INDIA'S JOURNEY TOWARD ATMANIRBHAR DEFENCE: INNOVATIONS IN 21ST CENTURY WARFARE TECHNOLOGY

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ABSTRACT

The study outlines India's progression towards 'Atmanirbhar' (self-reliant) contemporary military technology, emphasizing the complex interaction of politics, national pride, and pragmatic strategy in defence procurement. The case of aircraft selection demonstrates that judgments are influenced not just by technical performance but also by geopolitical factors and national sovereignty. India's inclination towards platforms such as the French Rafale, rather than American options, illustrates its quest for strategic autonomy—prioritizing independence from external influence, particularly from the United States.The Rafale agreement is not merely a military procurement; it embodies India's declaration of an autonomous defence strategy and the enhancement of Indo-French relations, highlighting a wider dedication to self-sufficient advancement in military technology. The paper also highlights the India's insistence on platforms that ensure operational freedom, without dependence on foreign approval.This was reflected in recent conflict with Pakistan 'Operation Sindoor', in which, which highlights the Indias indigenous technology based rapid response and advanced capabilities. This paper also underlines the utilisation of Unmanned Aerial Vehicles (UAV) technology often called 'Drones' used in the recent India Pakistan conflict 'Operation Sindoor' and suggests the need of upgrading Indian UAV technology. To conclude this paper argues that India's focus on 'Atmanirbhar' in warfare technology is a strategic response to regional security challenges, designed to secure freedom of action and forge resilient international partnerships.

Keywords: Brahmos, DRDO, AtmaNirbhar, Unmanned Aerial Vehicles (UAV), Operation Sindoor

1. INTRODUCTION

India has made great progress toward creating indigenous military technologies to improve its defence capacity and lower reliance on outside vendors. India has produced some important indigenous military technologies shown below:[1]

i) Systems of Missiles: A family of ballistic missiles varying in range from short to intercontinental ballistic missiles (ICBMs). Agni-V has a more than 5,000km range.

Prithvi Series: Surface-to--surface ballistic missiles varying in kind for strategic and tactical usage. Developed collaboratively with Russia but mostly produced in India, Brahmos is a supersonic cruise missile noted for speed and accuracy.

ii) Aerospace: Designed to replace obsolete fighter jets and improve air force capability, Hindustan Aeronautics Limited (HAL) developed a light combat aircraft called HAL Tejas.

Hal Dhruv: Indigenous Advanced Light Helicopter employed in medical evacuation, reconnaissance, and transportation among other purposes.

iii) Naval Technology: INS Arihant: India's inaugural indigenous nuclear-powered ballistic missile submarine, augmenting India's second-strike capacity. Project 75 & 75I: Indigenous submarine initiatives, encompassing diesel-electric submarines and advancements in Air Independent Propulsion (AIP) for prolonged underwater endurance. Advanced Light Helicopter (ALH) Dhruv and its navy derivatives facilitating naval operations.

iv) Firearms and Artillery: INSAS rifle: Indigenous assault rifle utilized by the Indian Army. Dhanush: A domestically produced artillery piece featuring enhanced range and superior firepower. Pinaka: A multi-barrel rocket launcher system manufactured by the Defence Research and Development Organisation (DRDO).

v) Defence Systems & Electronic Warfare: Indigenous surface-to----air missile defence system, Akash. Rustom: Developed by DRDO, an unmanned aerial vehicle (UAV) for surveillance. DRDO Radars: Different indigenous surveillance and missile tracking radar systems

[1] https://vajiramandravi.com/upsc-exam/types-of-missiles-in-india/

vi) Satellite and Space Technology: GSAT series: Indigenous satellite supporting safe military communications. RISAT: Reconnaissance-oriented Radar Imaging satellites.

vii) Modern Drone Systems: During Operation Sindoor, India made use of many contemporary drone systems, including the Harpist, Kamikaze, and maybe Nagastra. These drones show the developing unmanned aerial capability of India. Particularly the Harpis are kamikaze drones used to target enemy radar systems. India has also lately bought drones like Heron and the Israeli Searcher Mk II, suggesting a long-term commitment in drone technology for military uses. Their ability is further improved by the HAROP, a development of the Harp. Modern warfare depends much on these drones since they offer striking capability, observation, and reconnaissance.[2]

The Indian Army used contemporary drone technologies for reconnaissance and precise strikes during Operation Sindoor. Among these were the "SkyStriker" drones, produced in Bengaluru under cooperation with Israel. Harop drones—also obtained from Israel—were also used. Precision striking and autonomous reconnaissance skills of these drones are well-known. Particularly the "SkyStriker," is a Kamikaze drone. These deployments show how the operational strategies of the Indian military incorporate sophisticated drone technologies. Operation Sindoor against Pakistan exposes India's preparedness for the dawn of drone wars.[3]

India's military modernization, expedited following the 2019 India-Pakistan conflict, demonstrated advancements through acquisitions such as the S-400 air defence system and Rafale fighters; yet, deficiencies persist, notably the dependence on foreign equipment (e.g., French aircraft, Russian systems).[4]

2. INSTITUTIONS BEHIND INDIGENOUS DEFENCE TECHNOLOGY

India's pursuit of self-sufficiency in defence technology is led by multiple esteemed organizations that together engage in the design, development, and production of sophisticated defence systems. These institutions are essential in enhancing India’s strategic capabilities and diminishing reliance on foreign imports in vital military sectors.

[2] https://www.pib.gov.in/PressReleasePage.aspx?PRID=2129453
[3] https://www.opindia.com/2025/05/from-barack-8-missiles-to-harop-loitering-munitions-and-more-how-india-israel-partnership-gave-india-an-edge-during-operation-sindoor/
[4] https://www.cfr.org/blog/india-and-pakistan-brink-conflict-over-kashmir

i) Defence Research and Development Organisation (DRDO) serves as the foundation of India's domestic defence research and development ecosystem. Founded in 1958, the Defence Research and Development Organisation (DRDO) operates under the Ministry of Defence and comprises over 50 laboratories nationwide, specializing in many domains like aeronautics, weaponry, electronics, missiles, combat vehicles, and naval systems. The role of DRDO is to conceptualize, develop, and test innovative technological products, including missile systems, radar and electronic warfare systems, military drones, tank engines, and night vision gadgets. Significant accomplishments encompass the creation of the Agni series of ballistic missiles, the Akash surface-to-air missile, and the Light Combat Aircraft (LCA) Tejas, advancing India's pursuit of self-sufficiency in strategic defence sectors.[5]

ii) Hindustan Aeronautics Limited (HAL) is an Indian government-owned aerospace and defence enterprise that plays a crucial role in aircraft manufacturing, enhancement, and maintenance. HAL has played a crucial role in the production of indigenous fighter planes, such the Light Combat Aircraft Tejas, and in the licensed manufacturing of aircraft such as the Sukhoi Su-30MKI. [6] In addition to producing fixed-wing aircraft, HAL plays a crucial role in manufacturing helicopters for the Indian Armed Forces, such as the Dhruv Advanced Light Helicopter and the Light Combat Helicopter (LCH). HAL's aerospace competence guarantees that India sustains and enhances its aviation abilities, encompassing engine design, avionics integration, and aircraft systems production.

iii)Bharat Electronics Limited (BEL) is India's leading defence electronics firm, specializing in radar technologies, communication devices, electronic warfare systems, and naval electronics. Created in 1954, BEL partners with DRDO and the military to design and manufacture cutting-edge indigenous electrical devices. These include battlefield observation radars, weapon finding radars, electronic countermeasure systems, and sonar apparatus. BEL's innovations significantly improve the Indian military's operational awareness, situational intelligence, and network-centric fighting capabilities.[7]

iv)Bharat Dynamics Limited (BDL) is the authorized public sector entity tasked with the production of missiles and related defence equipment in India. Founded in 1970, BDL produces a range of missile systems, encompassing surface-to-air missiles, anti-tank guided

[5] https://www.drdo.gov.in/drdo/
[6] https://www.linkedin.com/pulse/from-turbulence-triumphs-story-licensed-assembly-indian-paikray-4ezpf
[7] https://eparlib.nic.in/bitstream/123456789/64662/1/15_Public_Undertakings_26.pdf

missiles, and other strategic missile weapons developed by DRDO. BDL's manufacturing proficiency ensures prompt delivery and quality assurance of essential missile systems, including the Akash SAM and the BrahMos cruise missile. The corporation is essential in enhancing production capacities to satisfy the armed forces' increasing demand for advanced domestic missile technology.

Collectively, these institutions constitute the foundation of India's indigenous defence technology framework. They jointly advocate for innovation, knowledge transfer, and industrial superiority to diminish dependence on imports and bolster strategic autonomy. Government programs such as "Make in India" and specific defence manufacturing policies enhance these institutions, promoting private sector participation and cultivating an environment for defence innovation.[8]

3. INDIA PAKISTAN CONFLICT: OPERATION SINDOOR

War serves as a trial, not alone of military equipment, but of genuine combat efficacy. In reaction to the Indian Kashmir's Pahalgam terrorist assault in April 2025, India initiated 'Operation Sindoor' on 7th to 8th of May 2025, targeting nine terrorist infrastructure sites in Pakistan. India's 'Operation Sindoor' was a fighting tactic centered on self-reliance.[9]

The exercise not only conveyed a geopolitical statement but also unveiled a tactical reality: India's domestically produced weaponry were effective. China did not. India's increasing defence self-sufficiency, propelled by the "Make in India" initiative, has resulted in a significant advancement in domestic production—from 32% of the Army's ammunition requirements fulfilled locally in 2014 to 88% in 2024. [10]

Indian-manufactured equipment, including BrahMos and Pinaka missiles, radars, and artillery systems, shown its efficacy in live combat. This is not merely a national achievement; it serves as a paradigm of military preparedness for any country confronting contemporary dangers. Pakistan continues to depend significantly on Chinese-manufactured systems such as the HQ-

[8] Nandan P. Athma nirbhar bharat: a new self resilient India. MS Ramaiah Management Review ISSN (Print)-0975-7988. 2020 Jun 26;11(01):18-22.
[9] https://www.pib.gov.in/PressReleasePage.aspx?PRID=2128748
[10] https://idsa.in/system/files/book/book-india-defence_0.pdf

9/P, LY-80, and FM-90—systems that consistently fail to intercept or identify precision strikes. In an actual confrontation, performance is of greater significance than procurement agreements.

The anti-drone devices developed by DRDO and the industry were essential in repelling the significant influx of Pakistani drones. These solutions were effectively used to mitigate the drone danger.The anti-drone systems, developed by both DRDO and industry, were effectively employed in response to influx of numerous drones. [11]

Operation Sindoor successfully dismantled terrorist camps, accomplishing its goals with accuracy. The modern battlefield defence systems employed in this conflict include the Rafale from France, drones from Israel, the S-400 from Russia, and 'BrahMos' Co-developed with Russia, Su-30 manufactured in Russia, MIG-29 produced in Russia, Mirage 2000 fabricated in France, Hammer constructed in France, and SCALP-EG created in France and the UK.[12]

4. DEFENCE TECHNOLOGIES EMPLOYED IN OPERATION SINDOOR

The Indian Armed Forces initiated Operation Sindoor in the early hours of 7th May 2025, aimed at nine terrorist infrastructure locations in Pakistan and Pakistan-occupied Jammu and Kashmir (PoK). This operation was a reprisal for the 22nd April 2025 terrorist attack in Pahalgam, Jammu and Kashmir, which claimed the lives of 26 tourist people, including one Nepali national.

Operation Sindoor, initiated on 7th May 2025 following the 22nd April 2025 believed to be Pakistan-supported terrorist assault on Tourist civilians in Pahalgam, has not been officially terminated; nonetheless, endeavors to reestablish peace are underway. Indian combat planes, long-range stand-off munitions, missiles, drones, and counter-drone systems were pivotal in the operation. Nonetheless, drones occupied a distinctive position because to their disruptive and asymmetric characteristics.

India commenced Operation Sindoor by targeting nine terrorist locations in Pakistan during the early hours of May 7. To avert escalation, no Pakistani military or civilian facilities were attacked. Sindoor, or vermilion, is customarily adorned by married ladies on the head or

[11] India-Pakistan Conflict 2025: Legal Dimensions and Regional Implications, May 2025. https://theindianlawyer.in/india-pakistan-conflict-2025-legal-dimensions-and-regional-implications/
[12] https://www.brahmos.com/content.php?id=1&sid=2

forehead and is removed upon their widowhood. The codename was selected to commemorate the women who had lost their spouses at Pahalgam.

i) UAV DRONES:

Drones have advanced beyond mere surveillance devices; they are transforming the conduct of warfare. They are rapidly deployable, difficult to detect, and capable of precise strikes, all while ensuring the safety of the pilot. The recent confrontation between India and Pakistan underscores the pivotal role of drones in military strategy. The Russia-Ukraine conflict has demonstrated this as well. As trenches characterized World War I, drones are currently influencing modern warfare.

India used its armed drones in actual combat for the first time on 7th to 8th May 2025. It deployed Harop drones to target terrorist installations and Pakistani air defence systems. These drones hovered in the air, identified targets by detecting radar signals, and subsequently descended like guided missiles. On these same days Pakistan retaliated. Drone swarms infiltrated Indian airspace at 26 locations, spanning from Kashmir to Rajasthan. A multitude was transporting bombs. India had to promptly deploy its air defence systems to intercept them. India deployed Israeli Heron Mk II drones to monitor Pakistani activities closely.

On the night of 7th May 2025 Pakistan targeted Indian military and civilian installations utilizing armed unmanned aerial vehicles (UAVs), loitering munitions, and various drones en masse, therefore escalating tensions that India sought to mitigate. The Pakistan Air Force attempted to confront the Indian Air Force in aerial combat; thus, the IAF conducted deep strikes, neutralizing airfields, radars, command and control centers, air defence systems, military installations, and other vital targets, thereby diminishing the war-fighting capability of the PAF.

Pakistan mostly utilized five economical strategies: drones, missiles, artillery, terrorism, and propaganda. The scope and extent of utilizing four elements—missiles, artillery, terrorism, and propaganda—are quite well understood. The utilization of drones is altering the parameters of military interaction between the two nations. It stayed beneath the threshold of conventional warfare, although initial apprehensions over nuclear coercion by Pakistan.

Pakistan's arsenal predominantly consisted of Akinci drones from Turkey, CH-3 and CH-4

drones from China, produced under license from Italy's FALCO, Luna-2000 drones from Germany, domestically developed Shahpur-2 and Shahpur-3 drones, Sarfirosh kamikaze munitions, GM-500 Turah stealth drones, Uqab-II drones, and small drones created by private enterprises within the country. Turkey extended not only solidarity to Pakistan but also provisions of Assiguard Sonagar armed drones and Byker Yika III loitering drones.[13]

Pakistan utilized drones extensively for reconnaissance and targeting military and civilian objectives, as well as overwhelming air defenses. It also attempted, without success, to utilize drone strikes to incite religious discord by targeting holy sites and disseminating rumors on analogous strikes by India. The systematic and extensive deployment of drones was effectively neutralized by Indian integrated air defence and counter-drone systems, resulting in significant attrition for Pakistan.

India has deployed various missiles, stand-off munitions, drones, and counter-drone and air defence systems for both defensive and offensive operations. The indigenous systems emerged as prominent contenders in this aerial competition. The Akash missiles, radars, loitering drones, drone swarms, D4 (drone detection, deterrence, and destruction) systems, drone jammers, various unmanned systems, and the Akashteer network were prominent. Light combat planes and helicopters were prepared to address emergencies. The systems, created by the Defence Research and Development Organisation, public sector units, startups, and Indian inventors, fulfilled several functions in this brief competition. The enhanced L-70 and ZSU-23 artillery were deployed to counter Pakistan's drone assaults.[14]

The combat experience offered a chance to assess and confirm the capabilities, as well as the constraints and difficulties of the indigenous systems. The insights gained will facilitate design enhancements, elevate quality standards, and inform future updates, ultimately resulting in superior goods that are more resilient and possess increased global market acceptance.

The unforeseen assault, India's measured response, and incremental escalation would have provided the Ministry, users, financial entities, and other stakeholders an opportunity to assess challenges that could be utilized for refining policies, frameworks, and systems to promote

[13] https://timesofindia.indiatimes.com/toi-plus/toi-in-depth-stories-on-operation-sindoor/paks-arsenal-of-turkish-drones-chinese-missiles-no-match-for-indias-air-defence-wall/articleshow/121130933.cms
[14] Shankar Nandan P. Athma nirbhar bharat: a new self resilient India. MS Ramaiah Management Review ISSN (Print)-0975-7988. 2020, Jun 26;11(01):18-22.

domestic research, innovations, iterative development, and to facilitate the seamless procurement and operationalization of indigenous equipment.

The aerial competition may currently be suspended, although the menace of rogue and hostile drones, as well as drone swarms, is certain to escalate in the future. The prompt implementation of indigenous quick-reaction surface-to-air missiles (QRSAMs) and fire control radars; the initiation of advanced indigenous autonomous anti-aircraft and anti-drone artillery; and the utilization of stealth wing flying test bed (SWIFT) as precision-strike platforms warrant careful consideration.[15]

Operation Sindoor exemplifies the significance of judicious air power utilization in non-war contexts and the advantages of domestic technologies. The substantial contributions of indigenous drones, counter-drones, missiles, integrated air defence, and other systems in national defence stemmed from India's emphasis on atmanirbharta and innovation initiatives, which include indigenous design, development, and manufacturing, innovation for defence excellence (iDEX), and the Mehar Baba unmanned aerial system swarm competitions.

Various Categories of Drones

1. Intelligence, Surveillance, and Reconnaissance Drones (ISR Drones): These drones are predominantly employed for intelligence gathering, surveillance, and reconnaissance activities. [5]

India possesses Israeli Heron and Rustom drones, built by DRDO. Tactical Advanced Platform for Aerial Surveillance - BH-201

Pakistan possesses the Burraq, which also exhibits combat potential. Uqab | Drones of Chinese origin such as Wing Loong and CH-4

2. Unmanned Combat Aerial Vehicles (UCAVs): Unmanned combat aerial vehicles (UCAVs) can deploy missiles or release bombs.

India possesses the Armed Heron TP, acquired from Israel. Ghatak, currently in development by DRDO. Pakistan possesses the Burraq, an indigenously designed system utilizing Chinese

[15] Kumar, R, Towards Atmanirbhar Bharat: Opportunities, Challenges and measures for Self-reliance. Stanford J, 2024, 61-67.

technology. Wing Loong II (Chinese UAV).[16]

3. Loitering Munitions (Kamikaze Unmanned Aerial Vehicles) These drones are engineered to hover over a designated area and engage upon target identification.

India possesses Warmate (of Polish origin) and Nagastra (manufactured by Solar Industries & ZMotion). Pakistan possesses potentially Turkish hovering weapons such as the Kargu or CH-901.

4. Commercial/Altered Civilian Drones: These are commercially available drones, frequently altered for illicit cross-border activities such as arms or drug trafficking and surveillance. Commonly utilized in the Punjab and Jammu regions for the illicit distribution of firearms or narcotics. Both nations have recorded incursions employing these economical drones.

5. Swarm Drones: A multitude of drones functions in unison to surpass adversarial defenses. The Defence Research and Development Organisation and private enterprises are developing swarm drone technology. Although there is scant indication of swarm capabilities in Pakistan, it may be coordinating with China and Turkey.

ii) MISSILE SYSTEMS:

a) The S-400 'Triumf' of Russia was an essential component of India's air defence system during 'Operation Sindoor.' The surface-to-air missile system presently comprises three operational squadrons in India, capable of intercepting incoming projectiles at a range of 400 kilometers and an altitude of 30 kilometers. The S-400 system is engineered to intercept various aerial threats, encompassing ballistic and cruise missiles, and is integrated with the Indian Air Force's IACCS network.[17]

The Russian-built system can intercept nearly any aircraft assault from the adversary, including missiles, drones, fighter jets, and rocket attacks. The system is highly portable and can be swiftly transported and deployed at any place, becoming operational within minutes.[18]

[16] https://economictimes.indiatimes.com/news/new-updates/nagastra-harpy-kamikaze-and-more-what-operation-sindoor-against-pakistan-reveals-about-indias-readiness-for-the-future-of-drone-wars/articleshow/121102482.cms?from=mdr
[17] Karanth S & Bhat, Self-Reliance in Defence Manufacturing in India–A Step Towards Aatmanirbhartha, 2024.
[18] Chiriac, C, The S-400. Triumf": between expectations and results". Bulletin of" Carol I" National Defence University, 2023, 12(4), 41-53.

The S-400 system features a sophisticated 92N6E electronically guided phased array radar, allowing for the detection of numerous adversarial targets at a range of 600 km. The system can simultaneously track up to 160 targets and launch two intercepting missiles at each target to assure neutralization.

In 2018, India procured the S-400 system from Russia under a contract valued at Rs 40,000 crore for five units, three of which have been delivered and are already operational.

b) Akash Missile System: The domestically developed Akash Missile System effectively enhances the S-400 air defence system. The Akash system is engineered for short-range aerial defence, capable of neutralizing aircraft threats at distances of 25-30 kilometers. The low-level interception system is an economical solution for engaging many short-range targets and is integrated with anti-jamming technology, complicating adversary attempts to disrupt it through electronic warfare.

c) Barak-8 missile system: The Barak-8, collaboratively developed by India and Israel, is a medium-range air defence system capable of engaging fighter planes, helicopters, drones, anti-ship missiles, and cruise missiles at distances of 70 to 150 km. The Barak-8 missile system features active radar homing and an enhanced data link, facilitating rapid response to threats.

India's air defence strategy is significantly distinct from Israel's Iron Dome system. The Jewish nation's renowned Iron Dome missile defence system is specifically engineered to intercept short-range aerial threats, particularly rocket assaults from Hamas in the Gaza Strip, whereas India's multi-tiered air defence system is intended to safeguard against long-range ballistic missiles, cruise missiles, stealth aircraft, and hypersonic projectiles.[19]

III) AIR JETS:

French Rafale Jets demonstrated capabilities beyond those of a mere fighter jet during 'Operation Sindoor.' The Rafale Jet agreement was more advantageous for India than the F-22 Jet manufactured by the United States. The subsequent points outline the principal features of the Rafale Jet.

[19] https://idrw.org/indias-air-defense-systems-a-comparative-analysis-with-israeli-and-american-systems-in-combat-scenarios/

a) Proven in Combat: In countries like Afghanistan, Libya, Mali the Rafales have engaged and triumphed.

b) Nuclear Capability: Rafales may be adapted to transport nuclear payloads, which is crucial for India's nuclear triad.

c) Adaptability: Robust enough to function from elevated airbases such as Leh.

d) Meteor Missiles: Armed with Meteor beyond-visual-range air-to-air missiles, a transformative asset in aerial combat.

France provided something the U.S. would never offer: complete knowledge transfer, domestic manufacture, and no geopolitical conditions. India prioritizes its autonomy in defence decision-making. Purchasing American goods would align India more closely with U.S. geopolitical interests. France has a history of supporting India, especially during challenging periods such as the 1998 nuclear tests, when the majority of Western nations applied sanctions. The Rafale agreement strengthened Indo-French relations, facilitating future collaborations beyond defence. India was not merely acquiring a jet; it was procuring autonomy – the autonomy to operate independently of Washington's approval.

India in pursuit of ascending superpower, selected France's Dassault Rafale instead of America's renowned Lockheed Martin F-22 Raptor which appears perplexing and perhaps astonishing. The F-22 epitomizes aerial supremacy, unparalleled in stealth and velocity. This diplomacy shows that India thrives to assert control over its airspace autonomously.

5. LEGAL DIMENSIONS AND REGIONAL IMPLICATIONS

Aggression is described in United Nations General Assembly (UNGA) Resolution 3314 (1974), which establishes that the initial illicit use of force results in a presumption of aggression. India contends that Pakistan's sponsorship of proxies for terrorism meets this threshold.

Armed conflicts are governed by International Humanitarian Law (IHL), which is enshrined in the Geneva Conventions. The points that follow are the primary principles:

i) Distinction: Players are required to differentiate between fighters and civilians, focusing

solely on military objectives.

ii) The proportionality: Attacks must not result in a great deal of civilian damage in contrast to the military edge that is obtained.

iii) Necessity: Armed forces must be restricted to the accomplishing legitimate objectives, thus avoiding unnecessary suffering.

India argues that their strikes complied with these objectives, focusing solely on terrorist camps and reducing civilian losses. Nonetheless, if confirmed, Pakistan's alleged support for terrorism might go against International Humanitarian Law and UNGA Resolution 3314, which classifies aggression as the employment of armed force against the sovereignty of another state, including the sponsorship of armed factions.[20]

India's Justification for Retaliation: In light of the current hostilities, we must examine Article 53 of the UN Charter, which asserts: "Nothing in the present Charter shall impair the inherent right of individual or collective self-defense if an armed attack occurs against a Member of the United Nations, until the Security Council has taken measures necessary to maintain international peace and security."[21]

This article is generally seen as codifying a "inherent right" to self-defense that existed under customary international law, independent of the Charter. A fundamental need for the legitimate use of this right under Article 51 is the occurrence of a "armed attack" against a member state.

India defends its actions during the Pahalgam attack by invoking the right to self-defense as stipulated in Article 51 of the UN Charter. India contends that the assault, backed by terrorist organizations based in Pakistan, qualifies as a "armed attack" that requires a reaction to safeguard its security and prevent future assaults. India has asserted that its operations under "Operation Sindoor" were calculated, non-escalatory, proportionate, and responsible, aimed at removing terrorist infrastructure rather than harming the civilian population of Pakistan.[22]

India's Domestic Legal Framework: India's reaction is based on its Constitution and its defence policy. Article 355 says that the Union has to guard states from aggression from other

[20] https://www.diplomacy.edu/resource/definition-of-aggression-unga-resolution-3314/
[21] The United Nations Charter, https://www.un.org/en/about-us/un-charter/chapter-8
[22] https://www.drishtijudiciary.com/public-international-law/india-pakistan-conflict-and-international-law

countries. India is taking a proactive approach to fighting cross-border terrorism, as its military policy changes from "deterrence by denial" to "deterrence by punishment." Rules of Engagement (ROE) that evolve over time give the Ministry of Defence and Armed Forces the freedom to respond to risks like the Pahalgam attack. The Supreme Court usually lets the Executive handle matters of national security, but it can look over acts to make sure they are constitutional, especially when it comes to basic rights.[23]

Article 352 of India's Constitution gives the Union a lot of emergency powers when there is a war. These include suspending basic rights, giving the government more control over the states, and making laws about state issues. Article 53(2) says that the President is the Supreme Commander of the Armed Forces and is in charge of all military activities.[24]

6. CONCLUSION

The conflict, Operation Sindoor, illustrated India's increasing self-reliance in defence technologies and its capabilities in indigenous technologies and Atmanirbhar-based warfare. India has declared that any future acts of terrorism will be regarded as acts of war against the nation. A more aggressive posture in response to terrorism is suggested by this forceful statement. The declaration suggests a potential escalation of conflict and a willingness to respond forcefully to future assaults, reflecting heightened tensions and a commitment to national security. The potential geopolitical repercussions of this policy change are substantial, as it could affect regional stability and relationships with neighboring countries.

i) Exposure of Capabilities of Brahmos missile: The launch of Brahmos Missiles to strike 10 key Pakistani airbases, including the strategically important Nur Khan base near the Pakistan Army headquarters in Rawalpindi, demonstrated New Delhi's decisive military resolve and sent strong signals to both Pakistan and the United States that India's indigenous technology is superior in the modern world. The inauguration of the BrahMos missile production plant in Lucknow, which can produce 100-150 missiles per year, demonstrates India's resolve to strengthening its defence capabilities and reducing reliance on imports.

[23] https://www.constitutionofindia.net/articles/article-355-duty-of-the-union-to-protect-states-against-external-aggression-and-internal-disturbance/
[24] https://blog.ipleaders.in/emergency-india/

ii) Need to Improve Drone technology: Advancing drone technology is the future. India encountered an unparalleled series of drone assaults along its western frontier during 'Operation Sindoor,' with Pakistan utilizing swarm and kamikaze drones at an unprecedented scale in the subcontinent. The Indian military reported that more than 300-400 drones infiltrated Indian airspace at 36 sites between Leh and Sir Creek during the night of May 8th and 9th of 2025 attack by Pakistan in response to Operation Sindoor by India. Indian air defence units employed a combination of kinetic and electronic warfare to neutralize numerous UAVs.[25]

This incident also represented the inaugural instance of drone warfare between nuclear-armed nations. This fight underscores a transition to long-range, technology-centric confrontations, wherein stealth, electronic warfare, and sophisticated avionics are paramount.

Military authorities claimed that among the intrusions were Chinese-built Byker YIHA III kamikaze UAVs and Turkish-origin Songar drones, some directed at residential locations including Amritsar. According to Indian Press Reports, the initial analysis indicates that the drones carried high-explosive payloads intended to inflict maximum damage on innocent civilians. [26] The Indian Air Force (IAF) and Army replied with their layered air defence systems, notably the Akash missile system, which intercepted and destroyed several approaching threats.[27]

Following the conclusion of the India-Pakistan conflict, during which the Pakistan Army employed Turkish drones with considerable aggression, India must diligently advance its drone capabilities, as they represent the "future of modern warfare."

iii) Importance of Adaptation of AtmaNirbhar India: The heightened emphasis on local development and production diminishes India's reliance on foreign defence technologies, hence augmenting its strategic autonomy. The BrahMos supersonic cruise missile demonstrated efficacy, precision, and reliability as a weapon. The BrahMos missile was employed as an exceptionally effective, precise, and dependable weapon. The military services received

[25] https://www.thehindu.com/news/national/pahalgam-attack-operation-sindoor-india-pakistan-live-updates-may-9-2025/
[26] https://www.businesstoday.in/india/story/work-seriously-on-drones-now-that-is-the-future-of-authors-call-after-pakistan-deploys-turkish-drones-475823-2025-05-11
[27] https://www.businesstoday.in/india/story/work-seriously-on-drones-now-that-is-the-future-of-authors-call-after-pakistan-deploys-turkish-drones-475823-2025-05-11

comprehensive training on this throughout the development phase and subsequently during the trials.

The significant lesson for India from this simulated conflict is the necessity of adopting advanced technologies for contemporary warfare, particularly in the realms of drone capabilities and beyond-visual-range operations. The India-Pakistan fight in May 2025 represented the inaugural instance of drone warfare between nuclear-armed nations, with both countries utilizing drones and missiles. This event underscores a transition towards long-range, technology-centric confrontations, whereby stealth, electronic warfare, and sophisticated avionics are paramount.

India's pursuit of self-sufficiency in defence through the "Make in India" initiative is rapidly advancing the development and implementation of domestic military technology, with the objective of achieving enhanced strategic autonomy. DRDO, HAL, BEL, and BDL collaboratively propel India's advancement in the indigenization of defence technologies. Their joint endeavours guarantee consistent advancement in the creation of innovative defence systems in aeronautics, missile technology, electronics, and weaponry—strengthening India’s status as an emerging defence power internationally.

To enhance contemporary fighting capabilities, India must emphasize the indigenous construction of a formidable military-industrial complex to diminish reliance on imports, necessitating a comprehensive domestic supply chain. This entails investing in AI-driven warfare, cyber capabilities, and drone technology to address emerging challenges while preserving strategic autonomy.