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US–India Defence Industry Collaboration: Trends, Challenges and Prospects

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The US defence industry has been the leading manufacturer and exporter of the major weapons systems of the world. In the post-Cold War era, most of the global defence industries, including the US defence industry, are looking towards India as an outsourcing hub for the technological development as well as markets. The current international security and threat perceptions, the defence industry trends and challenges, the convergence of geo-economic and geo-strategic interests between India and the US have strengthened the defence industry collaborations between them. The confidence and the trust that have been built in recent years between the US and India in the overall bilateral relationship have facilitated the strategic/security partnership in which the defence industry ties would be a key component of the ongoing "US–India strategic partnership."

The US defence industry has been the leading manufacturer and exporter of the major weapons systems of the world, but the USA has never been a traditional arms exporter to India. During the Cold War period, India relied on the erstwhile Soviet

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Union for meeting its arms requirements. However, the disintegration of the Soviet Union and the end of the Cold War changed much of the international alliance structures of the Cold War era. Today, most of the global defence industries, including the US defence industry, are looking towards India as an outsourcing hub for the development of technology as well as markets.

With a robust economic growth, India's defence industry development and modernization has gained an impetus in recent years with affordability to import major weapons systems at an accelerated pace. The modernization needs of the Indian armed forces and the improvement of overall standards; India's long-term goal of capacity to design, manufacture and develop arms; the need to add more fighter aircrafts to the Indian Air Force; the Indian defence sector allowing private sector participation, with foreign direct investment (FDI) earlier capped at 26% but now up to 49% in the aviation sector, the US defence companies' eagerness to access India's profitable defence market; India, by its part, also not averse to the idea of obtaining US arms, given its new obligations and pursuits in the Asian region; and improving Indo-US strategic and defence ties all augur well for India's closer ties with the USA in the defence industry sector.

India's rapidly growing economy, the opening of its market allowing greater interaction between the business communities of both nations, the growing influence of the Indian American lobbying in the US policy-making circles, globalization, India's impressive growth in the information and technology sector, India's acquisition of nuclear weapons, the concurrent growth of India's military capability that could contribute to the strategic stability in the Asian region and the growing menace of Islamic terrorism have paved the way for a positive change in the US–India relations. Today, the Indo-US relationship is visible in political, economic, defence and socio-cultural aspects under the ''Strategic Partnership'' marked by frequent joint military exercises, counter-terrorism cooperation, Defence Framework Agreement, the US–India Civilian Nuclear Deal, defence commerce, missile defence cooperation and high technology group cooperation.

However, one of the most significant aspects of this strategic partnership is the evolving defence industry relationship. This article examines the current international security and threat perceptions, the defence industry trends and challenges, the convergence of geo-economic and geo-strategic interests between India and the USA, and the factors that will strengthen the US–India defence industry collaborations in

the coming years. The confidence and the trust that have been built in recent years between the world's two largest democracies in the overall bilateral relationship resulting into the strategic partnership and the defence industry ties will be a key component of the US–India strategic partnership.

Before dealing with the American and Indian defence industry trends and issues, this article briefly examines the development of the US–India defence cooperation. It looks into the issues that are affecting the American and the Indian defence industry, their urgent needs and requirements and how these requirements would bring them together in the defence industry collaboration. It also comes out with the geo-strategic/security concerns that would drive and foster this relationship further. Finally, it concludes with the point of convergence that will sustain and strengthen the strategic and defence relationship between the world's two largest democracies in the coming years.

US–India Defence Cooperation: From Cooperative Engagement to Strategic Partnership

Throughout the Cold War period, there was hardly any significant political and economic co-operation between India and the US that could enable them to enter into a strategic and defence co-operation. However, there was a brief interlude of cooperation in the defence sector between India and the USA during Indo-China War in 1962 with provision of military aid between 1954 and 1964 worth $10 billion, and a Memorandum of Understanding was signed in 1984 on transfer of technology under which some sensitive technology was transferred to India.[1,2]

As the Cold War came to an end and the Soviet Union disintegrated in 1991, nations tried to reshape their foreign policy and place themselves in a new international matrix. In the meantime, the Gulf War took place and India, in a significant departure from the Cold War paradigm, allowed the US military planes to refuel at Bombay's Sahar Airport during the first Gulf War to liberate Kuwait from Iraqi military occupation. The positive trends of the Indo-US defence cooperation during the 1980s were substantiated by the efforts to increase reciprocal exchange of information and personnel envisaging improved defence cooperation of Army, Navy and Air Force for greater Indo-American military-to-military interaction.

This military-to-military relationship developed in the April 1991 under the ''Kickleighter Proposals'', which was the result of a former Commander of the US Army in the Pacific, Claude Kickleighter. The activities under the Kickleighter Proposals were finally formalized by the ''Agreed Minute on Defence Cooperation'' in January 1995, and interactions slowly expanded in frequency, depth and scope until the Indian nuclear tests in May 1998. The ''Agreed Minutes on Defence Cooperation'' created ''Executive Steering Groups'' (ESG) for each service, placed under a Defence Policy Group (DPG) headed by Defence Secretary on the Indian side and the Under Secretary of Defence for Policy on the US. The DPG became the primary mechanism to guide the Indo-US defence ties.[3]

Although the India–US relations began to move in positive direction in 1990s, the issues like signing of Comprehensive Test Ban Treaty, the Kashmir issue, human rights issues, India's nuclear test etc. kept creating problems and derailing the relationship between the two countries. The sides were on the verge of moving to a new level in bilateral military-to-military interaction among all the services during 1998, when the Indian nuclear tests triggered a set of stringent US sanctions. Even in the wake of Indian nuclear tests, the USA tried to retain as much of the military-to-military relationship as possible. President Clinton, instead of isolating India, followed the policy of ''Strategic Engagement''. This was a bilateral strategic dialogue between the US Deputy Secretary of State Strobe Talbott and Indian External Affairs Minister Jaswant Singh in June 1998.[4]

However, during the George W. Bush-led Republican administration and Atal Bihari Vajpayee-led BJP–NDA administration, the US–India ties changed drastically.[5] The Bush administration and especially the Pentagon redefined the defence cooperation with India and they saw strategically important India as a potential partner in providing peace and stability in the Indian Ocean and in shaping a new Asian balance of power amidst the rising China.

India's support for missile defence system[6] and offer of full cooperation to the US after 9/11 was seen positively by the Pentagon. The India–US DPG – moribund since India's 1998 nuclear tests and ensuing US sanctions – was revived in late 2001 and began to meet frequently. The occurrence of high-level military and political leaders' visits to each other's capital and dialogue on defence cooperation focusing on the institutional dialogue to include other areas of defence cooperation increased. The cooperation in the defence and military sector emerged as one of the most intense and

fastest growing components in the Indo-US bilateral relationship, paving the way for another breakthrough in the form of Next Step in the Strategic Partnership (NSSP) in 2004, that would guide and transform the Indo-US relations in the coming years.[7]

This paved the way for meaningful and deeper engagement in defence, space, energy and missile defence system. In June 2005, India and the USA signed a 10-year defence agreement known as ''New Framework for the US–India Defense Relationship'', outlining planned collaboration in multilateral operations, expanded two-way defence trade, increasing opportunities for technology transfers and co-production, expanded collaboration related to missile defence, and establishment of a bilateral Defense Procurement and Production Group.[8] The agreement unveiled mechanisms to promote long-term bilateral defence industrial ties and the possible outsourcing of research and production to India.

The US–India nuclear deal signed on 18 July 2005, known as Henry J. Hyde United States–India Peaceful Atomic Cooperation Act 2006,[9] became legislation after US President George W. Bush signed the nuclear deal on October 2008, ratified by both the Houses of the US Congress, and now known as the United States–India Nuclear Cooperation Approval and Non-proliferation Enhancement Act. The nuclear deal, a landmark in the US–India bilateral relationship, is focused on the issues such as energy security, nuclear safety cooperation and integrating India into the global nuclear regime so as to address India's desire for renewed access to safeguarded nuclear fuel and advanced nuclear reactors. It is also seen in the context of the emerging geo-strategic and geo-economic realities of the present world. It provides the US companies a huge nuclear energy market of India and also enhancing India's international status and assisting in counter-weight to China in the Asian balance of power. Also the nuclear deal facilitates, the lifting of the ban on transfer or sale of sensitive and high technology to India, important for the Indian defence industry, and thus underpinning the defence ties.

By the time Bush left the White House, the USA and India had conducted more than 50 joint military exercises and had entered in the counter-terrorism cooperation. All three services of the armed forces of the two countries have been holding joint exercises since the resumption of defence cooperation between them. The US–India joint military exercises have become routine, and are expanding greatly in scope. The rationales behind these exercises were to develop ''inter-operability'', the ability of the two forces to communicate, coordinate and fight together and enhance mutual trust,

confidence and the cooperative security relationship between the two countries. By the end of his tenure, President Bush was successful in engaging India. Both India and the US had entered a strong strategic partnership based the values and principles of democracy, which is grounded in the geo-strategic and geo-economic realities of the present world.

However, under President Barak Obama's administration the US–India strategic partnership was put on the backstage. Many security and strategic analysts began to doubt the continuity of the US–India strategic partnership. Obama's statements on outsourcing, non-proliferation issues and linking of terrorism in the Af-Pak region with the issue of Kashmir created doubt in the Indian strategic and foreign policy circle. As a result, during the initial years of the Obama administration, the US–India strategic partnership went through a lull phase. Both sides struggled to come to terms with each others' legal systems and requirements in the case of Lashkar-e-Taeba terrorist David Headley. Their views on the key geo-political concerns like Iran have differed and continue to have some differences on trade issues. But President Obama's visit to India in 2010, Secretary of State Hillary Clinton's frequent visits to India and the ongoing strategic dialogue have brought the strategic partnership back on track. However, the strategic partnership achieved under the Bush administration continued even though it was not on the forefront of Obama's foreign policy priority.[10]

The US Defence Industry: Objectives, Trends and Challenges

In addition to the above developments in defence cooperation, the trends and challenges that are visible in the US and Indian defence industry base are important from the point of a defence industrial relationship. In the post-Cold War era, the US defence industry has shown a tremendous amount of pliability and shock-absorbing capability to face the challenges. The inherent strengths of the US defence industry such as the industry being the most proficiently ordered, which allows interaction between the industry and the government, its sheer size, its high stakes in the international arms market, enabling it to foresee the forthcoming difficulties, the investment strength of private firms helping in the consolidation process, and the desire to maintain pre-eminence in defence related technology and its interests appear to have helped the US defence industry overcome the scenario that raised questions on its survivability.[11]

In the post-Cold War era, the restructuring and concentration have been the prominent trend in the US defence industry. But at the global level, this still has some way to go in Europe. In the coming years, the growing trans-Atlantic nature of the defence industry will be a major driver of the restructuring of the US defence industry in terms of both the European companies' aspirations to become major players in the US market and the USA's acceptance that interoperability requirements,[12] the benefits of cooperative defence programmes, and an increasingly global industrial infrastructure requires that the US DoD be prepared to accept the benefits offered by access to the most innovative, efficient and competitive suppliers worldwide. The USA is likely to continue to dominate the industry and the US defence market will see more and more non-US companies attempting to access it. However, there have been marked changes in the structure of the international arms industry since 1990. The future prospects for the US defence industry would hinge upon its ability and preparedness to meet a number of factors and challenges, which include the following.

Ensuring the Defence Industry Workforce and Search for New Generation of Workforce

With the end of the Cold War, the rise of global competition, industry consolidation and growth in other sectors of the economy – particularly in the computer sciences – the US defence and especially the aerospace industry has lost its premier status as the employer of choice for many types of professional, scientific, engineering, production and maintenance workers. The future of the US defence and aerospace industry depends on the ability of the industry to attract, develop and retain a properly skilled professional, scientific, engineering and production workforce.[13,14] The question of finding the next generation of defence and aerospace professionals is a matter of great concern.[15] The problem of an ageing work force is also a problem, creating an impending talent gap.

Globalization

Increasing globalization has forced the US industry to secure markets outside their home market to sustain their revenues, profits and share prices. Foreign customers had been demanding local production, offset or workshare as a prerequisite for

purchasing American defence equipment. Since the end of the Cold War, US defence companies have been trying to cope with the Pentagon's reduction in its defence equipment purchasing and research funding, and international cooperation is increasingly being seen as a way for US defence companies to gain access to technology and products that they have neither the time nor the resources to develop themselves. The Pentagon too is not averse to supporting international partnerships by American defence companies, where they coincide with US security policy goals or allow the US production lines to remain open.

Technological Challenge

As long as the US had to face mechanized warfare, the major defence industrial challenge was basically a question of evolving new technologies and manufacturing the weapons. In the post-Second World War period, the shortfall in the US force structure was compensated by its strategic and nuclear forces. But the technological challenge for defence industry today is fundamentally different. While the need for restructuring was only the first of many questions facing industry leaders and the US policy-makers, the technological challenge that exists and would remain in the future is how well the US defence industry adapts itself to the information and technology revolution; deals with the obsolescence of some major weapon systems such as fighter aircraft;[16] maintains a technology base that will ensure its military superiority in years to come; and responds to the competitive demands of an increasingly global and interdependent economy.

Decline in Innovative Research & Development (R&D)

The R&D for proper innovation can give a company a competitive advantage with respect to the competitors. Innovative research and development (R&D) has been reduced due to flat funding by DoD. Funding for innovative R&D is down 50% from the mid-1980s and is increasingly focused on supporting ongoing programmes rather than on breakthrough technologies. In an era of few large production programmes, the Cold War approach of "getting well on production", that is, making up for research expenses in the production phase of a programme, is no longer feasible.

The New Technologies Introduced as a Result of the New Security Environment

The new security environment as a result of asymmetric warfare, more informal and guerrilla-type conflicts are influencing the nature and structure of the required armed forces and the types of weapons systems they need. The global war on terrorism that confronts an uncertain enemy and the US homeland security has stimulated the demand for communication, surveillance technologies and adapting to new kind of warfare.

Competition with the European Defence Industry

The US defence industry would need to compete with the European defence industry and especially aerospace companies to maintain its pre-eminence in this sector. It also needs to deal with negative aspects of offsets and offshoring of aerospace business to countries like China, resulting in a loss of jobs in the USA, safety of sensitive technology and information, shifting manufacturing bases to other countries.

Summing up, with the above challenges and given the global role that the USA has to play in the near future, the defence industry cannot be taken as just another business industry. It is the backbone of US national security and its share in providing business and employment is large. The US defence industry will need to keep the US forces at the forefront of the technology. Hence, active engagement of the US defence industry in the global economy, updating itself it with the latest technology, developing greater partnerships with the defence industries of its allies as well as partnerships with the private sector industry and commercial industry in the US to share both R&D and production expenses, can ensure the maintenance of America's technological military pre-eminence and supremacy in the global defence industry.

Indian Defence Industry: Present Scenario and its Collaboration with the US Defence Industry

For a long period, India's defence industry has been relying on import and licence production. However, in recent years, focusing on its goal of achieving self-reliance in the field of defence production, the Indian defence industry has been concentrating on indigenous production, which also involves joint production and co-production with foreign companies. Not only that, India is also harbouring the aim of exporting

the arms and competing in the global defence market; it is fast emerging as a global player in terms of economic, political and military power. In addition, New Delhi has its own national security threats, which compel it to vie for a strong and self-reliant defence industry base. After the end of the Cold War, India's defence preparedness during the Kargil attack was exposed. The continuing rise in defence expenditure of its adversaries like China and Pakistan, their acquisition of missiles, which can attack any part of India, and the nuclear threat has compelled India to go for technological advancement and modernization of its defence industry base.

As India aspires and rises to become a key defence market and a future market player, it is facing the challenges of coming out of a parent–client or buyer–seller relationship and entering in equal partnership for joint production in the defence sector amidst developing its own indigenous defence production, modernization, R&D and offset arrangements in this era of globalization. Also, apart from equal partnership with major defence players, India has been harbouring the ambition of exporting the arms to other countries and competing with leading international players.[17]

However, a cursory look at the Indian defence industry progress since independence reveals that India' defence industry has not achieved the desired goals of self-reliance and heavily relied on imports from other countries and licensed production for its defence needs. The erstwhile Soviet Union, now Russia, occupied a big chunk of India's defence market, grabbing 70–80% of deal and Western European countries namely France, Britain, Germany and the rest about 20–30%.[18]

From the US defence industry trends and challenges, it is clear that the American defence industry is in search of new market and technological collaborations to overcome many of its challenges. The US defence industry, especially aircraft, defence, space and missile technology sectors, is looking for the market as well as trying to develop business partnership with developing countries.[19] The US defence giants such as Lockheed Martin, Raytheon, Boeing, United Technologies, IBM and HCL, are exploring local capabilities and meeting potential partners in India. The large population of low-cost, well educated, English-speaking and technically sound workforce in India is attracting the US defence companies.

India is rising as a power in both economic terms as well as military terms. The backbone of any defence power is substantial funding, a very high technology base, very capable and motivated people, well endowed R&D infrastructure, competent

industry with deep pockets and an operational feedback. As a developing nation, India is fairly well-off on many counts.[20] A brief look into the defence industry challenges that India is facing will give more clear trends and projections.

Research and Development

The R&D is an area on which the Indian defence industry needs to focus. Its R&D is relatively limited, and caters to the needs of licensed manufacture, but not beyond. There are ''technology gaps'', associated issues of availability and costs, which are enhanced by long gestation and rapid obsolescence. For example, the Indian aerospace sector needs to develop core-competencies in metallurgy, avionics, simulation, etc. It is essential to recognize up-coming technologies and build on them to secure a lead in those fields.

Industry

Even after 60 years of independence, 70% of Indian defence hardware is imported, produced is mainly by PSUs, HAL, BEL and BDL. In recent years, a number of private players have emerged, but a lack of competition and a readiness to import dulls the edge of competence.[21]

Human Resources

Any technological progress customarily revolves around human resource development. There is a need for all the stakeholders to have a deep, comprehensive, multi-disciplinary understanding. R&D needs the best people, world-class education and most importantly, they need to be retained. The retention of organizational expertise is a major concern for Indian public sector units.

Considering the above requirements of the Indian defence industry, the offset policy, combined with the anticipated growth in the defence industry and especially aerospace power, make India a very valuable customer for the US defence market. India is eyeing at extracting the many dividends and obtaining the necessary technology by collaborating with foreign companies. India is ready to receive and assimilate itself with areas of infusion identified, business plans worked out, local partners identified to gain the maximum benefits from the offsets. This will certainly address the concerns of the Indian defence industry, as collaborating with a leading

defence industry will ensure technological development and knowhow, growth in business leading to more money in the sector, and gradually becoming self-reliant.

The Indian aerospace market, both in the military and civilian sector, is growing fast. Today Indian airline business is growing at 27% per annum, air traffic in India at an average of 17% per annum and passengers by 24%.[22] The Indian civilian and defence aerospace market is growing and is considered a lucrative market. The Indian Air Force's (IAF) plan to induct 126 multi-role combat aircraft (MRCA) is an example in this case. Although this deal did not go to the US companies, there are many deals in the pipeline that provides sufficient volume of defence trade between them. India is looking for partners who could participate in the domestic industries as well as engage in the joint design and development. The Indian defence industry has been in the manufacturing area under licensed production but technologically it is not up to the mark.

To acquire critical technology, defence analysts have been stressing the point that the government needs to follow an attractive strategy of public–private partnership as an initial step, where stakes of the foreign manufacturers would be made considerably high, e.g. increasing the current limit of 26% Foreign Direct Investment (FDI) to 49% in the aerospace and defence sector to increase the stakes of the investor. To meet these demands of its aerospace sector, India is looking towards foreign aerospace companies or venturing into some kind of joint effort like license co-production. The Indian government has introduced the minimum requirement of 30% direct offsets in the defence sector, aimed at helping broaden the defence production base, both for public sector units and for private sector bases.

India's obsolete defence equipment currently accounts for 50% of equipment, whereas the MoD's required profile would have this at 30%. The proportion of state-of-the-art equipment also needs to grow from its current level of 15% to 30%. Hence, during the last decade, the Indian defence industry has been in the process of undertaking one of the largest procurement cycles in the world. The current cycle, which includes acquisitions drafted under the long-term integrated perspective plan (LTIPP), is expected to include procurements worth US$ 100 billion by 2022.[23]

In addition, these growing defence industry ties between them are mutually beneficial. The US defence industry can exploit India as one of the leading knowledge economy, its soft power potential in the defence/military sector, the lower cost of production, particularly of manufacturing sub-systems and components, and lower

repair costs. Given the fact that India is in need of technology and it has sound information security and is capable of ensuring the security of technology transferred to it, any technology transfer from the US to India would be safe. This is important, as any transfer of high technology and its safety in the USA requires various clearance processes and to be mandated by the US domestic laws.[24]

India is the biggest arms importer in the world, despite the fact that its defence spending is just 2% of global defence spending. It shows the heavy reliance of the Indian defence industry on foreign suppliers and the failure of its own defence industry to meet its armoury requirements. It also offers a huge defence market for the US defence companies and other global players in this sector, with potential collaboration in joint production, development and modernization of the Indian defence industry.

The Indian and American Geo-strategic and Geo-economic Interests

This Indo-US defence ties is further strengthened by the geo-strategic realities and convergence of key strategic interests between New Delhi and Washington. India's growing geo-political significance, the economic foothold it provides in the region, the role it can play in the counter-terrorism and counter-proliferation activities, its potential strategic utility, and its importance for global energy stability and environmental protection is increasingly acknowledged by the USA.

Both the USA and India have mutual interests in a diverse set of areas, including: preventing Asia from being controlled by any single power; eliminating the threats posed by state sponsors of terrorism; preventing the further proliferation of weapons of mass destruction and related technologies to other countries and non-state actors; promoting the spread of democracy not only as an end in itself but also as a strategic means of preventing illiberal polities from exporting their internal struggles over power abroad; protecting the global commons, especially the sea lanes of communication (SLOC); preserving energy security by enabling stable access to existing energy sources through efficient and transparent market mechanisms (both internationally and domestically); and safeguarding the global environment by promoting the creation and use of innovative technology to achieve sustainable development, devising permanent, self-sustaining, market-based institutions and systems that improve environmental protection, developing coordinated strategies for

managing climate change, and assisting in the event of natural disasters.[25] Apart from these mutual interests, the USA and India are guided by their own interests which will sustain the US–India strategic relationship further.

The US collaboration with Indian defence industry would be guided by the American interests and in those areas where Indian strategic and military goals coincide with the American.[26] The balance of power in the Asian region in the context of China's enduring military buildup, modernization of defence capabilities and its ambition are bound to ''affect the future strategic position and freedom of action of the US, its allies and partners''. India's strategic location in the Indian Ocean, across the SLOC, and access to Indian bases and military infrastructure for the US Air Force (USAF), is important from a strategic point of view for US warships for rest and recuperation; India's training facilities and its variety of terrains, from ice-clad mountains to desert; to develop joint capabilities and confidence, jointly tackle multilateral security issues like protection of energy supplies and sea lanes, conduct peace-keeping exercises and combat terrorism and India's profitable defence market.[27]

Indian strategic interests, apart from security threats from its two neighbour adversary China and Pakistan,[28] lie in protecting and securing its stakes in the sea lanes extending from the Straits of Hormuz to the Straits of Malacca and India's Exclusive Economic Zone (EEZ), tackling growing piracy and terrorist's threat to energy and merchant traffic along the SLOC, countering transnational threats such as narco-trafficking, terrorism and Islamic fundamentalism that are being used by state or non-state actors either separately or in combination to threaten India or destabilize the region. Although no direct role for the USA or India can be identified in countering these threats, the Indo-US defence/military ties would certainly help in an indirect way and as a long-term goal. The convergence of the above geo-strategic/security interests, the growing Indo-US bilateral ties, combined with the trends and requirements of both the nation's defence industry offer verifiable ground for the US–India defence industry ties.

Conclusion

In the coming years, US–India defence industry ties should strengthen. Nonetheless, some of the issues that might not go well with the US–India defence industry

collaboration need to be tackled. The problem is more than defence industry modernization – it is more structurally and organizationally grounded in the bureaucratic hurdles and work culture.

The Indian defence industry has struggled with bureaucratic hurdles and policy process. Hence, the Indian collaboration with the USA, in regard to the defence industry policy process to improve the efficiency and emulate some of the efficient policy process of the US defence department, would be worthwhile.[29]

Also, placing military modernization at the centre of relationship invites failure, as some technologies will not pan out, others are better met by non-US sources and reciprocity is very limited – it will be hard for offsets to rectify the imbalance between American high technology and the Indian economy. The modernization of an Indian defence organization is potentially more promising but also difficult. What works in the USA has to be adapted to a different culture and society, one where the military has been segregated from society for many years. American patterns and models of defence production may not be the best ones for India. That said, American military professional practices, especially the capacity for self-study and retrospective study of success and failure, could facilitate Indian military modernization.[30]

The number of joint military exercises, counter-terrorism cooperation, International Military Education and Training (IMET), and other joint training and exchange programmes have, improved ''inter-operability'', enhanced the ability of the military personal and forces of both the nations to converse, synchronize and fight together, and enhanced mutual trust and confidence. Consequently, the Indian military and defence personals are becoming exposed to the American defence environment. More than that, it is necessary that the Indian bureaucrats, administrators and politicians who are involved in defence industry-related affairs be exposed to and gain first-hand familiarity with American defence and strategic planning.

There has been hardly any significant military cooperation on international security issues, except during operation Enduring Freedom and the Tsunami disaster. The USA might expect from the Indian military a kind of power projection or more active involvement in military operation that could serve American interests. This might not sit well with the Indian military priority list. Also, the Indo-US military commanders and unit cooperation is restricted to US Pacific Command (PACOM). India's interest is not restricted to the Asia Pacific only but also extends to West and

Central Asia. There is a need for military-to-military interaction and joint training events to include US Central Command and Pentagon dialogue to be institutionalized. India and the USA will have to readjust and India might have to shun the hesitancy in military cooperation with the US outside the UN framework. India needs to engage the US in a more comprehensive range of issues that directly or indirectly affects them too.

The India–US defence industry ties needs to be planned in such a way that it enables the development and transformation of the Indian defence structures and process not solely driven by the US defence industry needs, but fulfilling Indian needs too. In fact, any India–US defence industry collaboration will require fulfilling India's long-term goal of capacity to design, manufacture and developing arms including economic viability of transfer of technology, and its applicability to India's defence industry requirements. Moreover, India's defence-procurement process does not easily allow for the strategic leverage that the government seems to want in its defence purchases. The package offered and accepted ought to be attractive enough to provide the Indian government ammunition to overcome domestic political and institutional opposition to the US–India relationship.

This growing India–US defence ties would help to ensure a balance of power in Asia and directly or indirectly help India to tackle its security threats from the two major nuclear-armed nations, China and Pakistan, but it would more depend on how India deals with them politically, strategically and diplomatically. A good statecraft, sound economy combined with solid defence industry base would certainly help India to overcome its security threat from its two nuclear-armed neighbours.

The US defence companies are interacting with Indian industry to identify partners to fulfil offset obligations, and have offered advanced fighters and transport aircrafts to meet the IAF's requirements. Hence, involving private sector partnership in the defence sector and the civilian and military Indian aerospace industry requirements and the US defence industry's recent trends of offsets, outsourcing and search for global defence market is a positive sign for defence Industry collaboration. In fact, the increased US investment in the Indian defence sector, dual-use technology transfer and a partnership based on mutual interest is going to be the touchstone of defence industry ties between these two democracies.

However, the Indo-US defence industry ties would depend on wider perspectives of political and economic relations between the two countries. In the coming years,

this would depend on how the Obama administration and future governments deal with India. In the wake of Obama's Af-Pak engagement and misperception, the US–India strategic partnership for almost two years went to the backstage. The warmth and pace of US–India ties of the Bush administration period diminished. However, meetings of the heads of the state on the sidelines of various summits, after high-profile visit of President Obama to India in 2010, the Secretary of State Hillary Clinton's frequent visits and keen interest in India and the ongoing strategic partnership, have re-energized the Indo-US strategic and defence industry ties, and augur well for the future strategic and defence ties between them.

Notes

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