arabian Peninsula. This corridor is important as it would facilitate economic and trade cooperation and flow of capital to these regions, and boost local economic and social development.<sup>29</sup> For China, it will help it meet its growing energy demands, as Central and West Asia have abundant resources.

All the Central Asian countries have generally responded positively to the massive infrastructure and connectivity project. Former Kazakhstan President Nursultan Nazarbayev, Kyrgyzstan President, Almazbek Atambayev, and Uzbekistan President Shavkat Mirziyoyev attended the first Belt and Road Forum (BRF) in Beijing in May 2017. Nazarbayev Nursultan remarked:<sup>30</sup>

The global trade project allows to form a new geo-economic paradigm, the successful implementation of which will benefit countries with a total population of 4.4 billion people... The proclaimed approach ‘stability through joint development’ is an attractive form of international cooperation reflecting the economic interests of dozens of countries. Now, when certain contours of the Silk Road are visible, a joint strategic coordination of this macro regional cooperation is necessary. In addition, the implementation of the Silk Road initiative allows positioning the whole region in a new way, including Central Asia in a global context.

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29. “China-Central Asia-West Asia Economic Corridor”, April 19, 2017, [http://www.china.org.cn/english/china\\_key\\_words/2017-04/19/content\\_40651859.htm](http://www.china.org.cn/english/china_key_words/2017-04/19/content_40651859.htm). Accessed on December 7, 2017.

30. Malika Orazgaliyeva, “Kazakh President Attends One Belt, One Road Forum, Meets with Leaders in China”, *The Astana Times*, May 16, 2017, <https://astanatimes.com/2017/05/kazakh-president-attends-one-belt-one-road-forum-meets-with-leaders-in-china/>. Accessed on December 14, 2017.

Nazarbayev stressed that “Central Asia has regained its strategic importance and has become the main bridge between the world’s largest markets.”<sup>31</sup> At the first forum, Kyrgyz President Almazbek Atambayev also made a speech. He noted that “the Economic Belt of the Silk Road opens new opportunities and prospects for many countries” and supported the idea of Xi Jinping on the digital Silk Road.<sup>32</sup> Uzbek President Shavkat Mirziyoyev, speaking at the Leaders’ Round table Summit at the first BRF in Beijing said, “I am convinced that the implementation of this large-scale project, now covering more than 60 per cent of the world population, will contribute to the formation of a common belt of peace, prosperity, progress, cooperation and friendship between our countries and peoples.”<sup>33</sup> Shavkat Mirziyoyev went away with dozens of agreements, worth a total of US\$ 23 billion under his belt; a whole array of sectors was covered, from energy to oil refining, and electricity to agriculture, chemicals to transport and communications, among others.<sup>34</sup> The plan reflects the region’s fundamental importance to China’s BRI projects, with key western land corridors passing through the Central Asian Republics.<sup>35</sup> The second BRF, held in April 2019, was also attended by all the Central Asian leaders, barring Turkmenistan. There is a continuity in the approach of the Central Asian leaders towards the BRI. They have been supportive of the initiative.

While China is making inroads into Central Asia through the BRI, it has to take Russia’s sensitivities into consideration. Some believe that China’s expanding footprint in Central Asia is worrisome for Russia, which

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31. Ibid.

32. “Almazbek Atambayev Meets with Heads of Seven States in China”, May 16, 2017, [https://24.kg/english/51873\\_Almazbek\\_Atambayev\\_meets\\_with\\_heads\\_of\\_seven\\_states\\_in\\_China/](https://24.kg/english/51873_Almazbek_Atambayev_meets_with_heads_of_seven_states_in_China/). Accessed on December 14, 2017.

33. “Remarks by Shavkat Mirziyoyev at Leaders’ Roundtable Summit at Belt and Road Forum”, *Tashkent Times*, May 15, 2017, <http://tashkenttimes.uz/world/928-shavkat-mirziyoyev-s-speech-at-leaders-roundtable-summit-at-belt-and-road-forum>. Accessed on December 8, 2017.

34. “Uzbekistan: President’s China Trip Yields Giant Rewards”, Eurasia Net, May 16, 2017, <http://www.eurasianet.org/node/83611>. Accessed on December 9, 2017.

35. Connor Dilleen, “China’s Belt and Road Initiative in Central Asia: Insurmountable Obstacles and Unmanageable Risks?”, Australian Strategic Policy Institute, June 28, 2017, <https://www.aspistrategist.org.au/chinas-belt-road-initiative-central-asia-insurmountable-obstacles-unmanageable-risks/>. Accessed on December 2, 2017.

traditionally considers the Central Asian region as its area of influence. Russian President Vladimir Putin's grand, civilisational understanding of "Eurasianism" is embodied in the Eurasian Economic Union (EAEU), which is his flagship project for the integration of the post-Soviet sphere, while Xi's own concept of "shared human destiny," is at odds with Putin's plans for his backyard.<sup>36</sup> A Russian senior, Alexander Gabuev, pointed out, "China's initiative was "just another attempt to steal Central Asia from us".<sup>37</sup> However, despite scepticism, Russia is engaging with China in the region and has also embraced the BRI. Putin has attended both the BRFs and, in fact, linked the EAEU with the BRI. He remarked, "Russia has emphasised on numerous occasions that the PRC President's BRI is in sync with Russia's idea to establish a Greater Eurasian Partnership, a project designed to 'integrate integration frameworks', and, therefore, to promote a closer alignment of various bilateral and multilateral integration processes that are currently underway in Eurasia."<sup>38</sup>

There is another major concern vis-à-vis the BRI. Some countries are getting debt-ridden due to the high interest rates on the Chinese loans. The example of Sri Lanka handing over the Hambantota port to China on a lease for 99 years when the former was unable to repay the loan is a relevant example in this context. In 2018, a Washington D.C.-based organisation, Centre for Global Development, released a report which highlighted that eight countries are debt-stressed. Out of the eight countries, two were Central Asian Republics: Kyrgyzstan and Tajikistan. China is the largest creditor of Tajikistan. According to the report, "Tajikistan's debt to China accounts for almost 80 per cent of the total increase in its external debt over the 2007-2016 period; and for Kyrgyzstan, China's Exim Bank is the largest single creditor, with reported loans by the end of 2016 totalling US\$ 1.5 billion, or roughly

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36. Jacob Mardell, "One Belt, One Road, and One Big Competition", *The Diplomat*, December 15, 2017, [https://thediplomat.com/2017/12/one-belt-one-road-and-one-big-competition/?utm\\_content=buffer8db7b&utm\\_medium=social&utm\\_source=twitter.com&utm\\_campaign=buffer](https://thediplomat.com/2017/12/one-belt-one-road-and-one-big-competition/?utm_content=buffer8db7b&utm_medium=social&utm_source=twitter.com&utm_campaign=buffer). Accessed on December 16, 2017.

37. Ibid.

38. "Belt and Road Forum for International Cooperation", Kremlin (President of Russia), April 26, 2019, <http://en.kremlin.ru/events/president/news/60378>. Accessed on April 27, 2019.

**The SCO allows member countries to cooperate on a wide array of issues such as counter-terrorism, fighting the three evils (separatism, extremism and terrorism), and energy cooperation. The scope of the regional organisation has been expanded from border security to economics, energy and counter-terrorism.**

40 per cent of the country's total external debt."<sup>39</sup>

Central Asia and Russia seem to be uneasy with China's increasing influence and presence but they still opt for cooperation with China. For these countries, the benefits far outweigh the risks. Russia needs China to keep the Western powers out of its neighbourhood and for the Central Asian Republics, the BRI is the hope to improve their economic condition. As far as China is concerned, due to its proximity with Central Asia and for its own internal security reasons, it aspires to secure and

develop its western region and also reap economic benefits.

### ENERGY IN SHARP FOCUS

Energy is one of the major areas of cooperation for China in Central Asia. Central Asia is sitting on an abundance of energy resources. Often referred to as Persian Gulf, Central Asia is gaining traction due to the abundance of untapped natural resources in the region.<sup>40</sup> China's energy demand has been increasing. For a long time, China has been in the process of diversifying its energy sources and for the same reason, China's engagement in the region has increased. The optimisation and upgrading of the economic structure and the slowdown in the urbanisation process will lead to a gradual slowdown in the primary energy demand growth; from 2015 to 2020, the average annual growth rate will be 2 per cent, while it is projected to be 1.1 per cent in 2020-35 and -0.2 per cent in 2035-50. China's primary energy demand will peak and plateau around 2035 at around 3.91 billion tons of oil equivalent.<sup>41</sup>

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39. John Hurley, Scott Morris, and Gailyn Portelance, *Examining the Debt Implications of the Belt and Road Initiative from a Policy Perspective* (Centre for Global Development, 2018), pp. 18-19.

40. Hashmi, n. 28.

41. "China Energy Outlook 2050", CNPC Economics and Technology Research Institute, p. 11,

The International Energy Outlook 2016 estimates that “China’s oil imports in 2015 amounted to about 6.6 million barrels per day (b/d), representing 59 per cent of the country’s total oil consumption.”<sup>42</sup> By 2035, the Energy Information Administration (EIA) projects that China’s oil imports will rise to about 9.7 million b/d, accounting for about 62 per cent of total oil consumption”.<sup>43</sup> Since 2005, the SCO has prioritised joint energy projects, including in the oil and gas sectors, the exploration of new hydrocarbon reserves and the joint use of water resources. Within the SCO, Kazakhstan and Uzbekistan are of the greatest interest to Chinese policy-makers because of the large supplies of oil and gas these countries have at their disposal.<sup>44</sup>

**As far as Central Asia is concerned, the countries follow a multi-vector foreign policy. From the Central Asian perspective, the establishment of the SCO has worked in their favour. It became easier for the countries to prevent Russia and China from dominating the region entirely and, at the same time, engaging all the powers in the region for accruing benefits.**

### SHANGHAI COOPERATION ORGANISATION

China’s relations with Central Asia have been institutionalised under the SCO. Established as a boundary dispute resolution mechanism known as the Shanghai Five, the SCO has come a long way. Expanded to include Uzbekistan in 2001, the SCO allows member countries to cooperate on a wide array of issues such as counter-terrorism, fighting the three evils (separatism, extremism and terrorism), and energy cooperation. The scope of the regional organisation has been expanded from border security to economics, energy

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42. Samir Tata (2017), “Deconstructing China’s Energy Security Strategy”, *The Diplomat*, <http://thediplomat.com/2017/01/deconstructing-chinas-energy-security-strategy/>. Accessed on February 10, 2017.

43. Ibid.

44. Cited in Ralph Wrobel, “China’s New Energy Geopolitics: The Shanghai Cooperation Organization and Central Asia”, *ASIEN*, vol. 133, 2014, pp. 24–25.

and counter-terrorism. Its scope has further been expanded with the inclusion of two South Asian countries, India and Pakistan. The importance of the SCO may be gauged from Xi's speeches made at the SCO summits. Speaking at the summit in Qingdao, China, Xi highlighted that "the SCO stands as a comprehensive regional cooperation organization that covers the largest area and population in the world... The SCO enjoys strong vitality and momentum of cooperation. This, in the final analysis, is attributed to the Shanghai Spirit, a creative vision initiated and followed through by the SCO that champions mutual trust, mutual benefit, equality, consultation, respect for diversity of civilizations and pursuit of common development."<sup>45</sup>

In many aspects, the Central Asian region has served as a laboratory for some of China's most innovative foreign policy gambits since 2000,<sup>46</sup> e.g., the creation of the SCO in 2001 as a "harbinger of China's apparent reconciliation with multilateralism regarding the Central Asia security agenda".<sup>47</sup> While the main objective behind the establishment of the Shanghai Five was to safeguard and strengthen border security, there are no two views on the fact that it was also a collective effort to keep the United States out of the Central Asian region.

With recent success in setting up some new multilateral bodies such as the Asian Infrastructure Investment Bank (AIIB) and the New Development Bank (NDB) under the auspices of BRICS (Brazil, Russia, India, China, South Africa), China is attempting to emerge as a leading major player positively disposed towards multilateralism. In that context, the SCO still holds special relevance for China. The reasons for this are four-fold: first, it was the first-ever multilateral grouping, with China as a founder; second, it was welcomed not only by the Central Asian Republics, but Russia was also receptive of the idea of cooperating with China and the Central Asian Republics under the

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45. "Full Text of Chinese President Xi Jinping's Speech at the 18th SCO Qingdao Summit", *Xinhua*, June 10, 2018, [http://www.xinhuanet.com/english/2018-06/10/c\\_137244587.htm](http://www.xinhuanet.com/english/2018-06/10/c_137244587.htm). Accessed August 1, 2018.

46. Blank, n. 6, pp. 261–272.

47. Stephen Blank, "China's Laboratory," *Journal of International Security Affairs*, no. 17, 2009, pp. 91–97.

framework of a regional grouping; third, the SCO has not only helped China in positioning itself as an important power in the region, it has also helped it in addressing its problems with Xinjiang; and fourth, the SCO has allowed China to project its benign image and also that it is a responsible stakeholder.

As far as Central Asia is concerned, the countries follow a multi-vector foreign policy. From the Central Asian perspective, the establishment of the SCO has worked in their favour. It became easier for the countries to prevent Russia and China from dominating the region entirely and, at the same time, engaging all the powers in the region for accruing benefits.

## CONCLUSION

President Xi has consolidated his power with the removal of the term limit from the presidential tenure and is now being famously known as “president for life”. He has secured his place as one of the most powerful leaders in China. In his endeavour to establish China as a global power and make consistent efforts to realise the ‘Chinese Dream’, President Xi is reaching out to countries across the world, but his primary focus has been on the countries in the neighbourhood. More importantly, for Xi, the primary objective is to secure the legitimacy of the CCP, and for that, he must ensure stability in China’s peripheral areas. Regime stability is the goal for the Chinese leadership, while the tools to achieve this objective are the means to that end. In this context, Central Asia has been given substantial importance in Xi’s regional policy.

China-Central Asia relations have been shaped by convergent interests and shared security challenges. China’s charm offensive to the countries of the region has so far worked very well for both the Chinese and Central Asian interests. Moreover, these countries offer a favourable perception of China. This is particularly important when other countries in China’s neighbourhood are apprehensive of its assertive and aggressive behaviour. The Central Asian Republics’ approach towards China is fruitful for its international image as well as stability in its western provinces.