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India-US Military Technology Cooperation

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In a world of everchanging geopolitics, the formulation and evolution of the strategic partnership that exists between two countries placed on opposite ends of the planet have taken a central position. The Republic of India and the United States of America share a potentially long-term, mutually beneficial relationship. The United States has long been the largest economy of the world, invested in diverse sectors ranging from technology to energy. India has also since the 1990s been on the rise and has today achieved a crucial With the onset of Chinese aggressive expansionism, India's geographical proximity and America's political interests in the region make the two democracies natural partners.

Apart from trade and economic factors, security cooperation plays a vital role in Indo-American relations. New Delhi's reinvigoration of Indian foreign policy has resulted in the two largest democracies in aligning paths and moving forward together. The core pillar guiding this relation is the will to establish a free and fair, rules-based world order, unhampered by the aggressive and assertive behaviour emerging from Beijing, the effects of which are felt in the South China Sea and the Indian ocean alike. Keeping in mind such threats as well as ideals for a better future, India and the United States have regularly held high-profile meetings among several ministries and secretariats, as well as held personnel-level exercises to bolster relations on all levels.

The 21st century has come to highlight military technology as being the core field and dynamic having a major impact on the outcome of the modern battlefield, both for the fighting troops and the field commanding officer. The Indian Army and its Chief of Army Staff

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have recognised that 'icons of the 20th-century warfare like large main battle tanks and fighter aircraft are on their way out'. General Naravane has also said that "the battle-winning factor in future combat may not be numerical equivalence but technological superiority"[2]. Keeping this in mind alongside the threat of the rapid modernisation across the various branches of the People's Liberation Army, cooperation in the vast field of military science and technology has established itself as one of the core pillars of Indo-American relations.

ACQUISITIONS OVER THE YEARS

India has historically been among the list of the top importers of arms, ammunition and other allied military technology & equipment. While Russia (and the former Soviet Union alongside former Warsaw Pact states) has been the prime weapons markets for India's military, the United States has since 2008 also begun to set a firm foothold in preferences among the ranks of the Indian armed forces and the cadre of the Ministry of Defence. In this regard, the Indian Army has inducted 145 pieces of the towed M777 155mm artillery gun. The Ministry of Defence has also over the past few years expressed an interest in equipping its troops with modern rifles to replace ageing AK type relics of the cold war and the locally developed and manufactured INSAS assault rifles. For this, the Army showed a preference in utilising the modern Russian developed, Indian made, Kalashnikov AK-203, while also portraying immense warmth toward the procurement of the American SIG Sauer 716 assault rifle, based on the traditional AR-15 type. With previous orders and deliveries complete, the Defence Acquisition Council in September 2020 approved an order of further 72,000 units of the same rifle.

The Indian Navy has inducted 8 out of the ordered 12 Boeing P-8I Poseidon reconnaissance aircraft, based on the reliant global workhorse that is the Boeing 737, designed for long-range anti-submarine warfare (ASW), anti-surface warfare (ASuW), and intelligence, surveillance and reconnaissance (ISR) missions. It is important to note that while the P-8I

[2] The Economic Times. (2020, March 6). Battle tanks, fighter jets are becoming outdated in modern era: Indian Army Chief. Retrieved from The Economic Times: https://economictimes.indiatimes.com/news/defence/battle-tanks-fighter-jets-are-becoming-outdated-in-modern-era-army-chief/articleshow/74489106.cms?from=mdr

Poseidon is designed primarily for the maritime domain, it has also been employed by New Delhi for sorties in India's mountainous northern frontier with China for ISR missions. The Indian Navy has also decided to go forth with the acquisition of AGM-84L Harpoon Block II air-to-surface missiles. The Harpoon missiles will be integrated with the P-8I Poseidon and will greatly boost the capabilities of the aircraft and indeed the navy. The Navy also signed deals with Sikorsky for the purchase of 24 MH-60 Romeo Seahawk to replace the ageing fleet of Westland Sea King helicopters in the Indian Naval Air Arm, for anti-submarine warfare (ASW), anti-surface warfare (ASuW) and search and rescue (SAR) operations.

However, the Indian Air Force has been undoubtedly the greatest benefactor of the sweetening Indo-American defence partnership. It has over the years inducted and operated 11 McDonnell Douglas/Boeing C-17 Globemaster III heavy cargo aircraft, capable of both tactical and strategic airlift missions, alongside the 11 Lockheed Martin C-130J Super Hercules, capable of operating from the relatively shorter and makeshift runways of airstrips in forward border regions. Both these aircraft could see an increase in number in the Indian Air Force, with the option of future purchases very well still on the table. The Indian Air Force also operates 15 Boeing CH-47F Chinook advanced multi-mission helicopter, which as per Boeing Co. has unsurpassed ability to deliver unmatched strategic airlift capability to high altitudes, and is eminently suitable for operations in the high Himalayas. In July 2020, Boeing also completed the delivery of 22 AH-64E Apache attack helicopters, rated as one of the best attack helicopters available in today's arms market. The Ministry of Defence is also in talks with Washington and Boeing Co. to acquire six additional units of the same combat helicopter for the Indian Army's Aviation Corps.

EVOLUTION OF POLICY

India has since 1961 been member to the Non-Aligned Movement – a collective of 120 states today, that refused to formally align with or against any of the two adversarial blocs of the cold war; that is, neither with the Warsaw Pact (USSR + Allies) nor with the North Atlantic Treaty Organisation (USA + Allies). However, ten years down the line, Indian foreign policy diverted from its path of non-alignment and under PM Indira Gandhi, New Delhi signed the

Treaty of Peace, Friendship and Cooperation with Moscow, further bolstering Indo-Soviet ties while also jeopardising any chances of improving ties with Washington. This promoted the Soviets to share and transfer sensitive and high-technology to India, but at the same time tranquilised any transfer of such technology coming from the Americans. Indo-American ties were further strained with India's first nuclear test in 1974.

With the cold war reaching the end of the line, the dissolution of the Soviet Union and the victory of the capitalist way of life in 1991, India too had to go through several reforms which would bring it closer to the globalised world led by the United States. However, this path of improvement in diplomatic ties was to seen be distorted by the Pokhran-II nuclear tests of 1998, which were unanticipated by the world and left Washington in a state of confusion and perhaps chaos. This was followed by the severe and absolute imposition of economic sanctions by the Bill Clinton administration on India, citing that sanctions are mandatory under US law when an undeclared nuclear state explodes a nuclear device[3]. Sanction included an end of all American assistance to India except humanitarian aid, the barring of export of certain defence and technology material as well as end US credit and credit guarantees to India. The United States Department of Commerce also put over 200 economic entities (persons and organisations) in India on the Entity List. The Bureau of Industry and Security "publishes the names of certain foreign persons – including businesses, research institutions, government & private organizations, individuals, and other types of legal persons - that are subject to specific license requirements for the export, re-export and/or transfer (in-country) of specified items," which comprise of the Entity List[4].

The persons on the Entity List are subject to individual licensing requirements and policies. This implied that in light of the severity of the diplomatic relationship of the two states, there would be no approval for the export of American equipment, platforms and technology for use by the several entities listed in the aforementioned list. Among the listed entities included – but not limited to – Bharat Dynamics Ltd (BDL), subsidiaries of Defense Research

[3] CNN. (1998, May 13). U.S. imposes sanctions on India. Retrieved from CNN World News: http://edition.cnn.com/WORLD/asiapcf/9805/13/india.us/

[4] Bureau of Industry and Security. (2020). CBC FAQs - 1. What is the Entity List? Retrieved from Bureau of Industry and Security: https://www.bis.doc.gov/index.php/cbc-faqs/faq/281-1-what-is-the-entity-list

and Development Organization (DRDO) (including Armament Research and Development Establishment (ARDE), Defense Research and Development Lab (DRDL), Missile Research and Development Complex and Solid State Physics Laboratory) and those of the Indian Space Research Organization (ISRO) (Liquid Propulsion Systems Center, Solid Propellant Space Booster Plant (SPROB), Sriharikota Space Center (SHAR), and Vikram Sarabhai Space Center (VSSC))[5]. With a change in administration in Washington, George W Bush after coming to power decided to lift sanctions in 2001, stating that it was in the United States' interest to facilitate the rise of a strong India. In 2011, following the reparation of ties and boost through the formation of strategic partnership, the United States removed the last remaining subsidiaries of DRDO and ISRO from the Entity List, expanding the scope of future strategic ties and high-technology transfer.

This marked the beginning of a new era in Indo-American ties, with the beginning of a plethora of Indian orders and purchases of American arms, ammunition, equipment and platforms, with the condition of no American technology being used in nuclear, missile, chemical, or biological weapons programs. While purchases are being made, the Ministry of Defence is also making moves to secure technology transfer from the United States to India to boost India's manufacturing capacities and capabilities, ensuring that future military equipment and platforms made in India are at par with those purchased from abroad. Making in India and making India a defence productions centre will be realised through the transfer of technology under the arrangements of the Industrial Security Annex (ISA 2019), signed at the second edition of the Indo-US 2+2 Dialogue attended by the foreign and defence ministers of both states, which 'facilitate collaboration between the defence industries of both countries by supporting the secure transfer of key information and technology'. At the dialogue, Defence Minister Rajnath Singh said:

> *"In the last few years, we have made a conscious decision to diversify and indigenise our arms acquisitions. This increased defence trade with the US is one important aspect of this. We are also working to encourage greater collaboration between*

[5] Jha, L. K. (2011, January 25). US Removes ISRO, DRDO from Entities List. Retrieved from Outlook: https://www.outlookindia.com/newswire/story/us-removes-isro-drdo-from-entities-list/709643

> *defence manufacturing sectors in India and in the US. The conclusion of the industrial security annex with the US will provide the necessary framework for pursuing the co-development and co-production linkages in the defence manufacturing centre"*[6]

In October 2020, New Delhi and Washington also finalised their global strategic partnership through the signing of the Basic Exchange and Cooperation Agreement (BECA 2020), alongside the previously signed Logistics Exchange Memorandum of Agreement (LEMOA 2016) and Communications Compatibility and Security Agreement (COMCASA 2018), completing "a troika of 'foundational pacts' for deep military cooperation"[7] between the two countries. However, there remains a moot element of sanctions through the Countering America's Adversaries Through Sanctions Act (CAATSA) which could jeopardise and bring to a grinding halt the Indo-American defence partnership. India in 2016 signed agreements with the Russians for the acquisition of the Almaz-Antey S-400 Triumf mobile surface-to-air missile/anti-ballistic missile system; a deal that has been since red-flagged by American Congress as potentially significant for triggering sanctions under the aforementioned act. Even though this transaction was later waived off, with India being designated a major defence partner, uncertainty looms as the waiver is not a guarantee. Congress moving to place sanctions on India remains unlikely, given the current uncertainties and emerging threats[8].

India is countering the geopolitical uncertainties it faces along its borders and maritime backyard through the continuous modernisation of all branches of its armed forces. As mentioned before, India is making capital purchases of assets and platforms but is also

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[6] PTI. (2019, December 19). Working on greater collaboration in defence sector with US: Rajnath Singh. Retrieved from The Times of India: https://timesofindia.indiatimes.com/india/working-on-greater-collaboration-in-defence-sector-with-us-rajnath-singh/articleshow/72881412.cms

[7] Roy, S. (2020, November 3). Explained: BECA, and the importance of 3 foundational pacts of India-US defence cooperation. Retrieved from The Indian Express: https://indianexpress.com/article/explained/beca-india-us-trade-agreements-rajnath-singh-mike-pompeo-6906637/#:~:text=What%20is%20the%20Basic%20Exchange,like%20missiles%20and%20armed%20drones.&text=This%20could%20be%20key%20to,between%20India%20and%20the%

[8] Chinoy, S. R. (2019, June 16). Indo-US Defence Partnership: Future Prospects. Retrieved from Manohar Parrikar Institute for Defence Studies and Analyses: https://idsa.in/idsacomments/indo-us-defence-partnership-srchinoy-260620

striving toward boosting the capacities and capabilities of the newly established private defence production sector. Monetary and budgetary restraints make it vital for the military complex to make in India. In this field, the United States has not been able to keep up with competition arising from Russia, France, Israel and the United Kingdom. Despite this, the United States remains the most potent and possessor of undoubtedly some of the most lethal and optimal military technologies, platforms and military-industrial complex, and therefore a crucial player in supporting India's military overhaul – both for its armed forces and the Indian military-industrial complex.

Among the reasons due to which India has faced problems over the years in this field include varying national bureaucratic structures, acquisition models, and budget processes. The India-US Defence Technology Trade Initiative (DTTI) was formulated to tackle the issues faced due to these impediments and further boost the trade of defence equipment, platforms and increase technology sharing between the two partner states. In 2016, Washington's elevation of India's diplomatic status to Major Defence Partner of the United States further expedited technology sharing channels between the two states. The designation move and the DTTI together "elevate defence trade and technology cooperation between the United States and India to a level commensurate with the closest allies and partners of the United States"[9].

The primary function of the DTTI is achieved through biannual meetings between senior government officials – the Secretary (Defence Production) from the Ministry of Defence and the Under Secretary of Defense for Acquisition and Sustainment in the Department of Defense. The latest edition of this meeting saw the signing of a statement of intent by Mr Raj Kumar representing New Delhi and Ms Ellen M Lord representing Washington, to further strengthen defence technology cooperation in the co-development and co-production of military platforms and allied equipment. A statement released soon after the virtual meet in September 2020 by the Pentagon read: "*this forum offers an opportunity for Indian and US industry to be directly involved in DTTI and facilitates dialogue between government and*

[9] Office of the Executive Director for International Cooperation, Department of Defense. (2020). US | India Defense Technology and Trade Initiative (DTTI). Retrieved from Office of the Executive Director for International Cooperation, Department of Defense: https://www.acq.osd.mil/ic/dtti.html

industry on issues that impact industrial collaboration. The results of the discussion were briefed to the DTTI Group co-chairs"[10]. The DTTI also hosts four joint working-groups with focus on land, naval, air and aircraft carrier technologies to promote mutually-agreed projects within their domains. The DTTI has also identified and classified projects into three distinct classifications. Near-term projects will include the likes of air-launched small unmanned systems, light-weight small arms technology and intelligence-surveillance-targeting & reconnaissance (ISTAR) platforms and equipment. Medium-term projects identified by the panel include virtual augmented mixed reality for aircraft maintenance (VAMRAM) and maritime domain awareness solutions. Long-term projects are to include the development of terrain shaping obstacle and counter-UAS (counter-drone), rocket, artillery & mortar (CURAM) system for the Indian Army[11].

The DTTI can, however, be said to have been unable to meet up to its expectations, at least from the Indian perspective. The initiative may have been able to expedite Indian purchases and acquisitions of American-made arms and ammunition. It has not been able to support New Delhi's initiatives such as Make in India and Atmanirbhar Bharat, to support, grow and modernise India's Defence manufacturing industry. Among the many fruits that India had hoped to reap from this partnership was that of the eminent American jet-engine technology and the electromagnetic aircraft launch system (EMALS). Jet technology was initially on the table for sharing with India. However, the DTTI in October 2019 suspended any potential collaboration, citing that 'transfer of such technology to India would run afoul of US export-control laws'[12]. The question of EMALS also continues to hang in the air, with several factors both in India and the United States having an impact on any such collaboration. In India, the second indigenous aircraft carrier project is currently only in the design phase, and with a

[10] United States Department of Defense. (2020, September 15). Indian and U.S. Defense Delegations Conduct Virtual Discussion of Defense Cooperation. Retrieved from United States Department of Defense: https://www.defense.gov/Newsroom/Releases/Release/Article/2347921/indian-and-us-defense-delegations-conduct-virtual-discussion-of-defense-coopera/

[11] Aryan, J. (2020, December 10). The Defence Technology and Trade Initiative (DTTI): Lost in the acronym bowl. Retrieved from Observer Research Foundation: https://www.orfonline.org/expert-speak/defence-technology-trade-initiative-dtti-lost-acronym-bowl/

[12] Rej, A. (2020, September 16). US and India Hold Defense Technology Cooperation Meeting Amid Diminished Expectations. Retrieved from The Diplomat: https://thediplomat.com/2020/09/us-and-india-hold-defense-technology-cooperation-meeting-amid-diminished-expectations/

price tag of over USD 10 billion, the possibility of the plan – however debatable – being forgone due to consistent budgetary crunches and the continued primacy of land forces in Indian defence planning. In the United States, President Trump has consistently lashed out the US Navy and its Naval Architecture and Engineering Department for the tremendous cost of the system. The reason for this Presidential critique being that the electromagnetic aircraft launch system, having 'underwent 747 test launches, experienced 10 critical failures during that time—far below the 4,166 mean time between failures expected of the system—and is unlikely to ever meet that standard of reliability'[13].

CONCLUSION

The United States continues to remain reluctant in sharing and transferring such sensitive and high-grade technology, to preserve the edge its military-industrial complex reserves in the global arms market. While the federal government is concerned about sharing sensitive technology, it still promotes the transfer of permissible technology. However, American defence manufacturers and developers resist the transfer of technology and technical knowledge, citing it as being 'bad for business'.

Since the Ministry of Defence releases requests for proposals with an emphasis on technology transfer, many American firms decide not to go ahead with a submission of an RFP entirely. There also is the issue of cost, which carries heavy weightage in proposals put forth by defence firms to the Defence Acquisition Council and the Ministry of Defence. Lowest-cost is a detrimental factor in the choice made by the council. This tranquilises the motivation of defence firms to propose the transfer of any technology more than the bare minimum required by the RFP's terms, simply because more sophisticated technology does cost more.

In this regard, New Delhi must seriously look into reforming factors impacting choices made through the Defence Procurement Procedure and establish the value of the platform – the

[13] Mizokami, K. (2019, May 30). Trump Tells U.S. Navy to Go Back to Steam Catapults. Retrieved from Popular Mechanics: https://www.popularmechanics.com/military/navy-ships/a27632779/trump-navy-steam-catapults/

efficiency and effectivity of the platform in operation – under the lens be detrimental, over the cost. This brings more optimal equipment as well as motivates the manufacturer to indulge in further technology transfer. For doing this, India will also require a larger defence budget, keeping in mind both the development and modernisation of the fighting force as well as the well-being of its fighting men and women.

All reforms are not to be made by New Delhi alone, however. Washington must recognise that in a geostrategic stand-off against China, the QUAD nations, including India, are its best bet and indeed also the most reliable. In this regard, the American administration has realised India to be a major defence partner state must further permit the export and transfer of military technology and technical know-how it deems sensitive, such as the aforementioned jet-engine technology. The American government must also take a less aggressive stance against partner states when enforcing federal laws such as CAATSA, an act which has placed India in a tricky position, given New Delhi's Iranian oil trade as well as the procurement of defence arms, equipment and platforms from Russia such as the S-400.

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